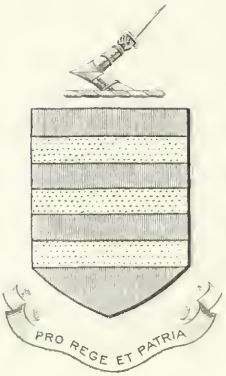
UNIV. OF
TORONTO
LIBRARY



Bequeathed to the Library of the
University of Toronto by
Irving Heward Cameron, Esq., M.B.
Sometime Professor of Surgery
in the Faculty of Medicine

Med
M

MEDICAL RECORD

A Weekly Journal of Medicine and Surgery

EDITED BY

THOMAS L. STEDMAN, M.D.

ALEXANDER SPINGARN, M.D.
ASSISTANT EDITOR.

HENRY H. SCHROEDER, M.D.
INSURANCE EDITOR

EDITORIAL STAFF

CHARLES A. CLOUTING, M.D.
EDWARD PREBLE, M.D.
R. J. E. SCOTT, M.D.
SUSAN M. WOOD.
E. FRANKLIN SMITH, M.D.
RALPH G. STILLMAN, M.D.
WESLEY G. VINCENT, M.D.

Volume 87

JANUARY 2, 1915—JUNE 26, 1915

298757
9:4:34

WILLIAM WOOD AND COMPANY

1915

Copyright, 1915
By WILLIAM WOOD & COMPANY

LIST OF CONTRIBUTORS TO VOL. LXXXVII.

Abbe, Robert, New York.
Abrahams, Robert, New York.
Ames, Thaddeus Hoyt, New York.
Aspinwall, F. E., La Grange, Ky.
Auer, L. Murray, Philadelphia.

Baker, Valentine C., New York.
Baldwin, J. F., Columbus, Ohio.
Ballard, I. Willis, Opelika, Ala.
Ballenger, Edgar G., Atlanta, Ga.
Bandler, Samuel W., New York.
Barber, W. Howard, New York.
Barnes, F. H., Stamford, Conn.
Barnet, Joseph, New York.
Baruch, Simon, New York.
Bauch, Solomon, Bedford Hills, N. Y.
Bechet, Paul E., New York.
Beck, A. L., New Rochelle, N. Y.
Beebe, S. P., New York.
Bell, Robert, London, Eng.
Benedict, A. L., Buffalo.
Bishop, Louis Faugeres, New York.
Bissell, Joseph B., New York.
Blakely, Stuart B., Binghamton, N. Y.
Blodgett, Stephen H., Boston, Mass.
Blum, Hugo, New York.
Blumenthal, S. J., Brooklyn, N. Y.
Boorstein, Samuel W., New York.
Borgmeyer, J. G. P., Bayonne, N. J.
Brannan, John W., New York.
Brickner, Walter M., New York.
Bulkley, L. Duncan, New York.
Bumsted, C. V. R., Newark, N. J.
Burnham, A. C., New York.
Burke, Charles Bernard, Atlantic, La.

Carter, William Wesley, New York.
Clark, L. Pierce, New York.
Coffin, Lewis A., New York.
Coleman, Joseph, New York.
Coley, W. B., New York.
Collins, Joseph, New York.
Cross, Frank Bethel, Brooklyn, N. Y.
Crothers, T. D., Hartford, Conn.
Cumston, Charles Greene, Geneva, Switzerland.
Cunningham, William P., New York.

Dana, C. L., New York.
Darling, Byron C., New York.
Darnall, W. Edgar, Atlantic City, N. J.
Dearborn, George Van Ness, Cambridge, Mass.
De Roulet, Alfred, Chicago.
Delavan, D. Bryson, New York.
Dickey, William H., Toledo, Ohio.
Draper, J. W., New York.
Drueck, Charles J., Chicago.
Dutton, Walter Forest, Tulsa, Okla.

Einhorn, Max, New York.
Elder, Omar F., Atlanta, Ga.
Ely, Leonard W., San Francisco, Cal.
Epstein, J., New York.
Ernst, J. R., Washington, D. C.
Ewing, James, New York.

Field, Everett, New York.
Fischer, Charles Sumner, New York.
Fishberg, Maurice, New York.
Fowler, Royale H., Brooklyn, N. Y.
Frazer, Thompson, Asheville, N. C.
Frazier, William Lawrence, Mountain Home, Idaho.
Freundlich, David Bernhardt, New York.
Friedman, Henry M., New York.
Fuller, Eugene, New York.

Gibson, C. L., New York.
Gilmour, Andrew J., New York.
Glasgow, Maude, New York.
Gleason, W. Stanton, Newburgh, N. Y.
Graef, Charles, New York.
Granger, Frank B., Boston, Mass.
Greeley, Horace, Brooklyn, N. Y.
Griffin, E. Harrison, New York.
Guenard, H. Montalvo, Mayaguez, P. R.

Haberman, J. Victor, New York.
Hagemann, J. A., Pittsburgh, Pa.
Hamilton, Allan McLane, New York.
Hansell, Howard F., Philadelphia.
Head, Joseph, Philadelphia.
Heiser, Victor G., U. S. Public Health Service.
Henderson, H. H., Taunggyi S. Shan Sts.
Hensel, O., New York.
Henkin, A. L., Brooklyn, N. Y.
Hinsdale, Guy, Hot Springs, Va.
Hollingsworth, Leta Stetter, New York.
Hoyt, A. W., New Rochelle, N. Y.
Hunt, Edward Livingston, New York.

Inglis, John, Denver, Col.

Jacoby, Adolph, New York.
James, Prosser, London, Eng.
Jefferis, Esther L., New York.
Johns, Myles W., Utica, N. Y.
Johnston, James C., M'Alester, Oklahoma.
Judd, Aspinwall, New York.
Junor, Kenneth F., Brooklyn, N. Y.

Kahn, Alfred, New York.
Kaliski, David J., New York.
Kanstoroom, D. S., Washington, D. C.
King, Elmer H., Allston, Mass.
Knapp, Arnold, New York.
Konkle, W. B., Montoursville, Pa.

Lake, George B., U. S. Army.
Lambert, Alexander, New York.
Langhorst, Henry F., Elmhurst, Ill.
Larkey, C. J., Bayonne, N. J.
Leszynsky, William M., New York.
Levinson, A., Chicago.
Lewisohn, Richard, New York.
London, Julius, New York.
Luckett, W. H., New York.
Luke, H. Clifton, New York.
Lydston, G. Frank, Chicago.
Lynch, J. M., New York.

McCaskey, Donald, Witmer, Lancaster County, Pa.
McGurn, W. J., Boston.
McRobert, Russell, New York.
McSweeney, Edward, S. Castleton Corners, Staten Island, N. Y.
MacRoberts, Russell G., New York.
Mabbott, J. Milton, New York.
Macy, Mary Sutton, New York.
Mallory, William J., Washington, D. C.
Martin, William, Atlantic City, N. J.
Maybaum, J. L., New York.
Mayer, Emil, New York.
Mays, Thomas J., Philadelphia.
Mellon, Ralph R., Ann Arbor, Mich.
Meyer, Nathan, Berlin.
Meyers, Jerome, Albany, N. Y.
Michie, Henry C., Jr., United States Army.
Moffett, Rudolph Duryea, New York.
Montgomery, Douglass W., San Francisco, Cal.
Morris, Robert T., New York.
Morton, William James, New York.

MOSCHCOWITZ, ALEXIS V., New York.
MOSENTHAL, HERMAN V., Baltimore, Md.
MOUNT, LOUIS B., Albany, N. Y.
MUCKLOW, A. E., Brooklyn, N. Y.
MÜLLER, RICHARD W., New York.

NICHOLSON, PERCIVAL, Ardmore, Pa.
NIXON, P. I., San Antonio, Tex.
NOGUCHI, HIDEYO, New York.
NOYES, WILLIAM B., New York.

OGILVIE, HANSON S., New York.

PABST, CHARLES F., Brooklyn, N. Y.
PAGE, B. W., Lumberton, N. C.
PAGET, OWEN, Fremantle, West Australia.
PARK, FRANCIS E., Stoneham, Mass.
PETERKIN, G. S., Seattle, Wash.
PETERS, LEROY S., Albuquerque, N. M.
PETERSON, EDWARD W., New York.
PETTY, ORLANDO H., Philadelphia.
PITFIELD, ROBERT L., Philadelphia.
PITTFIELD, ROBERT L., Philadelphia.
POLK, W. M., New York.
POTTENGER, FRANCIS M., Monrovia, Cal.

READ, A. J., Battle Creek, Mich.
REGISTER, EDWARD C., Charlotte, N. C.
ROBERTS, PERCY WILLARD, New York.
ROBINSON, WILLIAM J., New York.
ROMEO, PASCAL, Kansas City, Kan.
ROSANOFF, A. J., Kings Park, L. I.
ROSTENBERG, ADOLPH, New York.
RUECK, G. H., New York.

SALMON, THOMAS W., New York.
SAVINI, CARLO, New York.
SCHAPIRA, S. WILLIAM, New York.
SCHLAPP, MAX G., New York.
SCHLESINGER, M. F., New York.
SCHLOESSINGK, K. E., New York.
SCHOONMAKER, HERBERT, Clifton Springs, N. Y.
SEFF, ISADORE, New York.
SHARPE, NORMAN, New York.
SIMPSON, JOHN, New York.
SMITH, FRANKLIN D., Chicago.
SMITH, JOSEPH, Brooklyn, N. Y.
SOLOMON, MEYER, Chicago.
SPIELBERG, WILLIAM, New York.
STARK, HENRY S., New York.
STARKEY, FRANK R., Philadelphia.
STARR, M. ALLEN, New York.
STEIN, JOHN BETHUNE, New York.
STEINER, SAUL, New York.
STERN, SAMUEL, New York.
STRACHSTEIN, A., New York.
STRAUSS, ISRAEL, New York.
STRUNSKY, MAX, New York.
SWANBERG, HAROLD, Chicago.
SYNNOTT, MARTIN J., Montclair, N. J.

THOMAS, G. E., U. S. Navy.

VON DER OSTEN, ANNA L., New York.
VON RUCK, SILVIO H., Asheville, N. C.
VON WEDEKIND, L. L., U. S. Navy.
VOORHEES, IRVING WILSON, New York.

WATERS, BERTRAM H., New York.
WATKINS, VICTOR E., Henry Barracks, Cayey, Porto Rico.
WEIL, RICHARD, New York.
WEINSTEIN, JOSEPH, New York.
WHITE, PAUL G., U. S. Navy.
WHITMAN, ARMITAGE, New York.
WILE, IRA S., New York.
WILLIAMS, LINSLY R., Albany, N. Y.
WILLIAMS, TOM A., Washington, D. C.
WILLIAMS, CHARLES MALLORY, New York.
WILLIAMS, W. G. R., Paris, Ill.
WOLBARST, A. L., New York.
WRIGHT, BARTON LISLE, U. S. Navy.
WRIGHT, J. SHERMAN, Brooklyn, N. Y.
WYETH, JOHN A., New York.

ZINGHER, ABRAHAM, New York.

Societies of Which Reports Have Been Published.

AMERICAN MEDICAL ASSOCIATION.
General Session.
House of Delegates.
Section on Diseases of Children.
Section on Practice of Medicine.
Section on Surgery, General and Abdominal.

ASSOCIATION OF AMERICAN PHYSICIANS.

CLINICAL CONGRESS FOR THE STUDY OF LOCAL, SPINAL, AND SCOPOLAMINE-MORPHINE ANESTHESIA.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.
MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.
MEDICAL SOCIETY OF THE STATE OF NEW YORK.
General Session.
House of Delegates.
Section on Medicine.
Section on Pediatrics.
Section on Surgery.
Section on Syphilis.

NEW YORK ACADEMY OF MEDICINE.
Section on Medicine.
Section on Neurology and Psychiatry.
Section on Obstetrics and Gynecology.
Section on Otology.
Section on Surgery.
NEW YORK NEUROLOGICAL SOCIETY.
NEW YORK PSYCHIATRICAL SOCIETY.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.
PHILADELPHIA COUNTY MEDICAL SOCIETY.
PHILADELPHIA PEDIATRIC SOCIETY.
PHILADELPHIA NEUROLOGICAL SOCIETY.
PRACTITIONERS' SOCIETY OF NEW YORK.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 1.
Whole No. 2304.

NEW YORK, JANUARY 2, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

ARTIFICIAL PNEUMOTHORAX.*

BY MAURICE FISHBERG, M.D.,

NEW YORK,

ATTENDING PHYSICIAN TO THE TUBERCULOSIS PAVILION OF THE MONTEFIORE HOME AND HOSPITAL FOR CHRONIC DISEASES.

IT is a noteworthy fact that practically all the methods of treatment and remedies which have been recommended during the past three or four decades for the relief and cure of phthisis have been stated to exercise their alleged curative effects only during the incipient stage of the disease, when diagnosis is doubtful in a large proportion of cases, and spontaneous cure is not unknown. This has been the case with arsenic and creosote and their derivatives and compounds and of all other medicinal agents lauded at one time or another as cures for pulmonary tuberculosis. Even specific treatment, the various tuberculins, sera, and vaccines, are said to be efficacious only, or mainly, in the incipient stages of the disease and worthless or harmful in progressive and febrile cases and especially in those liable to hemoptysis.

It is, therefore, refreshing to find that the newest method of treatment of pulmonary tuberculosis is recommended for far advanced cases, especially those manifesting a tendency to pursue a rapidly fatal course and showing signs of extensive excavations. When every other method of treatment for checking the progress of the process in the lung has been tried and found wanting, when fever consumes the body, or life is threatened with copious and uncontrollable pulmonary hemorrhages, this method of treatment may be applied with striking success.

This new method of treatment is the induction of an artificial pneumothorax by the introduction into the pleural cavity of sterile and harmless material which will collapse the lung on the affected or more affected side of the chest. The collapsed lung is thus compressed toward its root, exactly like in pulmonary collapse in the most dreaded of complications of phthisis—spontaneous pneumothorax. But while in the latter soon after its occurrence the patient is usually prostrated by pain, shock, orthopnea, cyanosis, etc., which prove fatal in the vast majority of cases, in the artificially induced pneumothorax for therapeutic purposes all these menacing symptoms are absent; indeed, the patient feels quite well and is even able to do ordinary work, notwithstanding the fact that one of his lungs is entirely out of commission.

These differences in the symptomatology of the two varieties of pneumothorax are obviously due to the different modes of origin. In the spontaneous variety we deal with a visceral rent in the pleura and lung, occurring suddenly and immediately collapsing the entire lung and usually establishing a communication between the pleural cavity and a bronchus or tuberculous excavation. Hence the phenomena of shock, dyspnea, etc., and subsequent development of hydrothorax and pyothorax if the patient survives for some time. On the other hand, in artificial pneumothorax only the parietal pleura is punctured by a thin needle, the gas is allowed to flow in slowly by aspiration into the vacuum of the pleural cavity, at intervals and in small quantities at a time, thus avoiding a sudden change in the relations of the thoracic viscera, permitting them to adapt themselves to the new conditions and obviating the phenomena of collapse and the subsequent infection of any exudate that may take place, because there is no communication between the air-filled pleural cavity and the bronchi and lung.

The principle of this method of treatment is not new. Functional rest is one of the best curative agents in many diseases and also in tuberculosis. It has been observed especially in tuberculosis of bones and joints that functional rest is more efficacious than any other known therapeutic agent. Rest has also been used in many other diseases with great success, notably general rest in functional nervous affections as has been worked out by Weir Mitchel; tracheotomy in certain laryngeal obstructions, gastroenterostomy in cancer and especially in ulcer of the stomach, enterostomy in certain diseases of the lower bowels and rectum, etc.

The lung is one of the organs of the body which never rests but expands and contracts at least 16 times per minute throughout life. With an artificial pneumothorax we can place one lung at rest almost as effectively as the splint puts at rest a tuberculous joint, without endangering the life of the patient. Moreover, the lung is the only organ in the body that is constantly in a state of distention. Even after the most forced expiration it does not collapse completely. Any solution in continuity in the pulmonary tissues remains separated and shows no tendency to bring about the union of the diseased parts or to facilitate the process of healing by coaptation. Inflating gas into the pleural cavity and collapsing the lung we achieve two objects: The lung is immobilized at its root, as was already mentioned; and it is compressed by the gas in the pleural cavity and the retraction of its elastic tissues. Its volume is greatly reduced, diseased parts and walls of cavities are brought into apposition so that they may cicatrize by the formation of connective tissue.

Pneumothorax does even more than afford rest to the diseased lung. By compression it empties the lung of its contents. The pus and cheesy de-

*Read Before the Eastern Medical Society November 13, 1914.

tritus in cavities, the inflammatory exudates in the alveoli and bronchioles are all squeezed out as from a sponge, removing the main source of toxic absorption. It also limits the diseased focus and prevents its spread, so that the healthy parts of

Fig. 1.—Complete collapse of the right lung by an artificial pneumothorax for a cavity in the right upper lobe.

the lung remain so while the lesion is in time converted into a cicatrix, or is encapsulated. As a result of drainage mixed infection is eliminated and prevented. The fact that the air current entering through the trachea cannot circulate within the collapsed lung tissues prevents superinfection of healthy parts of the organ with emboli of detritus carried from one part to another along the bronchial tree and mixed infection with microorganisms other than tubercle bacilli which may be brought in with the air current is avoided. The circulation of the blood is impeded in the collapsed lung, but there occurs a venous or passive hyperemia which is known as an important factor in the defence of tissues against tubercle bacilli. The comparative protection against tuberculosis enjoyed by cardiacs is ascribed to the venous hyperemia of the lungs. The lymph-channels of the collapsed lung are compressed, as has been shown by Shingu,[1] who subjected animals with induced pneumothorax to the inhalation of soot, and at the autopsy found that the collapsed lung remained free from soot. Animals were compelled to inhale large quantities of soot, and subsequently pneumothorax was induced, and when they were finally killed it was found that the free lung was darker than the collapsed lung. This tends to show that the circulation of lymph, which is the main factor in removing inhaled particles from the lung, is impeded or arrested because of stasis of lymph in the compressed lung. In this manner the absorption of toxins from the lesions into the general circulation is impeded or arrested in pneumothorax, and the clinical phenomena of phthisis, such as fever, nightsweats, weakness, etc., are prevented and the body is thus given an opportunity to recuperate. Moreover, the lymph stream being unable to carry away bacilli from the lesion, the process is localized to the affected areas. These points have been found clinically and at the autopsy table; and experimentally by Forlanini,[2] Brauer,[3] Saugman,[4] Graetz,[5] Warnecke,[6] Drasche,[7] Kistler,[8] Robinson and Floyd,[9] Hamman and Sloan,[10] Kessel and Taschman,[11] and many others.

Forlanini's conception of the therapeutic action of pneumothorax is to the effect that it does not remove the cause of phthisis, nor that it affects the anatomical changes produced by the bacilli in the lung. Pneumothorax simply checks the destructive process. Strictly speaking, it does not cure phthisis as such, but hinders the extension of the destructive process, and favors the cicatrization of the destroyed areas. According to Forlanini, we must accept that if the lung normally was an immobile organ it could not become tuberculous.

Indications.—During the first few years after its introduction artificial pneumothorax was urged only for far advanced cases of phthisis for which everything else had been tried but failed to improve their chances to recover. As a *conditio sine qua non* it was insisted upon that the lesion must be strictly unilateral, and that any involvement of the other side of the chest is a contraindication to the treatment. Murphy[12] and Lemke,[13] however, have from the very beginning advised that all cases of phthisis, even those in the incipient stages of the disease, should be treated with this method, provided there are no extensive adhesions preventing the introduction of gas into the pleural cavity. In fact, Lemke says distinctly that "the earlier the treatment is begun in pulmonary tuberculosis, the better the prognosis." With the increased experience with the method of treatment these two extreme views as to the indications have been modified, and although we have not as yet reached a stage when we can conscientiously advise every patient showing signs of incipient phthisis to submit to pneumothorax treatment, yet we now do not any more exact that the opposite lung must absolutely show no signs of involvement.

The factors entering into the selection of suitable cases are the following:

The Form and Stage of the Disease.—There are numerous cases of phthisis which are doing well, or even recover with or without any treatment, medicinal, specific, climatic, or institutional, and it is, of course, not advisable to subject them to the operation with its potential complications. This is true of mild incipient cases and abortive tuberculosis which occurs more often than is generally appreciated. Fibroid phthisis runs an exceedingly chronic course and the pleura is often extensively involved, precluding the introduction of gas into the hemithorax most affected cannot be treated by

Fig. 2.—Complete collapse of the left lung by an artificial pneumothorax for a cavity and repeated and copious hemorrhages. Although the right lung is evidently affected, all the functional symptoms have disappeared and the patient has not bled for eight months.

this method. This is also true of the most common forms of fibroid phthisis characterized by diffuse fibrosis all over both lungs, and it would be sheer folly to treat but one side of the chest. On the other hand, in the later stages of diffuse fibrosis

when excavations form in one lung, the question of pneumothorax is to be considered, provided, of course, that the pleura is free from dense and extensive adhesions.

It is the acute and progressive form of phthisis in which artificial pneumothorax finds its best indications and shows the best and most striking therapeutic results. In the group of cases known as galloping consumption, in which the patient is carried off within three to six months by a rapidly progressing infiltration, caseation and excavations, there are many that can be saved by the induction of a pneumothorax. Patients presenting symptoms and signs of caseous pneumonia, acute pneumonic phthisis, provided the affection is unilateral, are benefited by artificial pneumothorax more than by any method of treatment that has heretofore been devised. The disease runs an acute and fatal course with high fever, nightsweats, emaciation, rapid formation of excavations in the lung, and within three to six months the patient succumbs. It is fortunate that dense pleural adhesions are exceptional in these cases and a pneumothorax can be easily created. The results are often astonishing—with the collapse of the lung the tachycardia, fever, nightsweats, cough, expectoration, etc., disappear, and within a few weeks the patient is reinvigorated and may continue to gain in weight and strength indefinitely.

Another group of cases in which artificial pneumothorax renders excellent service are those which have recurrent, copious and uncontrollable hemorrhages. While when afebrile the patients are not in grave danger, and death due to exsanguination is exceedingly rare, yet our efforts to prevent recurrence of hemorrhage after one has been stopped by keeping the patient in bed for several weeks are often futile, and he, as well as those around him, are discouraged. I have had some patients who had to remain in bed for two or three months with slight but protracted hemorrhages one following another. With the induction of a pneumothorax, provided we succeed in completely collapsing the lung, we have an excellent means of controlling the hemorrhage, prevent its recurrence, and in addition to give the tuberculous focus an opportunity to heal.

At the Montefiore Home we induced pneumothorax in three cases of copious hemorrhage with striking success. In one the patient has had several attacks of hemoptysis. The last one becoming uncontrollable was promptly stopped by a pneumothorax and has not recurred in six months. In the second the profuse hemorrhage was stopped, but the patient succumbed four weeks later from tuberculous bronchopneumonia. A third case of hemorrhagic phthisis has not bled for eight months since a pneumothorax was induced.

It is obvious that only one lung may be compressed while the second must be left to carry on the functions of respiration, and that it is useless to combat a lesion in one lung while the disease is smouldering or progressing in the other. For these reasons it has been found advisable to apply pneumothorax only in unilateral cases. But as a matter of fact, in more or less advanced phthisis, unilateral lesions are hardly if ever met with. Klemperer[14] says that he hardly knows of a case in which one lung was extensively involved and the other remained free from the disease in the anatomical or bacteriological sense. Clinical experience is supported in this regard by autopsy findings. Knopf's[1] experience at the Riverside Hospital in New York City, where among 300 to 400 cases treated annually hardly one is seen with a tuberculous lesion confined to one side, is confirmed by every one who meets many consumptives. Inasmuch as strictly incipient cases are not to be treated by this method for reasons already stated, it is evident that in nearly all cases in which pneumothorax is indicated there will be found signs of involvement of both lungs and we must be satisfied with mild or moderate lesions on the untreated side.

In estimating the chances of success in bilateral cases we need not trouble about the loss in the respiratory area of the lung. The fact that one complete lung is brought out of commission does not mean that if the respiratory area of the other is somewhat curtailed by disease, it will not be able to adequately carry on the function of respiration. Experimental physiology and clinical experience show clearly that nature has been prodigal in this respect, just as is the case with all organs which are double. They have a much larger area of functionally active tissue than the organism requires. Thus the kidneys have been found to be four times as large as is absolutely necessary to sustain life; the adrenals even eleven times. As regards the lung Bernard, Le Play and Mantoux[16] have found that life is compatible with only one-sixth of the total lung capacity; Riva Rocci and Cavallero[17] experimenting on dogs found that pneumothorax does not cause severe dyspnea during rest, nor materially interfere with the chemical processes of respiration, as long as one-third of the respiratory area retains its function. Of course, movement of the animal soon produces dyspnea. Under the circumstances cases of phthisis in which the extent of destruction of lung tissue will be the problem are rare indeed. What should concern us most in the selection of cases is the activity of the process in the untreated lung.

In practice we find that in the vast majority of moderately and far advanced cases the lesions are extensive and active in one lung, while in the opposite there is limited involvement, or signs of quiescent or healed lesions. Though not strictly unilateral, these cases can be successfully treated by pneumothorax if not prevented by pleural adhesions.

It is interesting that careful clinical and pathological observation has shown that only exceptionally is the untreated lung unfavorably influenced. In spite of the increased functional activity because of the vicarious work it is compelled to do, the lung usually remains in the same condition as it was before the opposite lung was collapsed. The vicarious emphysema which is, as a rule, produced increases its size and dilates the alveoli and bronchioles, thus permitting as much air to be passed through as before, when both lungs were active. Forlanini,[2] Saugman,[4] Robinson,[9] Floyd,[19] Hamman,[20] von Adelung,[18] Lyon,[20] and others have reported cases in which active lesions in the untreated lung have improved or healed after a pneumothorax was induced in the more affected side. The factors operative in such cases are not well understood. Carpi[21] has pointed out that amphoric sounds and râles are often altogether transmitted from the more affected side and that diagnosis is very difficult. This may explain in some cases the disappearance of râles in the untreated side. On the other hand the increased blood supply may have

something to do with it. The diminution in toxic absorption from the ulcerating and excavated lung may give the patient a chance to recoup his natural reparative forces unhampered by the toxemia from extensive suppurating areas. However, this is not

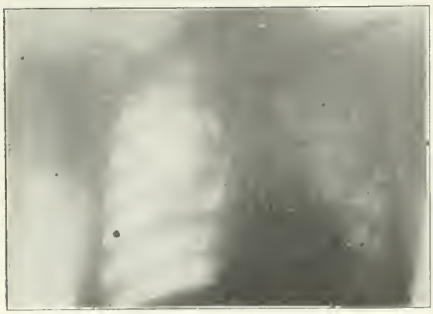


Fig. 3.—Partial pneumothorax of right lung for cavity in the upper lobe. Adhesions prevented complete collapse. Marked amelioration in the symptoms, but cough and expectoration have not ceased altogether, and a complicating pleural effusion has contributed to make this case not a complete success.

the rule. In some lesions in the untreated lung flare up and extend, as has happened in two of my cases. In two of my cases copious hemoptysis even occurred from the untreated lung.

Recently Forlanini and many others have argued that all advanced cases should be given an opportunity to benefit by artificial pneumothorax. In far advanced bilateral or "hopeless" cases one side is as a rule extensively involved, while the other side shows only limited involvement, though the lesion may be evidently active. In such cases it is urged that the more affected side should be treated on the principle that there is nothing to lose and everything to gain. Forlanini's experience has taught him that when the untreated side has but a limited, even though active focus, the chances of success are better than would be expected *a priori*. When both sides are extensively affected the chances of recovery are slim indeed, but improvement in the general condition may be anticipated and a prolongation of life is not unlikely. At times, Forlanini says, we may be astonished that even such patients are cured. In most cases the removal or diminution of toxic absorption gives the patient an opportunity to muster his natural forces of resistance and comfort often superior to that obtained in operative procedures for incurable cancer of the stomach.

There is another important point to be borne in mind: We are not always able to ascertain positively whether the lesion in the less affected side is active, quiescent, or even healed. Râles and amphoric breath sounds heard over a given area of the chest wall are not always autochtonous, but in fact transmitted by conduction from the opposite side, and this is at times very difficult to differentiate, as has already been mentioned. Indeed, perfect symmetry of location of râles, especially on both sides of the spine in the upper part of the chest posteriorly should always excite suspicion that it may be transmitted, and on the side on which it is weaker it is probably so. During and after pulmonary hemorrhages also there are often heard râles all over the chest which disappear in the unaffected side within several days, but when audible they give the impression that both lungs are extensively involved. Radiography is of little, if any, assistance in clearing up many of these cases.

Some French and Italian authors have suggested "diagnostic pneumothorax" in cases in which we are uncertain whether the disease is active on both sides. The more affected pleura is inflated with gas and the opposite lung is watched. In cases in which the physical signs of disease are of the transmitted kind, they disappear soon after the lung is collapsed. But in case they persist in spite of a complete pneumothorax and the general condition of the patient is aggravated, the pneumothorax is allowed to be absorbed or, in more urgent cases, the gas is aspirated and the lung permitted to re-expand. I have not resorted to this treatment as yet, because the first cases had to be carefully chosen. Only such as have a favorable prognosis have been selected with a view of popularizing the method against which there has been quite some prejudice. Now that this has been removed to a great extent, because my patients have seen good results in some cases, and they often ask for the treatment, I shall surely treat bilateral cases.

There are some who believe that even incipient cases ought to be treated with pneumothorax. Among these may be mentioned Murphy,[22] Lemke,[15] Forlanini,[7] von Adelung,[18] Piery,[22] and some others. With this I am not in agreement. If the treatment lasted only a certain and limited time, the patient could be informed of the details and given the choice. But inasmuch as we are not in a position to give the patient definite information as to the probable duration of the treatment, and a large proportion of these cases recover under the old and tried methods of treatment, we should not subject mild incipient cases to the dangers, complications and duration of pneumothorax. I still hold that only progressive or hopeless cases are to be given this treatment.

Contraindications.—To some extent the contraindications have already been given while speaking of the indications, but there remain yet to be discussed certain conditions which preclude the induction of an artificial pneumothorax, mainly those de-

Fig. 4.—Complete pneumothorax in a pregnant woman for diffuse infiltration and excavation of the left lung. Although the right lung is evidently affected, all the functional symptoms disappeared, and even a miscarriage has not affected the favorable course of the disease.

pending on the clinical form of the disease, the coexistence of extrathoracic tuberculosis, and of other diseases. Because pneumothorax only acts locally on the treated lung, acute miliary tuberculosis, in which both lungs are usually equally involved, is not suitable for this treatment. Fibroid

phthisis with extensive pulmonary emphysema is not suitable for this mode of treatment, excepting when in addition to the emphysema there is a localized suppurating excavation which is the cause of fever, sweats, cough, expectoration, etc., undermining the patient. An artificial pneumothorax may be applied as a palliative measure.

The most important forms of extrathoracic tuberculosis which complicate phthisis are laryngeal and intestinal involvement. Clinical experience has shown that pneumothorax often relieves these complications to an amazing extent. It appears that when the tuberculous toxemia due to an extensive focus in the lung is removed by a pneumothorax the laryngeal and intestinal lesions often improve and there are even some cases in which complete cure was attained of both, the lung condition and the extrathoracic lesions. A. da Gradi,[23] P. Courmont,[24] Zink,[25] von Adelung,[35] and others have reported such cases, and Forlanini speaks of it, though he confesses his inability to explain it. Conceding that the chances of cure are remote, laryngeal and intestinal complications should not deter us from applying pneumothorax if the case is otherwise suitable, on the principle that there is nothing to lose and everything to gain.

Diseases of the heart, blood vessels, and kidneys have been found to materially lessen the chances of recovery with an artificial pneumothorax, and are therefore mentioned as contraindications to the treatment. They are all accompanied by disturbances of the circulation and the patients do not bear the deprivation of the breathing area of a complete lung. Forlanini, however, has found that when compensation is good, pneumothorax may be induced with chances of success. There are, however, not yet sufficient clinical data to form definite opinions.

Diabetes has not been found to interfere with the successful outcome of an artificial pneumothorax, and the same is true of pregnancy. There have been reported several cases in which pneumothorax was induced in pregnant women who went on to term, were delivered of healthy infants, and continued under the treatment. In one of my cases the woman was six months pregnant when a pneumothorax was induced. The effect on the lung was excellent, complete collapse was attained (Fig. 4) and the general symptoms completely disappeared. The temperature chart (Chart I) shows clearly the effect on the fever which has been so far permanent for six months. But she miscarried four weeks after the first inflation of gas. It is noteworthy that the temperature and the general condition of the patient were not influenced by the miscarriage.

Pleural Adhesions.—These are, strictly speaking, not necessarily contraindications to the induction of a pneumothorax, but they are hindrances to its successful accomplishment. In many cases no nitrogen can be introduced at all because of extensive and dense adhesions and, after several punctures are made, the case is given up as unsuitable for the treatment. Frequently an area is found which is free and some gas is introduced, but furthere attempts to introduce a sufficient quantity to completely collapse the lung meets with failure. This failure may be of various degrees. In some the pleura is free only over a small area and a small pocket of gas can be made, while the rest of the pleura is adherent. No improvement in the condition can be expected, and the treatment must be abandoned. Fig. 6 shows a radiogram of a chest in which we succeeded in introducing gas and creating two pockets above and below in the left hemithorax. But after nine inflations, introducing from 40 to 150 c.c. of nitrogen, we found that even with high pressure the two pockets could not be brought together, and the lung could not be collapsed because it was held tightly by fibrous bands running to the pleura. There was left nothing but to abandon the treatment.

Pleural adhesions often interfere with the treatment in a peculiar way. The pleura is free all over the chest excepting its upper third, over the tuberculous lesion, where it is densely adherent. There may be a cavity in that location surrounded by stiff walls. The result is that while we succeed in collapsing the lower two-thirds of the lung, the part which is diseased and which we aim mainly in collapsing in order to expel the pus and detritus from the purulent cavity and thus prevent toxic absorption and bring about coaptation of its walls with a view of giving them an opportunity to cicatrize, cannot be collapsed and the disease keeps on its usual course. This is notably the case with old cavities having stiff fibrous walls which refuse to yield to the gas pressure. In acute cases such

Fig. 5.—Partial pneumothorax in a case with a cavity and dense pleural adhesions in the right lung. Despite the incomplete collapse and the implication of the left lung, the patient has been doing well.

cavities are not at all encountered. Many failures are due to this condition. Fig. 6 shows a radiogram of such a case. In spite of all efforts to collapse the lung completely, the adhesions around the lesion prevented the collapse of the diseased part of the lung.

At times the pleural adhesions are not very dense, in fact slight adhesions are said to be present in practically all advanced cases of phthisis, and an increase in the pressure while introducing the gas breaks them up and success is finally attained—the lung is completely collapsed.

The proportion of cases suitable for the treatment is very small indeed. Among 210 patients admitted to the Montefiore Home during the year preceding the time of writing this paper we found only 22 which we considered suitable for pneumothorax treatment. This is a rather high percentage and is partly due to the fact that strong efforts were made by me to find suitable patients outside of the institution and induce them to enter. Statistics of most writers seem to indicate that less than 5 per cent. of all cases that come under their observation are suitable for the treatment. Lemke appears to be the only author whose

clinical experience has been to the effect that he had to abandon the operation in but a small proportion of the selected cases, because of pleural adhesions. Perhaps the reason is that he operated on incipient cases. Bernard[24] found among 628 patients only 22 in which he thought pneumothorax was indicated, and among these he succeeded only in six cases to completely collapse the lung, in 11 adhesions prevented the creation of a complete pneumothorax, and three refused to submit to the treatment. J. Courmont[27] found among 352 patients only 31 were suitable, and among 110 apparently suitable cases only in 32 per cent. could Zink[28] produce complete pulmonary collapse and in 24 per cent. he failed to enter the pleura altogether because of pleural adhesions.

In our 22 suitable patients we failed in seven cases to partially or completely collapse the lung. Saugman found that in 30 per cent. of the selected cases adhesions prevented the entry of gas into the pleural cavity. Even with Brauer's method the proportion of failures exceeds 25 per cent. It must, however, be mentioned here that while in most cases complete collapse is best, a partial pneumothorax at times serves a good purpose, and many writers report excellent results when only creating one or more gas pockets in the pleura, and in two of my cases the improvement was remarkable under such conditions. Von Adelung[15] even practises partial inflation of the two pleuræ *simultaneously* in some bilateral cases, and he says that the results have thus far been apparently beneficial. To my mind this improvement can only be seen in chronic cases of phthisis in which the cavities have been surrounded by stiff walls of connective tissue, and which do not secrete any more. Exquisite amphoric breath-sounds are heard over such cavities, but no râles. The excavations are not the cause of the general symptoms which disable the patient, but the more acute patches of infiltration in other parts of the lung are responsible for the fever, night-sweats, cough, etc. Compressing these parts, we may achieve good results. In these cases we hardly ever achieve a cure with pneumothorax, because the cavity cannot cicatrize or contract, owing to the stiffness of its walls which, together with the pleural adhesions, prevent its collapse by the gas pressure. But they may be greatly relieved by a pneumothorax.

Technique.—The technique of the induction of a pneumothorax is simple, but not devoid of danger and even fatal accident. Of the two methods in vogue at present the one originally recommended by Forlanini and by Murphy is the most commonly practised in this country and in Europe. Brauer's method consists in incising the chest wall, dissecting down to the pleura by cutting through the fascia, and separating the intercostal muscles with a blunt instrument in the direction of their fibers. When the parietal pleura is exposed, it is punctured with a blunt needle or cannula and the gas is allowed to flow in by aspiration of the pleural cavity or by pressure when indicated. This method has failed to gain many adherents for various reasons; but few patients want to submit to a cutting operation. Then there is an obvious danger of sepsis which may, of course, be avoided by the usual methods. I have found no reason for resorting to the bloody operation and feel confident that if this was the only available method of inducing a pneumothorax we would find very few patients willing to submit.

The Forlanini and Murphy method is bloodless and painless. It consists in a simple puncture of the chest wall with an especially constructed hollow needle which is connected with a gas reservoir and a water manometer through a T-shaped tube. When the lumen of the needle punctures the costal pleura the gas is allowed to flow into the pleural cavity by the suction or negative pressure in that cavity as well as by some positive pressure which must at times be used at the gas reservoir.

Simple as this operation appears to be, there are certain difficulties to be overcome and dangers to be avoided. The main difficulty is to pass the needle as far as the costal pleura, puncture it, and avoid penetrating the visceral pleura and the lung. The dangers are mainly in allowing the gas to flow in into places other than the pleural cavity, especially into a blood vessel thus causing gas embolism which while not invariably fatal, yet it is sufficiently menacing to be dreaded by all who are doing this sort of operation.

Apparatus.—To avoid this accident various forms of apparatus have been invented during the past six years. As is usual, they are all based on one main principle—the manometer which has been introduced by Saugman. Each apparatus consists

Fig. 6.—Incomplete pneumothorax for cavity in the lower part of the upper lobe of the left lung. Dense pleural adhesions prevented the collapse of the cavity, and the general symptoms have not materially been influenced.

primarily of two graduated bottles connected by tubing, one containing the gas to be inflated and the other some fluid, so that the fluid flows from its container into the other bottle, displacing the gas which is sucked or pressed into the pleural cavity through a tube and an especially constructed needle. This last-mentioned tube is T-shaped or provided with a three-way stopcock, of which one limb communicates with the gas bottle, the second with the needle, and the third with the manometer. At any moment during the operation we can open or close the tube leading to the manometer or the gas reservoir.

As I said all the instruments for the induction of a pneumothorax are constructed on this simple principle, but it is amazing how some have succeeded in complicating it by adding various attachments which make them unwieldy and easily disordered. The experience that a machine in order to be most useful must be of the simplest construction, consistent with efficiency, holds good here. At the Montefiore Home we have been using Forlanini's apparatus as modified by Saugman and von Muralt, and also the Robinson apparatus. The latter has been used more often than the former because of its simplicity.

The Manometer.—The entire safety of the operation lies in the manometer, which has been called by von Adelung the heart of the apparatus. While the needle passes through the skin, subcutaneous tissue, muscles, and fascia before piercing the costal pleura, the manometer records atmospheric pressure, but as soon as it enters the pleural cavity the air in the connecting tube becomes rarified because the vacuum in the pleural cavity aspirates its air content, and the fluid in the closed limb of the manometer is sucked up toward the needle, *i.e.* from the open into the closed limb and a distinct difference in the levels of the fluid is evident. Moreover, when the lumen of the needle is really in the pleural cavity the respiratory movements of the lung are recorded in the manometer which shows distinct oscillations of the levels of its fluid.

This explanation of the work of the manometer, which is found in most works on the subject, is unsatisfactory. The fact is that normally there is no pleural cavity at all because the parietal and visceral pleuræ lie tightly, one on another; nor can we speak of negative pressure between the two pleural sheets, because the word "pressure" is here used in the sense of gas pressure which can be measured with a manometer; but such a negative pressure does not exist between the two pleural sheets. The manometric readings when the lumen of the needle is in the pleura are explained better by Brauer,[3] Piéry,[22] and Moritz[23] in the following fashion: The lung must be considered as an organ fixed at its root and kept in a state of equilibrium by the pressure of the atmospheric air within the air passages and by the elastic tension of its tissues. There is a constant tension of the lung from the roots to the periphery at the thoracic walls. The force of this traction is equal to the absolute elastic tension in the given direction, minus the atmospheric pressure which prevails within the air passages and so prevents its collapse or retraction from the periphery to the hilus. The intrapleural pressure therefore never differs much from the atmospheric pressure, as has been shown by W. Parry Morgan,[20] and in consequence any gas drawn into the cavity will not be appreciably rarified. The volume of gas which will have passed from the connecting tube into the pleural cavity will be practically equal to the amount of fluid which will have passed from the open to the closed limb of the manometer. This volume would, when the negative pressure stands at 15 cm. of fluid in a manometer tube of 0.3 cm. bore measure less than 1 c.c.

This is enough to separate the sheets of the pleura if there are no adhesions. But owing to the elastic tension of the lung and the atmospheric pressure within the air passages, there is actually shown a negative pressure in the manometer. A little reflection will explain why this negative pressure will be stronger during inspiration because of the greater distance at that period between the root and the periphery, and less during expiration. With the increase in the quantity of gas introduced into the pleural cavity the tension of the lung will obviously decrease and with it the negative pressure, until finally a point is reached when the pressure in the gas-containing pleural cavity is 0 and later even becoming positive.

Bearing in mind these simple principles of the manometer we are in a position to guard against the most important of the accidents which are liable to happen during the operation. In patients with pleural cavities free from adhesions ordinary and careful attention to the manometer will suffice to guard against mishaps. The manometer shows conclusively whether the lumen of the needle is in the pleural cavity or not. It also gives reliable information as to the state of the pleural cavity, with particular reference to adhesions, showing whether they are dense and extensive, or of slight extent and may be separated and broken up by an increase in the intrapleural pressure with the gas. During the course of the treatment we are able to ascertain, with the aid of the manometer, whether the nitrogen has been absorbed and refill is necessary; whether the lung has been completely immobilized or has remained expansile. When it is found that the intrapleural pressure increases and this can not be attributed to excessive gas insufflations, the manometer indicates pleural effusion. The difficulties in cases with pleural adhesions will be discussed later on.

The Selection of the Point for Injection.—The first inflation must be carefully done and it is important to select a point to introduce the needle where no adhesions are likely to be encountered. Bearing in mind the anatomy of the chest and its viscera it is evident that the ideal point is along the anterior or posterior axillary lines, especially at the ninth intercostal space posteriorly for apical lesions, or in the third intercostal space just outside the mammillary line for lesions of the lower lobes. Of course, when we are free to choose, areas covered with thick muscles or the mammary gland in women are to be avoided. But we are not always free to choose, and any point must serve our purpose when the elective places are not available because of adhesions. It must also be emphasized that it is very difficult, often impossible, to avoid pleural adhesions with all the means of diagnosis at present at our command.

We are generally guided by the following principles: The chest is punctured as far away from the main pulmonary lesion as possible because pleural adhesions are most likely to be encountered over the diseased lung and, what is more important, while puncturing the lung is ordinarily harmless, in such places the needle may, however, penetrate cavities and produce a pyothorax. But adhesions are found everywhere and often where we least expect them. Physical diagnosis is apt to prove misleading and the fluoroscope and radiography just as often may fail to reveal them. I have met with cases in which the radiogram showed all the conventional signs of pleural adhesions but puncture revealed a free pleura and complete collapse was easily obtained with three or four inflations. More often yet the radiogram shows a clear picture and it is concluded that the pleura is free, but puncture shows conclusively that there are adhesions.

Forlanini[2] is guided by tidal percussion of the margins of the lung, especially at the base. When he finds that the base line in the axilla shifts between 10 and 12 cm. during extreme inspiration, as compared with extreme expiration, he is convinced that the pleura is free. Good mobility of the lung margins is the most important sign of freedom from pleural adhesions, according to Forlanini, but he adds that immobility is not a sure sign of such adhesions and of obliteration of the pleural cavity. There are cases of extensive hepatization of the lung in which the mobility of the lung margin is defective or absent, yet the pleural cavity is free. Robinson and Floyd also consider percussion the

most reliable guide and they say that the area presenting a note nearest approaching the normal resonance is most likely to be free of adhesions, while von Adelung seeks an area which is resonant and yields breath-sounds.

It appears that the most reliable means of ascertaining whether or not the pleura is free is the attempt to enter it with the needle connected with a manometer. When the first puncture does not yield negative pressure in the manometer, a very frequent occurrence, so that when one enters successfully with the first puncture he considers himself lucky, another attempt is made at another point. I have made in one case four punctures before succeeding to enter the pleural cavity and in another twelve before giving up as not suitable for the treatment. Forlanini made fifteen punctures in one case before he finally succeeded.

The skin at the site selected for puncture is painted with tincture of iodine and the excess is washed away with alcohol. It is then frozen with ethyl chloride and an injection of one-third of a grain of novocaine or cocaine in 1:2000 adrenalin solution is made. At first the skin is infiltrated, then a few drops are injected into the intercostal mus-

Fig. 7.—Radiogram of a chest in which the physical signs and x-ray indicated the absence of adhesions, yet all efforts to induce a pneumothorax in the left side have failed, and after twelve punctures it was decided to discontinue the treatment.

cles, and finally into the pleura. The latter must not be neglected: it appears to be the only known way of preventing pleural shock of which we shall speak later on.

Thoracocentesis.—The selected intercostal space is carefully palpated with the index and middle fingers of the left hand to make sure of avoiding a rib when thrusting the needle into the chest wall. If a blunt needle is used the skin is first punctured with a tenotome. The needle is inserted and pushed slowly forward passing through the subcutaneous tissue, fascia, and muscles. While the latter are passed the needle goes smoothly, but when the endothoracic fascia is reached a certain amount of resistance is encountered, which is characteristic to the experienced hand. A similar, but stronger, resistance is felt when the pleura is passed and it is often difficult to decide with confidence as to whether it was the fascia or pleura which was punctured. The manometer is the only means at our command to make sure of where the lumen of the needle is.

How far the needle is to be pushed depends on the thickness of the chest wall of the given patient. All efforts are to be made to avoid penetrating the lung. While in the vast majority of cases this is entirely harmless, on rare occasions it may prove a serious and even a fatal accident. We may induce a spontaneous pneumothorax, an accident which occurs more often than is generally appreciated.

The usual length of the needle, Floyd's modification of Brauer's, is 5 to 6 cm. This is excessive and Saugman's needle which is only 3 cm. long is at present used by me exclusively. Saugman noted in 100 cases in which he succeeded in inducing pneumothorax the depth to which it was necessary to penetrate the chest wall as far as the pleura and in none of them was it deeper than 3 cm.; in the vast majority it was only between 1.5 and 2.5 cm.; in some less than 1.5 and in one even less than 1 cm.

Technique of Insufflation.—As soon as the lumen of the needle penetrates the costal pleura and there are no adhesions at the point of penetration, the tube leading to the manometer is opened and the fluid in the closed limb is seen to be sucked up. In some cases the suction is so pronounced that the fluid shoots up to the upper end of the tube and care must be taken that it is not aspirated into the pleura. Usually it is elevated between 1 and 6 cm. and oscillates. The patient is told to take a deep breath and it will be observed that during inspiration the negative pressure is more pronounced than during expiration. This oscillation is the only reliable indication that the lumen of the needle is in the pleural cavity, but at times there are observed slight oscillations when the needle reaches the costal pleura before puncturing it owing to the respiratory movements of the lung. But these oscillations rarely exceed 1 cm. and must not mislead us. Only when the negative pressure exceeds 3 cm. may we venture to let in the gas, and beginners should not do it with less than 5 or 6 cm. negative pressure.

With the assurance that the needle is in the pleural cavity the manometer is closed, the tube leading to the gas reservoir is opened, and nitrogen allowed to flow in by aspiration or pressure when necessary. After 100 c.c. of gas has entered, the manometer is again consulted, and if still showing negative pressure, another 100 c.c. is allowed to flow in. It has been my habit never to exceed 300 c.c. of nitrogen during the first operation, although many do not hesitate to introduce two and even three times as much, and some even attempt to secure complete collapse of the lung during the first operation. Murphy advises the introduction of 200 cu. in. (3,000 c.c.) at the first operation, while Forlanini now advises only 200 to 300 c.c. Clinical experience seems to favor smaller quantities as safer and many unpleasant, often dangerous, symptoms are thus avoided. To change quickly the relations of the thoracic viscera is dangerous. Moreover, when adhesions are present they may be torn apart forcibly and cause trouble. When extensive and dense adhesions are present it is often impossible to introduce more than 100 or 200 c.c. of gas and the chances of securing finally a complete collapse of the lung are rather slim.

On the completion of the operation the needle is quickly withdrawn and the index finger of the left hand placed over the point of the puncture and some pressure applied with a view of preventing cutaneous emphysema. Finally the small wound is sealed with some cotton and collodium and the patient is warned against coughing, which he is to avoid as far as is within his control. I find a dose of morphine or codeine is useful for this purpose.

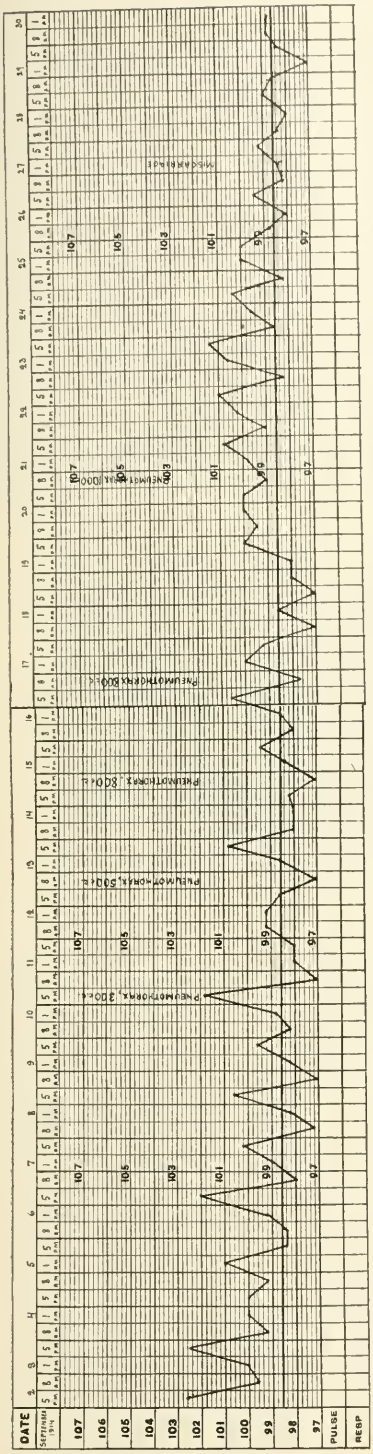


Chart I.—Temperature curve of the patient whose radiogram is shown in Fig. 4. The temperature has been around normal since the lung has been completely collapsed

It has been my rule to send the patient to bed for twenty-four hours after the first operation irrespective of his general condition.

Technique of Refilling.—The introduction of a few hundred cubic centimeters of nitrogen does not collapse nor immobilize the lung. This must be accomplished gradually by further inflations. In cases with free pleuræ this is a simple matter considering that a pocket with gas has been created already and the needle can be introduced easily into it. For this reason it is best to do the second inflation in the neighborhood where the first puncture was successfully made, so that it enters the gas pocket, and only exceptionally is another place chosen. In the latter case we are guided by the same principles as during the primary puncture. One thing is to be remembered: the manometer is to be always consulted before the gas reservoir is opened and in case no respiratory oscillations are seen, the stillet is to be inserted into the needle on the assumption that the lumen may be clogged, which is often the case. If no oscillations are even then observed, the needle is to be withdrawn and reinserted in another place. Accidents have happened during later inflation just as during primary operations.

The quantity of nitrogen introduced during refills depends on the case. My way has been to introduce between 300 and 600 c.c. at the second and 800 to 1,200 at the third operation, provided the patient bears it well. But when I find embarrassment of the circulation, dyspnea, or pain in the chest, I proceed slower and am satisfied with 300 c.c. given every other day till complete collapse is attained in two or three weeks.

We are also to be guided by the final pressure after each inflation. In many cases we get positive pressure after several hundred cubic centimeters of nitrogen have been introduced, although there is no complete collapse of the lung. We often meet with cases in which the gas opens but a small pocket in the pleura and when this is filled the negative pressure decreases or vanishes. When oscillations are good the pressure may be increased guardedly, consulting the manometer after each 50 or 100 c.c. have entered. Saugman, whose experience is unexcelled, found that if gas does not pass with 10 to 15 cm. water pressure the case may be given up, because higher pressure will meet with failure.

At times it is noted that during a refill the pressure suddenly sinks. This is an indication that some adhesions have yielded or, which is fortunately exceedingly rare, that the lung has ruptured and the gas escapes from the pleura into a bronchus. This may occur when the nitrogen is introduced under high pressure and the patient coughs vigorously.

My experience coincides with that of Saugman to the effect that it is best that during the first few fillings the final pressure should not exceed 0.5 to 2 or 4 cm. of positive manometric pressure. The condition of the patient as well as his reaction during the succeeding few days should, however, be our guide. We must always watch whether our aim is not attained with a low pressure and in many cases ½ to 1 cm. above zero is sufficient. Forcible inflations involve dislocation of the medastinum and injury to the other lung. We must bear in mind that it is not always imperative to compress the lung. In most cases affording rest to that organ by immobilization is sufficient to give relief, and this

can be attained without high intrapleural pressure. But in case the patient is not improving, his temperature, cough, expectoration, etc., are not influenced favorably, the pressure is carefully and guardedly increased. A final pressure of 10 to 15 cm. of water is too high, though many authors state that they have resorted to it in some cases. Of course, as a rule, the gas is quickly absorbed and within a few days the pressure drops so that the embarrassment of the respiration and circulation is ameliorated. The great problem are the cases in which only an incomplete pneumothorax has been created and the stiff, unyielding walls of cavities, or dense pleural adhesions, prevent the compression of the part of the lung which we aim to collapse. Saugman and Forlanini have not hesitated to increase the pressure in these cases to 30 and even 40 cm., and they were occasionally rewarded by attaining finally a complete pneumothorax.

After complete collapse of the lung has taken place the frequency of the refillings is diminished. In some patients gas is absorbed slower than in others and we are unable to say in advance who is well able to leave their bed immediately after the operation and attend to their affairs. The slight difficulty in breathing, seen in some cases at that time, is usually objective, the patient protesting that he feels well although he evidently suffers from air hunger of some degree. But even this disappears within a couple of days, as has already been mentioned. Only in rare instances, when the gas separates adhesions by high pressure, does the patient complain of pains in the chest which are, as a rule, trifling.

In febrile patients the effects of the pneumothorax are usually striking, especially when complete collapse of the lung is attained. The fever disappears and in successful cases does not return unless there is some complication. The temperature charts (Charts II and III) show distinctly the effects of collapse of the lung on the temperature. One is the case of a pregnant woman who, before admission to the hospital, had continuous fever for several weeks reaching 103° and 104° F. during afternoons. During the first week at the hospital it was remittent and accompanied by nightsweats, which were exhausting. But since the first infla-

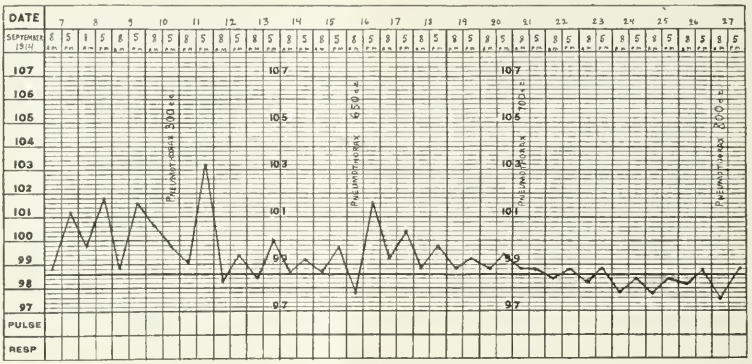


Chart II.—Showing the influence of therapeutic pneumothorax on the temperature.

likely to need frequent refills and who is likely to need infrequent refills. It seems that those walking around are absorbing the gas sooner than those who remain in bed. Primarily the guides for the necessity for refills are the general condition of the patient and secondarily the findings on physical examination. An elevation of the temperature, if not due to an impending or actual pleural effusion, is often removed by a refill. The same is true of cough and expectoration. In those who had the lung completely collapsed there was a complete absence of breath-sounds and adventitious sounds; a return of these is an indication that refilling is necessary. The fluoroscope is, however, the best guide. I want to repeat, however, that the dyspnea and tachycardia, which are often caused by excessive pressure in the pleural cavity, are to be guarded against.

Symptoms.—The acute and urgent symptoms of spontaneous pneumothorax are never seen in the artificially created pneumothorax, excepting, of course, when the lung is penetrated and the spontaneous variety complicates matters. The pain, dyspnea, cyanosis, and collapse are never encountered. In fact the majority of patients who have overcome the fear for the operation are ready and tion of 300 c.c. of nitrogen on September 10, there was an evident tendency on the part of the temperature to reach the normal limits, and since the 26th of September it has been normal. Her general condition has improved, she ceased coughing, expectorating, regained her strength, and feels well. even a miscarriage on the 27th of September has passed an uneventful course, she remaining in bed for one week, but the temperature, pulse, etc., were normal.

In some cases it is noted that the fever increases 1° to 3° F. for twenty-four hours after each insuflation (Chart II) just as is the case with the reaction after an injection of tuberculin. This is probably caused by increased toxic absorption, owing to the compression of the diseased lung. In case an increase in the temperature, lasting several days, is noted during the treatment we may look for some unpleasant complications, especially a pleural effusion. When the pneumothorax does not reduce the temperature we may consider the treatment a failure in the particular case. With the disappearance of the fever the nightsweats vanish and this gives the patient great relief.

The appetite improves in all successful cases, and with this the lost strength is gradually regained,

and the languor, which is such a strong clinical feature of the disease, is replaced by a feeling of well-being. In short the pessimistic attitude is replaced by a hopeful feeling. The digestive organs often show marked improvement in function and in some cases the diarrhea is favorably influenced.

It is noteworthy that in spite of this improvement in the general condition of the patients the gain in weight is not a constant phenomenon in artificial pneumothorax. Of the 15 successful cases at the Montefiore Home only 2 gained, while the rest either remained stationary in weight or even lost. This has been observed by nearly all writers on the subject and has been attributed to the diminution in the oxidation area owing to the elimination of one lung from the respiratory function and therefore there is a diminution in storing up flesh. "People do not eat only with the digestive apparatus, but, in the final analysis, also with their lungs," says Jessen[23] in this connection. Saugman says that as long as the general condition of the patient is good and the loss of weight inconsiderable, it should not trouble us. When, however, the loss of weight is considerable and general symptoms, such as fever, sweats, anorexia, etc., make their appearance, we may first try to reduce the pressure in the thorax, and if this does not ameliorate the condition, the treatment may have to be given up.

Great relief is usually obtained in patients who suffer from severe coughing spells which keep them awake during the night. In all my cases the cough disappeared and often with it the insomnia. This is especially true of unilateral cases in which a large cavity is emptied by compression. After the first three or four inflations it is constantly observed that the amount of sputum expectorated is augmented because the pressure exerted by the gas empties cavities and bronchi of their contents. After the lung has completely collapsed, or the cavities have been emptied in partial pneumothorax, the quantity of sputum diminishes and in unilateral cases, expectoration ceases altogether. In many cases tubercle bacilli are not found in the sputum after the lung has been compressed for two months.

More striking than the improvement in the general condition is the cessation of hemoptysis when the first inflation is made during a hemorrhage and in hemorrhagic phthisis in which the patient is in constant dread lest the hemoptysis recur, we can assure him that he is safe in this regard. In hemoptysis pneumothorax acts as a hemostatic like the tampon in uterine hemorrhage. In one of my cases there occurred a mild hemorrhage during the treatment, and I was satisfied that the blood came from the untreated lung. In three cases in which the pneumothorax was induced for the relief of copious hemorrhage, we succeeded in two to promptly check the bleeding.

In many, though not in all cases, there occurs some dyspnea during the operation or immediately after. But this is, as a rule, transitory. In fact, when the dyspnea is due to fever and toxemia it disappears after the induction of a pneumothorax. If excessive pressure is permitted to prevail in the treated pleura dyspnea is likely to occur which is usually transitory. The absence of dyspnea despite the cutting of the breathing area in nearly one-half is not surprising because, as was already stated, in pneumothorax and in pleural effusions a reduction of 66 per cent. of the respiratory area does not materially alter pulmonary ventilation, nor the chemistry of respiration, provided the patient is at rest. None of my cases showed any signs of dyspnea as long as they kept at rest, while some showed signs of respiratory embarrassment on exertion. But the dyspnea was usually objective, the patient protesting that he was not short of breath, although it could be seen that the respiration was rapid.

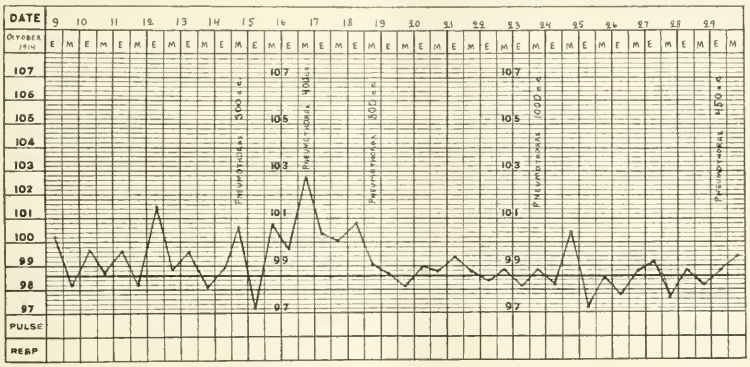

DATE
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
OCTOBER 1914
E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M E M
107
106
105
104
103
102
101
100
99
98
97
PULSE
RESP
PNEUMOTHORAX 300 c.c.
PNEUMOTHORAX 400 c.c.
PNEUMOTHORAX 500 c.c.
PNEUMOTHORAX 1000 c.c.
PNEUMOTHORAX +450 c.c.

CHART III.—Showing the influence of therapeutic pneumothorax on the temperature.

Physical Signs.—Recalling the physical diagnosis of spontaneous pneumothorax as given in text books we are surprised that most cases of artificial pneumothorax do not show many of the supposedly pathognomonic signs. Thus, tympany is not a constant sign, and in some cases the treated hemithorax is simply hyperresonant and, in contrast with the untreated side, only shows a tympanitic overnote, because of the vicarious emphysema in the latter, which is hyperresonant or even tympanitic on percussion. It is hazardous to diagnose pneumothorax by signs obtained on percussion alone. The only feature that may give a clue is displacement of the heart, especially in cases of left-sided pneumothorax in which even a small amount of gas may shift the heart to the right.

On auscultation we find in cases with complete collapse of the lung total absence of breath-sounds, as well as of any râles which may have been audible before the gas was introduced. In these cases we may be guided by the auscultatory findings as

to the necessity for refilling. When the breath-sounds return it means that quite some portion of the gas has been absorbed and must be replaced at once. In cases in which the lung has been collapsed but large bronchi have remained active we may hear distinct and exquisite amphoric breathing or distant metallic breath sounds, which shows that the teachings of some text books to the effect that the amphoric phenomena in spontaneous pneumothorax are due to bronchopleural fistulæ is erroneous.

It is evidently due to sounds originating in the bronchi which reverberate in the air-filled pleural cavity. The progress of the pneumothorax can usually be followed by noting the increase in the area of the thoracic surface over which there is either absence of respiratory sounds or amphoric breathing after each filling, till finally the complete lung is collapsed and all breath and adventitious sounds disappear.

Complications.—Not all cases of induced pneumothorax run a smooth course during the period of treatment. Complications may arise during the operation or immediately after and while the patient goes around with a collapsed lung. Of the former collapse, pleural shock or pleural eclampsia, pains in the chest, and subcutaneous emphysema are worthy of consideration; of the latter pleural effusion is the most important.

Pleural shock may be of various degrees. The mild forms manifest merely an increase in the rate of the pulse and respiration, pallor, dyspnea, etc., which pass within a few minutes or an hour. I have met with it several times; in one patient it occurred consecutively during the first four inflations and I am inclined to attribute it in a great measure to his fear for the operation. In one of my cases the shock was quite severe, even alarming, yet it passed away within half an hour. Several authors have reported fatal cases. The etiology, especially of the fatal cases is not clear. Forlanini, Saugman, and others are inclined to attribute it to reflex spasm of the cerebral or cardiac blood vessels. It has been observed that thoracocentesis for any purpose may cause collapse or even death on very rare occasions. Brauer is inclined to attribute the symptoms of shock to gas embolism in most cases and says that the fact that it is usually transitory does not exclude gas embolism. But pleural shock may occur without any gas inflations. Lyon[72] mentions a case occurring while injecting novocaine into the pleura.

That this accident is comparatively rare is evident from Forlanini's figures to the effect that operating on 134 patients, not including those in which he failed to produce a pneumothorax, and making more than 10,000 operations, he met with pleural shock only 12 times. Among 150 inflations made at the Montefiore Home we observed it but once sufficiently severe to cause some alarm.

Gas Embolism.—When the manometer is not consulted properly, it is said that at times even when the most careful technique is followed, gas may enter a blood vessel and be carried away to any part of the body and produce an embolism. Usually one of the pulmonary veins is entered, and it is well known that negative pressure prevails in these vessels. Brauer maintains that one of the veins around an infiltrated area of lung tissue or pleural adhesions may be penetrated by the needle and gas introduced into the circulation. The nitrogen is carried into the left heart, then into the aorta, whence it may travel into the coronary arteries or the cerebral vessels. Experimental researches have not been uniformly confirmatory of this theory, and clinically the symptoms of embolism have been observed in some cases even when no nitrogen was allowed to enter through the needle—merely after introducing the needle. Wolff-Eisner,[73] while agreeing that in most cases it is due to gas embolism, says that there are some in which thrombi are responsible for the symptoms observed. They are derived from the vessels around or within the pulmonary or pleural lesion and dislodged by the needle. However, it must be emphasized that symptoms of gas embolism are not exclusively encountered in the primary operations but have been met with during refills.

The symptoms are collapse, inequality of the pupils, hemiplegia, etc. In some rare cases death has occurred without warning. I have been fortunate in not having met with a single case of this kind in my practice. Of course, prophylaxis is to be the chief aim while operating, and one who does not permit the gas to flow into the chest without considerable oscillations of the manometric column is hardly likely to meet with a case.

Pains in the chest are felt by the patient occasionally during the operation. At times while introducing the needle as far as the costal pleura and before penetrating it exquisite pains are felt which promptly disappear as soon as the pleura is punctured. This can be prevented by proper anesthesia of the pleura with novocaine or cocaine. Very often after the introduction of the gas pains are felt in the chest for twenty-four hours, due to breaking up of adhesions, especially when high pressure is applied. They are not at all unbearable and need no treatment. Abdominal pains may result from lowering of the diaphragm by the intrapleural gas pressure, but this also is transitory and needs no treatment.

Spontaneous pneumothorax may occur when the needle lacerates the visceral pleura, or when a superficial lesion or cavity of the lung breaks through after the pleural sheets are separated by the gas. Forlanini has met with nine cases of this kind; Floyd mentions it. It has occurred in one of my cases: The patient was given but 150 c.c. of nitrogen into the left pleura during the first operation and while examining him the next day, complete collapse of the left lung was discovered with displacement of mediastinum to the right. The symptoms were those of a mild case of spontaneous pneumothorax, and orthopnea was quite marked for about two weeks, but the shock and collapse were lacking. He made an uneventful recovery. Of course, when this complication is due to the entry of the needle into a cavity or even a caseating part of the lung, pyothorax with its concomitants are likely to be the result. In fact, such cases have been reported.

According to W. Parry Morgan, "spontaneous" pneumothorax is more often produced while inducing an artificial pneumothorax than is generally appreciated. This is confirmed by the occasional cases met with in which the treatment is abandoned after a futile trial to introduce gas into the pleura, and a collapsed lung is then discovered. Again, a radiograph of the chest taken after the first operation usually shows evidence of more gas in the pleural cavity than has been introduced from the reservoir. While it is common experience of those using the method that gas can be detected after 200 or 300 c.c. have been introduced, it has been Morgan's experience that if the visceral pleura is not injured the gas cannot be detected until con-

siderable more than 300 or 400 c.c. have been introduced. He concludes that when a pneumothorax is visible in the fluoroscope after introducing 300 or 400 c.c. of nitrogen, we have justification for the conclusion that radiographic demonstration of a pneumothorax after the introduction of such a quantity of gas is achieved only by this being largely supplemented by leakage from the lung.

Subcutaneous Emphysema.—The infiltration of gas into the subcutaneous tissues of the thoracic wall around the point of the puncture is very frequently observed, especially in those operated upon by the Brauer method. In the vast majority of cases it is due to the high pressure of the gas in the pleural cavity, supplemented by cough, and the nitrogen works its way along the tract of puncture. It is readily recognized by the crepitation elicited on palpation and is of little significance,—passing away spontaneously within three or four days or at most a week, and further inflations are not contraindicated while it is present. It may be prevented by using thin needles and warning the patient against coughing, or administering some sedative like codeine immediately after the operation. It has occurred in about one-half of my cases after the first or second operation and rarely after later inflations.

Of more serious import is emphysema of the deep tissues of the thorax, which fortunately occurs only rarely and may be avoided by careful technique. It is usually due to the injection of nitrogen into the subpleural tissues before the lumen of the needle has penetrated the costal pleura. As was shown by Brauer, Spengler, and others, deep emphysema may also be due to leakage from the pleural cavity through the wound made by the needle, the gas being pressed by the intrapleural pressure or the respiratory movements especially during cough, into the extrapleural tissues. Saugman is of the opinion that this may even occur without excessive intrapleural pressure although the latter enhances the chances of its occurrence. The gas works its way along the paths of the vessels to the posterior mediastinum and thence along the vessels and trachea up to the neck, where we may discover it by the crepitation along its anterior aspect. It is noteworthy that it is often felt earlier on the untreated side of the neck, which Saugman believes is due to posture. Rarely the emphysema may extend along the vessels to the face, shoulder, arm, and forearm. It may be severe enough to cause dysphagia and pain wherever it occurs. But the ultimate outcome is always favorable—it disappears within a few days or a week. It has occurred in two of my cases and, barring the little inconvenience it caused them, it was of no significance. Saugman, who had more experience with deep emphysema, states that in the patients it occurs there are but few chances of inducing a complete pneumothorax because of the gas leakage.

With abdominal emphysema, which has been described by several authors, I have no experience. It may occur when the needle is inserted along the lower margin of the chest and the diaphragm happens to be unduly high, which is not unusual in pulmonary tuberculosis. The lumen of the needle may then reach the peritoneum, between the diaphragm and the stomach or liver. It is to be remembered that there also the manometer will show negative pressure, oscillating with the respiratory movements. Saugman points out that it is difficult to distinguish these oscillations from those seen when the needle is in the pleural cavity, but if it is carefully watched it will be observed that when the needle is in the pleural cavity the negative pressure is stronger during inspiration, and the reverse is true when the lumen of the needle is in the peritoneal cavity.

Pleural Effusions.—The most frequent and serious complication of artificial pneumothorax is pleural effusion in the course of the treatment. Its frequency varies with the different reports by various authors. Some report as high as 50 per cent. of cases, while others have met with it less frequently. Some are inclined to attribute it to "colds" or to "rheumatism," etiological factors which are open to question. Others have stated that it is usually due to infection during the operation and maintain that when asepsis is rigorously observed effusions are rare, which does not hold, because effusions have been met by the most careful of operators. Floyd says that where injections are very frequent and small amounts of nitrogen are given at a time it is more likely to occur than where the interval is of some duration. Faginoli[3] considers the nitrogen as a foreign body which irritates the serous surface of the pleura, predisposing it to disease. It becomes a lucus minoris resistentiæ, and inflammation occurs more easily than in ordinary cases of phthisis. Klemperer's explanation is more plausible: Disease processes which reach the surface of the lung and the visceral pleura cause adhesions in patients with normally superimposed pleural sheets, but in pneumothorax with separated pleural sheets exudative inflammations are the result. Rupture of adhesions which lay bare tubercular foci in the pleura may also be instrumental in infecting the complete serous surface. The fact that the fluid usually contains lymphocytes and is pathogenic to animals is conclusive proof of the tuberculous origin of these effusions.

The diagnosis is difficult at the onset. In most cases there is a rise in temperature, though at times it may pass afebrile; but there is no chill. The fever is hectic and may reach 103° F. and higher. There is also a rise in the intrapleural pressure which cannot be accounted for by the inflations, and the manometric oscillations are diminished. Grocco's triangle can be made out when the effusion is considerable, though Faginoli says that it is always absent. Small effusions are often very difficult to diagnosticate, and even the fluoroscope may fail to reveal them. They are especially difficult to be discerned in radiograms which have been taken with the patient reclining, for obvious reasons. When more or less copious the usual signs of pleural effusion are present plus the succussion sound and the splash, which are at times annoying to the patient.

The effects of the effusion depend on whether they are of a toxic nature or not. In the former case there is prolonged fever of a hectic type. Simple effusions, as has been pointed out by von Muralt, are rather a salutary phenomenon and may have a good effect on the general and local condition of the patient by the antibodies it produces. Faginoli does not agree with this view and says that in the end effusions interfere more or less with the favorable outcome of the case. Saugman also states that in the majority of cases it is a rather disagreeable complication, which is in agreement with my experience. The patients who have had effusions have not done as well as those without this complication.

As long as there is no fever and no cardiac em-

barrassment the effusion should not be interfered with, because it keeps the lung collapsed, and this is just what we aim with the treatment. But in cases in which the fever is high it may be necessary to withdraw part of the fluid and replace it with nitrogen. In one case I have applied autoserotherapy—withdrawing 10 c.c. of fluid and reinjecting it subcutaneously, and am under the impression that it enhanced absorption. We must always watch these exudates. In case they are absorbed too rapidly, the lung re-expands and may form adhesions, thus preventing its further collapse by the gas inflations.

I have had but one case of pyopneumothorax in my series, and another one which was inflated originally in another institution. The latter succumbed after a prolonged illness, and the former is not doing well.

Extension of the disease to the other lung is perhaps the most disheartening complication during the treatment. It has been stated that it may be caused by an attempt to collapse the more affected lung too quickly; the purulent matter is squeezed out rapidly, and it travels along the bronchi to the other side of the chest, producing pus embolisms of the bronchi. It has also been attributed to excessive pressure in the pneumothorax. It has occurred in two of my cases, and in neither could I attribute it to these causes. In one of my cases there was a hemorrhage from the untreated lung, but it soon ceased. There have been reported cases in which one side of the chest was treated by a pneumothorax and the lesion was cured, but subsequently a new lesion flared up in the opposite lung, which was also treated by a pneumothorax. This indicates that the collapse and compression of a lung do not necessarily impair its function permanently.

Duration of the Treatment.—The question how long the pneumothorax must be maintained in order to achieve a cure can not be answered definitely; no rules can be laid down which will apply to all cases. In fact, considering that the method of treatment has been applied such a short time, there are few who have had many cases under observation for six to ten years, and even they have not agreed as to the usual duration of treatment of a successful case. The following principles are based on the experiences reported by Forlanini, Brauer and Saugman, who have had patients under their care for many years, as well as on my own observations, which have not yet extended for a sufficient time to give definite conclusions.

It appears that we cannot count on less than two years in the most favorable cases, although some have reported success within one year—the pneumothorax was allowed to be absorbed and there occurred no relapse of the disease. But these cases are few. To my mind, the most difficult problem is to determine when the healing process has been completed, so that if the lung is permitted to re-expand no active lesion will remain to flare up again by the respiratory movements. This, however, is difficult and, I believe, impossible to determine with any chance of precision as long as there is complete collapse of the lung, and the general condition of the patient is good because of the collapse. Moreover, if we allow the pneumothorax to be absorbed too early there may not only be a relapse of the disease, but experience has shown that the pleural sheets are likely to adhere and the fibrous bands prevent the formation of a new pneumothorax if we find that this is indicated.

It is for this reason that whenever we decide to discontinue the treatment we must watch carefully the patient while the gas is slowly being absorbed and if some symptoms appear, such as fever, cough, expectoration, anorexia, tachycardia, etc., we must at once reinflate the pleura. Forlanini says that many patients require a pneumothorax "forever," which is undoubtedly true, and most authors who had experience with this method of treatment for many years, and had opportunities to observe their cases for long periods of time, agree with him.

Saugman, who has treated with artificial pneumothorax numerous cases and observed them for many years, says that when only a partial pneumothorax has been created which, however, has had a good effect on the symptomatology of the disease the treatment must be continued for at least two years, often for a longer period, according to clinical indications; in some cases even "forever." In cases in which complete collapse of the lung was attained we may expect a successful termination in one year, and in some acute cases the treatment may be discontinued within one year. Forlanini, Brauer, and others have had in some cases good and even permanent results after six months' treatment. It is, however, better to continue for at least two years in all cases. In chronic cases we must consider two years as the absolutely shortest period of treatment, and in doubtful cases it must be prolonged for three and even four years. The inconvenience to the patient in having infrequent refills, four to six annually, is so trifling considering that he can pursue his vocation, compared with the hazards of a relapse in case the lung is allowed to reexpand too early, that it is better to continue the treatment for a year longer than to stop one month too early. If the disease is extensive it is advisable that the inflations should be continued over long periods of years, perhaps "forever."

This should not deter us from applying this treatment in all cases in which it is indicated. We must always bear in mind that in "hopeless" cases an artificial pneumothorax often saves life, gives comfort and in some even efficiency, which cannot be obtained by any method of treatment practised at present. All our cancer surgery, of which some surgeons speak with justifiable pride, does not give results comparable with artificial pneumothorax in hopeless cases of phthisis. No surgeon hesitates in performing the operation of gastrostomy for cancer of the esophagus or stomach, knowing that in all probability the patient will not survive three months. Palliative enterostomies, tracheotomies, etc., are performed with confidence that the best is done, even when the life is not saved, but comparative comfort is given during the last days of life of the unfortunate patient. In hopless cases of phthisis artificial pneumothorax does much more than this palliative surgery: it removes the symptoms which make the life of the patient miserable —the cough, the expectoration, the fever, the night-sweats, anorexia, hemoptysis, etc.; reinvigorates him, and in many cases renders him efficient at his calling or even to do some light manual labor, immaterial whether he is ultimately cured or not. The only inconvenience it puts him to is that he must report every month or six weeks for a refill, which he knows from personal experience is painless and bearable. In a large proportion of cases artificial pneumothorax is more than palliative—it cures the disease radically and should therefore be applied in all cases in which other methods of treatment have been tried but found wanting.

REFERENCES.

1. S. Shingu: Beitr. z. Physiolog. d. künstl. Pneumothorax, Brauer's Beitr., 1908, XI, 1.
2. C. Forlanini: Die Behandlung d. Lungenschwindsucht m. d. künstlichen Pneumothorax, Ergebn. d. inneren Med. u. Kinderheilkunde, 1912, IX, 621.
3. L. Brauer: Beitr. z. Klinik d. Tuberkulose, Vol. XIV, and XIX.
4. C. Saugman: Zur Technik d. künstl. Pneumothorax, Beitr. Kl. d. Tuberk., 1914, XXXI, 571.
5. F. Graetz: Brauer's Beiträge, 1908, X, 249.
6. Warnecke: Brauer's Beitr., 1910, XVI, 171.
7. Drasche: *Wien. klin. Wochenschrift*, 1909, XII, 1117.
8. E. Kistler: Brauer's Beitr. 1911, XIX, 459.
9. S. Robinson and C. Floyd: Artificial Pneumothorax, *Arch. Intern. Medicine*, 1912, IX, 452.
10. L. Hamman: Induced Pneumothorax, Johns Hopkins Hosp. Bull., 1913, XXIV, 264.
11. L. Kessel and M. Taschman: *Archives of Internal Medicine*, 1914, XIV, 210.
12. J. B. Murphy: Surgery of the Lung, *Journ. American Med. Assn.*, 1898, XXXI, 151, 208, 281, 341.
13. A. F. Lemke: Report of Cases of Pulm. Tuberc., etc., *Journ. Amer. Med. Assn.*, 1899, XXX, 959, 1023, 1077.
14. F. Klemperer: Ueber die Behandlung der Lungentuberkulose mittels künstlichen Pneumothorax, *Berliner klinische Wochenschrift*, 1911, XLVIII, 2286.
15. S. A. Knopf: A Practical Apparatus for the Production of Therapeutic Pneumothorax, *American Journal of the Medical Sciences*, 1914, CXLVII, 372.
16. L. Bernard, Le Play et Mantoux: Capacité pulmonaire minima compatible avec la vie, *Journ. de physiolog, et de pathol. gen.* 1913, Jan.
17. Riva Rocci and Cavallero: *Giorn. internat. delle Science med.*, Napoli, 1890. Quoted from Forlanini, Reference 2.
18. Edward von Adelung: Induced Pneumothorax, *Journ. Amer. Med. Assn.*, 1914, XLII, 1944.
19. C. Floyd: Artificial Pneumothorax, *Boston Med. and Surg. Journ.*, 1913, CLXIX, 713.
20. James A. Lyon: *Boston Med. and Surg. Journ.*, 1914, CLXXI, 329.
21. Carpi: Rivista delle pubblicazioni sul Pneumotorace terapeutico, 1912, September, No. 18.
22. M. Piéry, et Le Bourdelles: La pratique du pneumothorax artificiel en phtisiothérapie, Paris, 1912.
23. A. da Gradi: *Gazz. med. ital.*, 1910, No. 29.
24. P. Courmont: *Lyon Méd.*, 1910, No. 29.
25. Zink: *Münch. med. Wochenschrift*, 1913, LX, 1924.
26. Léon Bernard: Le pneumothorax artificiel dans le traitement de la tuberculose pulmonaire, Paris, 1913.
27. J. Courmont: Soc. Méd. des Hopit. de Paris, June 12, 1912.
28. Zink: 110 Fälle von künstlichen Pneumothorax, Brauer's Beiträge, 1913, XXVII, 155.
29. Moritz: Zur Methodik des künstlichen Pneumothorax, *Münch. med. Wochenschr.* 1914, LXI, 1321.
30. W. Parry Morgan: Artificial Pneumothorax, *Lancet*, July 21, 1914.
31. F. Jessen: Ueber den künstlichen Pneumothorax in der Behandlung d. Lungentuberkulose, Würzburger Abhandlungen, 1911, XI, Heft 7.
32. James A. Lyon: Therapeutic Artificial Pneumothorax, *Boston Med. and Surgical Journal*, 1914, CLXXI, 329.
33. D. O. Kuthy u. A. Wolff-Eisner: Die Prognosenstrellung bei der Lungentuberkulose, Berlin, 1914, p. 498.
34. Faginoli: *Riv. crit. di clin. med.*, 1912, No 43.

57 East Ninety-third Street.

A SIMPLE, EASILY REGULABLE METHOD OF APPLYING ABDUCTION IN THE TREATMENT OF SHOULDER DISABILITY.

By WALTER M. BRICKNER, M.D., F.A.C.S.,

NEW YORK.

ASSOCIATE SURGEON, MOUNT SINAI HOSPITAL.

THE importance has been learned of early abduction after reducing fractures and dislocations of the head of the humerus. Not sufficiently recognized, however, is the very great value of abduction in the treatment of shoulder disability ("stiff and painful shoulder").

In his classic articles on subacromial bursitis Codman[1,2] described a clumsy apparatus, much copied in text-books, for maintaining abduction after forcibly breaking the bursal adhesions under narcosis. This consisted of a padded iron-wire brace extending from the hip to the axilla and from the axilla to the hand, fastened to the trunk by a spica about the shoulders and a belt about the waist, and, at night, bandaged to the arm. Such an apparatus not only provides no easy means of regulating the abduction from hour to hour, but it is awkward to apply and very awkward to wear. Fastened to any such brace, a person cannot conveniently get about the house, and certainly he will not go outdoors; one might much better, therefore, submit to the equally confining but much less awkward and uncomfortable abduction method described below. Codman himself says[2] that his method of treatment "was a very arduous one for the surgeon, and caused a good deal of complaint from the patients," and that "the splint, in order to be comfortable, required frequent adjustments . . . ." Indeed, he seems to have abandoned both the apparatus and the "brisement forcé" of the bursal adhesions—a procedure much more uncertain and more dangerous than open operation.

In a later publication Codman[2] called attention to the fact that "when a person stands with the knees straight and the finger tips close to the floor, the humerus is abducted on the scapula by gravity alone without muscular effort." To secure the abduction of a "stiff and painful shoulder" Codman recommends the employment of this movement, so familiar in setting-up exercises. He says "this will prove of assistance in *every* shoulder case, and should become of daily use in every large hospital clinic." The procedure is worth trying in all cases, and it will no doubt work well in those in which the limitation of abduction is due to simple weakness or to the mere fear of pain. In my experience, however, when there is real spasm or mechanical obstruction (adhesions or contractures in the periarthric structures) gravity, thus suddenly and briefly applied, will *not* effect abduction of the humerus on the scapula.

The simple abduction method here illustrated I employ very often in the treatment of shoulder disability—both in early cases to prevent, and in late cases to cure, the stiffness and loss of motion; both in disability arising from "sprains and tears of the antero-inferior aspect of the capsule," as described by T. Turner Thomas,[4] and in such cases of subacromial bursitis as do not require operation, and,

especially, when not associated with injury to, and lime deposit in the supraspinatus tendon.* Thus, by its continuous use for two weeks I have cured three successive cases of forward *subluxation of the head of the humerus*, causing extreme shoulder disability.

The patient is put to bed in semi-recumbent position, supported on pillows, not too soft. He abducts the affected arm, on the pillow, as far as he comfortably can. A muslin bandage is then looped lightly about the wrist and carried to a convenient spot on the headpiece of the bed, where it is fastened. The upper end of the bed is then raised on "shock blocks" or chairs. As the patient's body little by little slides down in bed his arm travels (relatively) further and further up, and thus a shoulder that obstinately resists forcible efforts at abduction yields steadily, painlessly, to this gradual countertraction, which the patient often does not even feel. It is striking to observe that a person whose shoulder for months has not been abducted, actively or passively, beyond 45° put thus to bed in the afternoon, may be found the next morning with his arm alongside his head! Few cases respond so quickly, however. The treatment may require a week, or even more, to restore full abduction.

Omitting from consideration, for the moment, the effects of the rest and the continued abduction position itself—both important factors—it will be seen that my procedure is the opposite of the calisthenic movement advised by Codman. Whereas he would apply gravity abruptly and only briefly to the arm itself—which a spastic shoulder will not yield to—I apply it gradually and continuously to the rest of the body—which a spastic shoulder does yield to. It should be said, however, that, finding his brace unsatisfactory, Codman tried "tying the patient's forearm by means of a forearm splint to the head of the bed,"—obviously possible only to maintain, and not to secure abduction.

The procedure here described can be variously modified.

Instead of fastening the bandage sling to the head of the bed it may, in the daytime, be looped over the cross bar (or a pulley) and carried down to the opposite hand, and the patient allowed to amuse himself by pulling upon it from time to time, which will hasten the results in suitable cases.

In those instances in which the condition does not demand, or the patient will not consent to continuous treatment, it may be employed only at night. It may be applied also, but not so satisfactorily, in a large reclining chair.

If continued abduction grows painful or irksome it may be intermitted occasionally, the patient merely slipping his wrist out of the bandage loop and resting the arm on a pillow or by his side. In thus treating subluxation, however (and I recommend it only when the subluxation is best reduced in this position), the abduction should not be intermitted.

A back-rest may be substituted, if for any reason preferable to the exaggerated Fowler's position.

Pillows may be piled up comfortably under the arm as auxiliary to or, from time to time, substitute for the sling.

In many cases of shoulder disability there is limitation of external rotation. In such cases the forearm will not drop back on the pillow in the plane of the body, and it should be supported on a small additional pillow placed behind it. This device is desirable sometimes in other cases merely to relieve the fatigue of continued rotation.

It need hardly be added that if, when the patient slides down as far as the bed will allow, the arm is not fully abducted, he should prop himself up again, and shorten the sling or apply it at the elbow.

All of these adjustments can be made by the patient himself, and no special attendant is needed.

It should be added that this plan of treatment is not advised for recent fractures or dislocations (where moderate, fixed abduction is required), for arthritic conditions, nor for any shoulder disability until as definite a diagnosis as possible is established by all available means. In cases of adhesive subacromial bursitis with calcareous deposit in or on the injured supra- or infraspinatus tendon, open operation, in my experience, will yield much more speedy results. At any rate, in such of these cases as may be submitted to this gradual abduction treatment, if it aggravates the pain or fails to promptly increase the arc of motion, it should be abandoned for a more radical measure.

*This deposit is not in the bursa as it is generally supposed to be.

REFERENCES

1. Codman, E. A., *Boston Medical and Surgical Journal*, May 31, 1906.
2. *Id., ibid.*, beginning October 22, 1908.
3. *Id., ibid.*, June 13, 1912.
4. Thomas, T. Turner, *American Journal of the Medical Sciences*, April, 1911, and various subsequent articles.

30 West Ninety-second Street.

TUBERCULIN IN PULMONARY TUBERCULOSIS.

By LEROY S. PETERS, M.D.,

ALBUQUERQUE, N. M.

No one method of treatment probably has stronger adherents or more bitter enemies than has tuberculin. Back at the time of its discovery by Robert Koch when the profession went wild with the new cure, then through the period of reaction when but a handfull of scientific men dared cling to its use, down to the present conservative era, tuberculin has been praised and damned.

We have now been using tuberculin therapeutically for nearly a quarter of a century and the evidence for and against would fill volumes, yet who shall sift, so to speak, the tares from the wheat, and judge which deductions rest upon a more scientific footing? Surely the opinion of good clinicians should be heeded, but when one finds names of equal merit at opposite poles we are lost in a maze of uncertainty.

The use of tuberculin therapeautically must needs be more or less empirical. I say empirical since there is little if any scientific proof of its usefulness. No one has yet, except in a very superficial way, far from convincing, been able to immunize animals against tuberculosis by the use of tuberculin. True, one can produce an immunity against the tuberculin, but one cannot produce an immunity against the disease.

However, it is not necessary to await a test-tube experiment or a definite statement from a laboratory worker to convince the average clinician who has followed the use of tuberculin over any considerable period of time of the value of this method of treatment.

To-day I believe we can divide the profession into three classes: (1) Those who are strong opponents of all tuberculin treatment, taking the stand of the great majority in the early nineties when the reaction set in against its use. (2) Those tuberculin optimists who in their zeal go much too far and little realize that in addition to the good they do they may and do produce a great harm by their enthusiasm. (3) The conservative physician who knows from a careful study and long experience the value of tuberculin in the right patient and the harm that may be done in the wrong patient. Certain it is that tuberculin is a two-edged sword, capable of cutting both ways, and woe to the patient and to the physician when both edges do their work.

In choosing a tuberculin I believe there is little if any difference in the various preparations offered. It is an absolute fact needing no demonstration that the therapeutic action of all tuberculins is the same. One may contain a larger percentage of foreign protein obtained from the culture media than another but the curative principle offers no material difference.

As I have already stated no tuberculin possesses a direct curative power, in other words it is no antidote for the disease, as obtains for example in the serum treatment of diphtheria. Sahli says the action depends upon an actively immunizing curative process, or upon the activity of those processes initiated by the toxins of the disease by which the organism can protect itself against infections. Or to put it differently it depends upon arousing the true natural healing processes.

Now granting the Wolff-Eisner theory as a plausible explanation of the action of tuberculin we can apply it to the above statement of Sahli. Wolff-Eisner divides the antibodies of tuberculosis into two kinds: (1) the primary lytic antibodies with which the tuberculin and the tubercle bacilli combine to form toxic decomposition products by means of which we assume that the bacilli are, if not at once destroyed, at least weakened; these decomposition products cause the general and localized irritative actions. (2) The secondary antitoxic antibodies which act against the toxic action of the lysinized tuberculin and tubercle bacilli. The action of the lysinized tuberculin or the first set of antibodies is one of stimulation of the non-specific curative forces of the organism, *i.e.* inflammatory, hyperemic, and exudative, together with leucocytosis and caseation. All these healing forces are to a certain extent present in the natural course of tuberculosis, but they are increased by the injection of tuberculin. The action of the secondary antitoxic antibodies is one of tox-immunity or the establishment of immunity against the toxic action of the tuberculin. In a word the increase of tox-immunity or the specific antitoxic efforts of the organism and the stimulation of the local processes of physiological defense in the tuberculous foci is the essence of tuberculin treatment.

But herein lies the danger of tuberculin when administered with too rapid increase of dose or started in too large doses. Nothing can be gained in the majority of patients by trying to lessen the time of treatment. So-called general reactions should be avoided, since when once produced and the local foci lighted up, no one can foretell the grave consequences that may follow. Here we have an over stimulation and no doubt a greater or less destruction of tissue at the point of infection. The same process is seen in unfavorable or progressive types of clinical tuberculosis. Here nature sets free too large an amount of tuberculin daily into the blood stream. The irritative action of the local process is excessive with a resulting spread of the infection and a breaking down of the tissue elements. In all tuberculin treatment then the aim should be to inject just the optimum dose, or a dose in other words that will produce irritative action with the least possible tissue damage.

It does not necessarily follow that because a few patients respond to large doses with coincident high fever and marked local inflammatory changes with no apparent ill effects, such a course is justifiable. On the contrary, the physician who will in spite of the large amount of evidence against him persist in high dosage does untold harm to the greater part of those who unfortunately come to him for treatment. Studied in the light of common sense there can be no excuse offered for the so-called heroic method of tuberculin administration. All that is necessary (and I wish especially to emphasize this point) is to exert a gradual influence by the injections, arousing into action the two healing processes that are already existant in the natural recovery from tuberculosis, namely the local irritative process and the antitoxic defense.

The question now naturally arises as to why the tuberculosis cannot be as well healed by the natural processes which are essentially the same as by tuberculin administration? This is explained by the fact that some patients lack the ability to react to their own poisons and are therefore unable to produce the necessary factor essential to the healing process. On the other hand, certain types overdo by natural means what we attempt to accomplish by tuberculin. They do naturally what the advocate of high dosage does artificially. Then, too, especially in the early cases, according to Sahli, the toxin production is so gradual that the irritative action causing the formation of the lytic and antitoxic antibodies may easily prove less than that afforded by subcutaneous injection when the tuberculin is at once diffused directly into the general circulation. Then, too, in subcutaneous injections only a small part of the toxin goes to damage the tuberculous foci, the larger part causing the production of antibodies.

Unless the two factors I have mentioned are brought into play, healing of the tuberculosis cannot or does not take place. Clinically this is seen in patients who take tuberculin like water, and yet when a tox-immunity or an immunity to the tuberculin has been established, as is evidenced by a dose of 100 or 1,000 milligrams, they are far from well. Here we have merely established a tox-immunity and the irritative lytic action is lacking as is also the co-action I have mentioned at the sight of injection, viz., inflammation, caseation, leucocytosis, etc.

There is another important side to small dosage which deserves mention. Many patients when repeatedly subjected to high fever and general systemic reactions object to a further course of the tuberculin. But when we begin with a small dose and gradually increase, watching the effects and carefully noting the symptoms, the patient will pass through the entire treatment with barely a disagreeable feature, and the goal aimed at in the beginning will have been reached without interruption or a possible quitting of the treatment.

In the course of the treatment one at times finds a patient who is hypersensitive. A repeated dose

gives a reaction and even a lowered dose causes the same effect. Some of these patients reach a stage where they will not tolerate any dose. This hypersensitiveness is clearly allied, according to Wolff-Eisner, Hamburger, and Roemer, to immunity against tuberculosis. Koch noted that if guinea pigs already tuberculous are given cutaneous injections of living tubercle bacilli the second infection does not develop but produces ulceration, which immediately heals, showing therefore that the first injection has produced local immunity against the second.

There can be no doubt then that this immunity is connected with and is caused by hypersensitiveness. (Sahli.) This is shown by the fact that immediate inflammatory and necrotic changes take place at the site of the second infection, while after the first local changes only begin to develop within fourteen days. These phenomena are all due to lysin, which in these animals is increased by disease. The same holds good in hypersensitive patients. The lysin content of the body far in excess of the usual amount immediately unites with the tuberculin and produces a marked inflammatory reaction. In such a case, if the injections are persisted in a great deal of harm can result; on the other hand such a patient shows a marked immunity against his tuberculosis.

Having outlined now in a very superficial way the working basis for tuberculin treatment, let us consider the kind of tuberculin, the dilutions, and the method of dosage. As I have already stated, the choice of a tuberculin matters little. Let the man use that form with which he is best acquainted and if acquainted with none let him choose one and learn to use that one scientifically.

At present I believe every pharmaceutical house and laboratory puts out a diluted tuberculin for ready use by the general physician, who is too busy to make his own dilutions. Also accompanying this is a set of directions. Armed with these weapons many a beginner sails out upon the sea of tuberculin therapy with his craft guided by the dose book and the bottle wrapper. Sooner or later he finds himself swept upon a rock and naturally tuberculin must needs receive the blame. This same doctor would scoff at a bottle of ordinary medicine which dared to flaunt the dose and the therapeutic indications in his face.

Make your own dilutions. Common sense and a knowledge of the metric system together with a graduated pipette, a bottle of carbolic acid, and sterile water will aid you in the simple task. If you have not time to bother with this end of tuberculin therapy you have not time to bother with the greater and far more important part of treating the patient.

I have been using tuberculin seven years and three years of that time was necessary to convince me that even the moderate dose was far too large for a beginning; 1/10,000 of a milligram was the initial dose for two years of my apprenticeship, then 1/100,000 seemed a safe procedure. Four years ago I had reached 1/1,000,000 and in some cases I begin with 1/10,000,000 of a milligram. Some men have laughed at me for presuming to get a reaction on 9/1,000,000 of a milligram, as I have stated in another paper, but I had the pleasure of showing a marked local reaction with slight systemic symptoms as evidenced by a degree of fever twelve hours after the injection of 6/1,000,000 of a milligram of tuberculin.

The method of dosage is as follows: Beginning with a solution in which one cubic centimeter is equivalent to 1/100,000 of a milligram I inject twice weekly until such a point where a local reaction is manifest. This is a danger signal and I repeat the dose or drop back if the local reaction still continues. Passing this reaction point the injections are increased until another local reaction is noted when the same procedure is repeated. Now, if at any time during the course of treatment I find a dose that seems to agree with the patient as is evidenced by a drop in temperature, lower pulse rate, less cough and expectoration, and a feeling of well being I hold that dose and keep repeating it until the favorable effects disappear when I consider the dose to have outlived its usefulness and a rise is indicated. Sometimes one will find that a dose somewhat lower than this I have just desribed will do even better work, the so-called optimum dose of some authors. The dose is given twice weekly until 1/10,000 or 1/1,000 is reached, when I space them weekly.

The treatment is continued so long as the patient does well or until an arrest of the disease is attained. If at any time hypersensitiveness develops I, of course, discontinue the treatment, otherwise much harm might result. I have no limit to the length of the course or to the number of injections, but am guided solely by the condition of the patient himself.

There are a number of outside factors which call for a temporary suspension of treatment, such as acute coryza, indigestion, menstruation, and various indispositions. After such suspension of the injection, the treatment should be recommenced as if a tuberculin reaction had taken place. In all such cases the dose, of course, should of necessity be lowered.

Tuberculosis, like all other diseases, is more amenable to treatment in the early stages than in the more advanced. Therefore, best results are obtained by tuberculin treatment in the early cases, which is, of course, true of all other therapeutic measures. However, I do not confine my choice of cases to incipients alone. If such were the case I would show but few tuberculin treated patients, whereas my records will show about 50 per cent. so treated.

Roughly speaking, tuberculous invalids may be divided into three classes from the standpoint of tuberculin treatment: (1) The incipient class which, as I have said, offers the best results; (2) The patients who run a maximum temperature of 99° to 100°, in whom excellent results can be obtained by careful tuberculin therapy; (3) The febrile class in which the temperature curve reaches 100° to 103° or over and in which I believe tuberculin to be contraindicated. Later, by routine treatment a number of these patients may be made tuberculin subjects. I doubt very much if tuberculin in small doses can do this class of patients harm, but, on the other hand, I feel that such treatment would be a waste of time as well as of tuberculin.

Let us remember that as yet we have no specific for tuberculosis, and tuberculin nor any other one factor in the treatment of this disease will raise the dead consumptive. Yet I feel that conscientious and careful use makes tuberculin an agent for great good and on the other hand, carelessness and ignorance of its action makes it an agent for untold harm.

DISEASES OF THE SKIN IN PREGNANCY.*

By PAUL E. BECHET, M.D.,

NEW YORK.

ASSISTANT PHYSICIAN, NEW YORK SKIN AND CANCER HOSPITAL; ATTENDING DERMATOLOGIST, ROOSEVELT HOSPITAL DISPENSARY; ASSISTANT DERMATOLOGIST, PRESBYTERIAN HOSPITAL, OUTPATIENT DEPARTMENT.

PREGNANCY is a contributory factor in a number of dermatoses. A close relationship exists between the skin and the changes in the general metabolism incident to the pregnant state. Virchow and Neusser believed in the existence of some relationship between the ovaries and the skin. I have in a recent paper on the etiology and treatment of hypertrichosis analyzed the history of 146 cases of this anomaly. Of the 146 women, 106 were unmarried; in none of the cases did hypertrichosis occur before the establishment of puberty; 80 women, of the 146, had serious menstrual disorder, and 25 per cent. of the remainder had minor anomalies of menstruation. These facts, coupled with evidence presented by others, convince me that hypertrichosis is the result of a functional or organic derangement of the ovaries, whereby some unknown hormone with a specific influence on pilosity is so altered in character that pilosis results. While any of the diseases of the skin may coexist with pregnancy, those most intimately connected with it are: pruritus, chloasma, herpes gestationis, paronychia, alopecia, fibroma molluscum gravidarum, prurigo gestationis, and impetigo herpetiformis. Most of them owe their origin to the toxemias of pregnancy, and, with the exception of herpes gestationis and impetigo herpetiformis, rapidly disappear after the birth of the child. All of these diseases, with the possible exception of impetigo herpetiformis, are found in other than pregnant women.

Impetigo herpetiformis is the most interesting of the diseases associated with pregnancy, because while Dubreuilh, Kaposi, and Whitehouse have observed the disease in three males, it occurs with but very few exceptions in women in the pregnant state; in fact, the existence of pregnancy is considered a factor in its diagnosis. The disease is very rare; up to 1911 there were only 20 reported cases. The American Dermatological Association reported one case among 58,121 miscellaneous diseases of the skin, for the years 1909 and 1910; this is fortunate, for the disease is usually fatal, and very little hope can be held out for the patient. While microorganisms have been found, nothing definite has been established. Its etiology is necessarily obscure, in view of the relatively small number of cases reported. Scheuer believes the disease is of toxemic origin, and that bacteria play only a secondary role in its causation. The most promising treatment for this condition is the injection of small quantities of blood serum, obtained from normal pregnant women, as first suggested by Mayer. It has brought about the recovery of a few of the cases. Veiel reported a severe case of bullous disease in a pregnant woman, which healed entirely after two injections of fresh sterile serum from a healthy pregnant woman. In view of the disappointing results attained by the older methods, this would seem to be of decided value.

General pruritus occurs most frequently in those of neurotic temperament. It is a sensory neurosis and is mostly dependent on the digestive and intestinal derangements which usually occur in the pregnant state.

*Read before the Bronx Medical Association, October 7, 1914.

Genital pruritus may be idiopathic, or be caused by vaginal discharge, parasites (seat worms), or glycosuria. The treatment of general pruritus consists chiefly of the elimination of the causative toxins, through stimulation of the activities of the excretory organs. Locally, the use of a lanolin ointment containing 1 to 2 per cent. phenol and 2 to 5 per cent. menthol often gives relief. The treatment of genital pruritus depends upon its cause. If it is due to the oxyuris vermicularis, rectal enemas of infusion of quassia, or five grains of santonin at night, followed by a saline in the morning, are indicated. If caused by glycosuria the patient should be put at once on an antidiabetic diet. In case a vaginal discharge is responsible, a mild astringent and antiseptic douche should be given daily. Locally, the calamine and zinc, or magnesia and zinc lotions, are very soothing.

Chloasma is a hyperpigmentation of the skin, most frequently located on the face. It is commonly observed during pregnancy, and when it does occur in pregnant women it may be considered as an exaggeration of the physiological tendency to an increase of pigmentation which usually occurs in women in this condition. Kaposi reported the case of a woman in whom increased pigmentation of a large mole on her neck was the earliest sign of pregnancy. Wychgel found that the pigment deposited in the papillary layer of the skin responded to the usual tests for iron. He considers that it is derived from the hemoglobin of the maternal blood cells destroyed in the fight against the fetal tissues.

Herpes gestationis is dermatitis herpetiformis and pregnancy is not an important factor in its production. It appears just as frequently in men, children, and non-pregnant women. It was thought to be connected in some way with pregnancy, because several observers (Milton, Bulkley, White, Duhring) have reported cases of the disease occuring in pregnant women and disappearing after childbirth.

Paronychia, or loosening of the finger nails, is a painful condition, usually dependent upon malnutrition. It usually appears in individuals of neurotic tendency. It may also be caused by the trichophyton; a number of cases of onychia and paronychia are found, if sufficiently investigated, to be due to this fungus. The treatment is a prolonged one, and if the condition is dependent on malnutrition, recovery takes place only after the completion of pregnancy.

Alopecia is a nutritional disturbance and the loss of hair usually takes place during, or shortly after the puerperium. It stops with the improvement of the general health. The loss of hair is never permanent. Locally one may use stimulating lotions, but the most important thing to do is to upbuild the patient, thereby removing the cause of the condition.

Fibroma molluscum gravidarum is extremely rare; it consists of one or more sessile, pedunculated, soft or firm, painless tumors, the size of a pea to that of an egg, which disappear spontaneously, postpartum.

Prurigo gestationis is a name given by Besnier to an itchy eruption, consisting of pin-point to pinhead size papules, closely grouped, and especially locatedl on the extensor surfaces of the hands and feet. It appears usually after the third month and disappears after the birth of the child. It recurs in successive pregnancies.

40 EAST FORTY-FIRST STREET.

MEDICAL INSPECTION OF SCHOOLS IN CONNECTICUT.

By F. H. BARNES, M.D.,
STAMFORD, CT.
SUPT. DR. BARNES' SANITARIUM.

This problem confronts us at the present time as never before and the medical profession is waking up to the fact that much is expected of them in an advisory capacity. Parents of our children are greatly interested in the subject and are seeking the best methods of bringing up their boys and girls along hygienic lines, realizing more and more the value of robust physical health. Some states already have laws making the physical examination of school children compulsory. In others the work is carried on by health departments and school boards and is simply a local affair. The neighboring States of New York and Massachusetts have laws requiring examination for physical defects in the children atending their schools. In Connecticut we have no State law governing this matter. There is a law requiring the examination of the eyes of public school children every three years. This law was passed in 1910 and its provisions are found in Section 251 of the General Statutes of the State. In the report of the State Board of Education for 1913 we find the following: "This investigation calls attention to many defects of eyesight otherwise unobserved and the evidence is conclusive that proper remedies are in many cases applied." It is interesting to note that during the year 1911 (their report for 1914 is not obtainable as yet) the eyes of 154,379 children were tested and among these were found 14,824 cases of defective eyesight or a percentage of 9.6.

During the session of the Connecticut State Legislature 1912-1913 a bill requiring medical inspection of public school children was presented by the Connecticut State Medical Society but unfortunately it failed to receive favorable report from the committee having the matter in charge. During the previous session 1910-1911 three separate bills were presented but failed to receive favorable consideration although the provisions of all three were merged into one bill. The representatives of the smaller towns throughout the State were present in force at the hearing and assailed the proposition bitterly, insisting it was impossible for scattered communities to have such inspection. If the bill had been limited to provide for inspection in towns and cities having a population of 5,000 or over it would probably have become a law. If we are to have a law governing the matter in this State it must be after a campaign of education by the medical fraternity in all its towns and cities. In order to find out what some of our cities are doing in this line letters were mailed to the Superintendent of Schools in ten of the largest cities in this State, New Haven, Bridgeport, Hartford, Waterbury, New Britain, Meriden, Stamford, Norwich, Norwalk, and Danbury. Of these cities the last three, Norwich, Norwalk, and Danbury, have no system of medical inspection. I could get but little data from the replies received and was led to believe that the records of the inspection we now have were not given to the public to any great extent. No doubt good results have been obtained and I will cite a few of the interesting facts to be gleaned from present information. The report of the New Haven Board of Health for the year ending Jan. 1, 1913, shows 11,949 pupils inspected; medical treatment was advised for 4,189. Contagious and parasitic diseases were found to the number of 1,387. Pupils vaccinated 1,562. The school nurses' report shows 4,112 treated for vermin, 7,308 for skin diseases, 929 eye and ear diseases, 3,616 sores and injuries.

The report of Bridgeport Medical Inspector, Dr. F. A. Sherman, shows a list of defects and diseases as follows: Defective vision 528, defective nasal breathing 91, enlarged cervical glands 171, defective hearing 74, chorea 101, cardiac disease 4, orthopedic conditions 58, malnutrition and anemia 221, anemia 1,369, enlarged tonsils and defective nasal breathing 1,959, defective teeth 7,776, defective palate 11, defective mentality 65, pulmonary disease 3, scabies 98, pediculosis 687, impetigo contagiosa 463, and blepharitis 595.

The report of the Board of Health, City of Hartford, year ending December 31, 1913. Excluded from school by medical inspector for following discases: measles 21, diphtheria 30, mumps 19, skin diseases 163, parasitic diseases 833; miscellaneous 111, chickenpox 3, scarlet fever 3; total 1,183.

Waterbury has medical inspection but I was unable to get any data as their Municipal Register has not been published for the year 1913-14.

The New Britain Medical Inspectors' report for the year ending June 1913 shows total number examined 1,075. The following conditions were found: anemic 54, abscess of ear 9, alopecia areata 3, acute tonsillitis 44, bronchitis 3, chickenpox 13, corneal ulcer 4, cystitis 3, conjunctivitis 27, chorea 1, deaf 6, defective vision 106, eczema 43, endocarditis 2, enlarged tonsils 65, enlarged glands 16, fracture of wrist 1, furuncle 7, goiter 1, hives 2, hip joint disease 2, herpes 28, infected leg 3, infected hand 12, indigestion 9, impetigo 15, jaundice 1, laryngitis 2, measles 1, mumps 9, necrosed jaw 1, nervousness 6, rheumatism 1, scabies 8, mentally deficient 4, rhus poisoning 33, pediculosis 26, ringworm 7, sore throat 11, stye 3, tuberculous glands 6. Four children were found desquamating after scarlet fever. One case of diphtheria was found attending school regularly. Frequent visits were made with the school nurse to the various schools and all children below the seventh grade were seen at least once.

The Medical Inspector of Meriden reports for the year 1911-12 number of physical examinations 3,464. Among these 1,413 showed some defect, 848 were found to have defective teeth only. For the year 1913-14 there was a total of 3,496 examinations. Of these, 1,467 were found defective, 716 had defective teeth only. Among the defects found were 144 cases of measles, 2 of diphtheria, chickenpox 9, pertussis 35, pediculosis 898, ringworm 16, scabies 10, impetigo 67, favus 3, trachoma 1, and conjunctivitis 22.

Stamford Medical Inspectors report physical examinations to the number of 2,057. Of these 702 had enlarged tonsils, 471 nasal obstruction, 45 defective hearing, 20 discharging ear, 175 poor nutrition, 742 defective teeth, 76 stooping shoulders, 5 lateral curvature, 75 showed nervous conditions, including chorea and epilepsy, and 3 hip joint disease. Several backward children were found with some degree of mental enfeeblement.

The value of medical inspection has already been shown in this State. It is, however, just commencing to fill the important place it should in our public schools. One cause for failures in the past has been that the right men were not selected for the work. It requires time and study, also original ideas on the part of the physician in charge. He must have patience and tact, at the same time be willing to re-

ceive suggestions of a helpful nature. In many instances the inspection has been done in a haphazard manner, little attention being paid to systematic investigation of what other cities and towns were doing in the same line. Medical inspectors should visit other towns and note their methods. Many new ideas can be obtained in this manner and later worked out in the schools under their supervision. A careful physical examination of every child of school age must be made. This information should be carried on a card system properly indexed for future reference. If physicians having the work in hand use good judgment they will be able to placate hostile public opinion and easily get the cooperation of parents generally. Medical inspectors should not only do their routine work but should at the same time educate the public to see the necessity of systematized effort for the welfare of their children. At least once or twice a month through the school year lectures should be given the parents in the assembly hall of one of the various school buildings. They can be given in connection with some little entertainment by the children. Our foreign population are willing and anxious to learn what is best for their progeny and no better method can be obtained to awake their interest and make them enthusiastic for the work. The school nurse should follow up the work of the physicians both at school and in the home to see that the children secure proper treatment. Under no condition, however, should the entire work of inspection be left to the nurse alone, as has been suggested by some school boards. The reason for such procedure probably being due to the lack of results shown by the medical inspector in those particular towns. Medical inspectors should examine every child once a year if possible. They should watch carefully for signs of contagious disease among the children. Many backward and feebleminded children are found in our schools. These should be properly classified and sent to separate classes or to our State Institution for the feebleminded. Connecticut is greatly in need of enlarged facilities for this group. The buildings at Lakeville are filled to capacity and yet no provision has been made for the large number who should be receiving State care at the present time. Suggestions should be given for the improvement of home conditions surrounding the child, both as to cleanliness and proper care by the parents. In fact a watchful eye should be kept to see that everything possible is done to protect the life and health of the many children entrusted to their care.

Connecticut should have a State law at the coming session of the Legislature to make medical inspection compulsory in all her towns and cities.

A SUGGESTION IN CASES OF LATE OPERATION FOR INTESTINAL OBSTRUCTION*

By JAMES C. JOHNSTON, M. D.,

M'ALESTER, OKLAHOMA

In late cases of obstruction there is an added hazard of toxemia; and this often develops after several hours of what is apparently a perfect reaction from both the obstruction and the operation. Permit me to suggest a plan which may prove of value in preventing the toxemia.

Given a case presenting the following symptoms: Recurrent and colicky pain in the abdomen. Nausea. Vomiting of first mucus, then bile and later foul smelling material, suggesting feces; increasing in amount and often amounting to a projectile type of vomiting. Borborygmus of variable degree. Areas of flatness on percussion over abdomen where normally it should be resonant. Leucocytosis of moderate degree. Normal temperature, or a history of no fever at onset.

Now, when we operate in such a case and remove the obstruction, we have met the mechanical indication; but we have not prepared that part of the intestine lying below the obstruction to withstand the resorption of fermented materials from the upper segment of the intestine.

The pathology of this dilated portion permits certain changes in the wall itself, through which even bacteria may pass, or perhaps merely allows a large quantity of fluid to accumulate in the intestine above the obstruction; this fluid is usually a mixture of hypersecretion, inflammatory exudate, and blood. This is followed by fermentation and venous stasis, and the destruction of the epithelium; then follow necrosis, ulcer, perforation, peritonitis and more often death, if operation has been long delayed. The operation often performed is a simple enterotomy to liberate the contents of the intestine at the point of greatest distention; the wound being thus closed with a dependable intestinal suture.

Let me suggest that, instead of closing the intestinal wound at once, the operator clamp the lower segment of intestine and thoroughly irrigate the upper segment for as great a distance above the obstruction as may be easily reached, using sterile water, or half strength of the customary physiological salt solution. It is important that none of the accumulated material above shall enter the empty and thirsty intestine lying below the obstruction.

When the operator is thoroughly satisfied that he has met the mechanical requirements of the obstruction, by liberating an incarcerated bowel in hernia, or remedied the condition brought about by volvulus, intussusception, diverticulum, neoplasm, foreign body, or fecal impaction, he should clamp the end of the upper segment and then remove the clamp on the lower segment. Then the half strength salt solution should be slowly instilled into the lower segment with a view to saturating it, so that the rapid absorption of harmful products will be doubly guarded against and diluted when then fecal stream is allowed to resume its course.

If the case presents evidence of not being suitable for complete operation, at once, the intestine may be fastened to the abdominal wall, and the irrigations above and below the opening continued at intervals until the condition of the upper segment warrants the closure of the wound.

If the instillation of the fluid into the lower segment be continued until the upper segment is in a condition approaching normal, I believe we may escape some of the cases of toxemia when the fecal current is restored. This treatment could follow a resection; and even anastomosis done later is much better for the patient and surgeon than an explanation on the death certificate of how it happened.

*Read before The American Association of Railway Surgeons, Chicago, Oct. 14-16, 1914.

Wounds Produced by French Projectiles.—M. E. Delorme records his observations made during a period of five days among 700 wounded German prisoners at the citadel of Blaye. He notes the extreme rarity of wounds of the abdomen, pelvis, and vertebral column, and the relative rarity of wounds of the chest and cranium. He notes, on the other hand, the frequency of serious fractures of the thigh.—*Presse Médicale.*

ETIOLOGY OF PELLAGRA.

By B. W. PAGE, M.D.,

LUMBERTON, N. C.

It is very rare that one finds a typical case of pellagra. It is a disease of many symptoms and of many variations. It may be placed in the sphere of dermatology, neurology, or gastrology, but still it is a general disease. It spreads and is not considered contagious, but infectious it must be. It has the latitude of amebic dysentery and hookworm disease and yet the treatments for these diseases have little effect. Is the microscope of value in the diagnosis of the disease?

For two and a half years I have been more or less interested in the study of intestinal bacteria as a cause of pellagra, but the intestinal microscopic flora and fauna include so many species I have looked with doubt on the pathogenicity of any of them until it is definitely proven. In addition to the colon group of bacteria which are found in feces of pellagrins, I have, for many months, noticed with much interest a bacillus which may be the cause of pellagra.

This bacillus is much longer and more sharpened at the ends than those of the colon group. It is motile, aerobic, sporogenous, stains readily, and grows on culture media. When spore formation is about to occur in the bacillus a point of cloudiness or an area of bright refraction appears in the protoplasm and the cell generally elongates. The spore enlarges, the cell membrane bursts, and the young bacillus emerges through the opening. At first the bacillus is very active and takes the form of a spirillum for a few seconds. It then elongates and becomes less and less motile. Later it may appear rod-shaped, slightly curved, or as a long undulating thread, and suggests the appearance of a streptococcus.

Animal inoculation experiments have not been very successful. Mild intestinal affection was produced in a cat and the bacillus was again observed on microscopic examination. In a man pellagra has been induced by transference of cultures of the bacilli. Pharyngitis and bronchitis developed within three days and were soon followed by definite intestinal and nervous symptoms of pellagra. The microscope revealed the organism in its many forms.

Of the fifty-three cases of pellagra examined, the bacilli were seen in great numbers. Seventeen of these have been examined many times and the organism was present in every instance for many months. The organism has not been seen on examination of healthy individuals and those suffering from other diseases.

The bacillus in culture has been tested by many drugs. A one per cent. solution of ichthyol seemed to have a most decided effect. I have partially tested this drug on fifteen cases of pellagra within the last six weeks. One or two five-grain pills three times a day for eight or ten days apparently cures the average case. In two instances I have known eighty grains of the drug to relieve all digestive and nervous symptoms. The more advanced cases require longer treatment. In so short a time it is impossible to have tested the drug thoroughly, but it seems to act as a specific. With the symptoms, the bacilli disappear.

The organism in all stages of the disease is present in enormous numbers in the contents of the large intestine. I believe it is usually confined to this situation. Its deleterious effects upon the body appear to be largely due to the production of toxic substances, which, in addition to serious intestinal irritation or lesion, may on absorption incite those systemic disturbances which characterize the toxemia. The disease must be spread by direct contact with the excrement of those afflicted with the malady or by flies conveying the parasite to articles of food.

Medicolegal Notes.

Physician's Liability for Negligence of Hospital Nurse.—Action was brought against the plaintiff's family physician, by whose advice she went to a public hospital for a surgical operation. After the operation she was burned by a hot-water bottle that had been left by a hospital nurse in the bed in which she was placed. It appeared from the testimony that the defendant was a member of the associated staff of the hospital and had the privilege of sending patients there for treatment either by himself or by the regular hospital physicians and surgeons; that he agreed for a stipulated sum to perform the operation, but the hospital expenses were to be paid by the plaintiff, to whom he gave a letter of introduction that secured her admission to a private room in the hospital; that she was prepared for the operation by hospital nurses under the direction of the directress of nurses, and etherized by a physician employed by the hospital for that purpose; that she was operated upon by the chief hospital surgeon, assisted by the defendant, and was removed from the operating room to the recovery room by hospital nurses and the physician who had etherized her; that a bed in the recovery room had been prepared for her reception by warming it with three hot-water bottles, one of which had not been removed therefrom, and was hidden from view by blankets which covered it; that the defendant followed the nurses and the etherizer into the recovery room and stood near the foot of the bed when the plaintiff was placed in it; that in the operating room the nurses were in charge of the surgeons, but in the recovery room they were under the direct, immediate, and exclusive control and management of the directress; that the duty of preparing the beds in the recovery room and placing the patient therein rested entirely with the directress and the hospital nurses under her charge, and that the surgeons had nothing to do with it, and that this was the general rule in hospitals. It was held that the injury was caused by the negligence of a hospital nurse, for whose service the plaintiff paid the hospital, and whose work the defendant would not have been permitted to supervise and for whose negligence he was not responsible.—Stewart vs. Manasses, Pennsylvania Supreme Court, 90 Atl. 574.

Practicing Without a License—Evidence—Healing Through Prayer.—In an action to recover a penalty for practicing without a license, the facts showed that the defendant had distributed from house to house a circular in which he claimed to have power to heal through prayer, and that investigators submitting to treatment as patients were charged a fee. The evidence was held to sustain a finding of guilty. The printed circular distributed by the defendants was held to be competent evidence. Such an action, it was held, may be based on evidence procured by investigators who applied for treatment to determine whether the defendant would commit the offense, the investigators not advising or encouraging the defendant to commit the acts constituting such offense. Such an action is not a criminal proceeding in which the venue of the offense must be proved. Although article II, § 3 of the Illionis Constitution of 1870 gives to a person a legal right to pray for the cure of sickness and disease, it does not give him the right to practice medicine without a license.—People v. McTier, 184 Ill. App. 635.

Practicing Without a License—Nature of Proceeding for Statutory Venalty.—The Illinois Appellate Court holds that a proceeding under the Act of 1899, relating to the practice of medicine within the state, to recover a penalty for the offense of practicing medicine without a license, is not a criminal proceeding requiring the offense to be proved beyond a reasonable doubt, and that the burden is upon the defendant to prove that he had such a license.—People v. Klimek, 184 Ill. App. 59.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 2, 1915.

THE ABSORPTION OF THE CEREBROSPINAL FLUID.

A SHORT while ago (MEDICAL RECORD, Nov. 28, 1914) we took the opportunity to refer to the work of Cushing, Weed, and Wegefarth in which they investigated the question of the absorption and secretion of the cerebrospinal fluid. Since that time there has appeared another article (*Am. Jour. Dis. of Children*, 1914, viii) which presents the results of work directed along the same lines but followed after a somewhat different fashion. The authors, Dandy and Blackfan, have already written on this subject and the present article is an elaboration and extension of their previous one.

They all agree that the principal source of the cerebrospinal fluid is to be found in the choroid plexus of the lateral ventricles and that it is a true secretion. They have been able to produce internal hydrocephalus in animals by plugging the aqueduct of Sylvius even though the greater portion of the plexus had been removed. In one case also they produced hydrocephalus by ligation, low down, of the vena Galeni magna. Dandy and Blackfan differ from Weed chiefly in their theories as to the method of absorption of the spinal fluid. They found that phenolsulphonephthalein appeared in the urine in six minutes after its injection into an isolated section of the spinal cord, a period but slightly longer than that required when the injection was made into the cisterna magna. When a thin emulsion of lampblack was substituted for a small quantity of spinal fluid, they found after one or two hours that the carbon particles were scattered evenly over the entire surface of the brain and cord, thus giving no evidence of the presence of any current in the fluid, such as might be present if absorption took place in any one locality. They rule out the Pacchionian granulations on the ground that they are absent in infants and in some animals. As a result of these observations, they have come to the conclusion that the absorption of the cerebrospinal fluid takes place directly into the blood from the entire subarachnoid space and that it "is a diffuse process and does not take place through specialized structures such as the Pacchionian granulations or through stomata opening into the venous sinuses." These conclusions are contrary to those arrived at by Weed. The latter's method of the injection *intra vitam* of a true solution at low pressure over a long period of time, and the precipitation of this solution *in situ*, enabled him to demonstrate the passage of his injection through specialized structures, the arachnoidal villi. Dandy and Blackfan present two observations which support their theory, viz., the distribution of the carbon particles above referred to and the fact that hydrocephalus may follow the removal of a meningocele. They explain the latter on the ground that the absorption area is so diminished by the operation that the fluid collects. It must be admitted that Weed's theory has no explanation to offer for these facts but it is doubtful if these two observations have sufficient weight to overcome the hypothesis. Dandy and Blackfan discredit the existence of a secondary pathway of absorption along the nerves to the lymphatics since phenolsulphonephthalein injected into the ventricle did not appear in the thoracic duct.

They describe internal hydrocephalus as occurring in two forms: (1) The obstructive type where the hydrocephalus is the result of partial or complete occlusion of the aqueduct of Sylvius, and (2) the communicating type in which no such obstruction exists. In the study of a series of cases they were able to differentiate these types by injecting phenolsulphonephthalein into the ventricle and determining how long a period elapsed before the appearance of the drug in the fluid withdrawn from the spinal canal in the lumbar region. In the communicating type this period was only one to seven minutes, while in the obstructive type it appeared very late if at all. This observation is of therapeutic importance since in the communicating type there is hope of influencing the condition favorably by repeated lumbar punctures while no such hope can be offered in the obstructive form. Where there is obstruction of the aqueduct of Sylvius any puncture for the removal of fluid must be done, of course, into the ventricle. Dandy and Blackfan used their method in the study of eleven cases in which they found seven of type one and four of type two. The causation of the second type is quite obscure. Some of these patients give a history of meningitis and the authors think that secondary to this inflammation there may be some limitation of the subarachnoid space. They also advise against the removal of a meningocele if the absorption from the subarachnoid space as determined by the use of phenolsulphonepthalein, is below normal.

ASEPSIS AND ANTISEPSIS IN WAR.

THE present war will teach us many things from the surgical point of view. It has already impressed upon the minds of surgeons with great force the need of treating wounds as quickly as possible. Especially have the events of the past few months in Belgium and France made evident the necessity for the employment of some means whereby a wound may be rendered aseptic at once. But what the means shall be is a question around which a somewhat heated controversy is being carried on by several of the best known British surgeons, a controversy which seems to hinge on the point as to whether aseptic measures are powerful enough in

the circumstances, or whether antiseptic measures must be brought into play.

Sir Rickman Godlee brought out recently a pamphlet in which he recommended that recent wounds should be swabbed out by pure liquid carbolic acid. Shortly after the publication of this pamphlet, Sir W. Watson Cheyne opened a discussion on the treatment of wounds in war by reading a remarkably able paper, in which he, too, advised the employment of liquefied carbolic acid in the treatment of recent wounds. He stated that one-in-twenty carbolic lotion will not disinfect the cavity of a wound which contains the spores of pathogenic bacilli, while, on the other hand, liquefied pure carbolic acid will kill spores in a very few minutes. Further, he pointed out that carbolic acid is an anesthetic and its application causes very slight pain which subsides almost immediately. Sir Victor Horsley, who always appears to have the faculty of injecting a certain amount of acrimony into all discussions in which he takes part, fiercely combated these views, and went so far as to declare that Godlee's pamphlet should be immediately recalled. He said that he did not believe in escharotic surgery and declared that it was absolutely contrary to the principles and teaching of Lister to use pure liquid carbolic acid in any circumstances in the treatment of wounds.

The discussion has waged now for two or three weeks in the correspondence column of the *British Medical Journal* and is still going on. Some of the letters contributed are illuminating, while all are interesting. A large number of the writers, possibly the majority, uphold the views of Cheyne and Godlee and others suggest other disinfecting agents. The use of petrol is lauded by a few, but also condemned by a few. The employment of alcohol is advised, and it may be recalled that Bevan in the August number of *Surgery, Gynecology, and Obstetrics* in discussing the treatment of gravely infected wounds seen by him in the last Balkan campaign, concluded that the best dressing for badly infected wounds was a wet compress of 60 per cent. spirit.

Again there are those who swear by iodine for this purpose, and it has been stated authoritatively that bullet wounds painted with tincture of iodine immediately after their reception and before the application of the first dressing may be expected to follow an aseptic course. Cheyne objects to the use of iodine on the battlefield, and while admitting that the antiseptic power of iodine is practically the same as that of carbolic acid, he points out the great difficulties in the way of applying it properly under the conditions which prevail in war. Further, iodine causes great pain which lasts for a considerable time. As for the mercurial salts he excludes them altogether, because, although they kill microbes quite readily and in very considerable dilutions, if these organisms are free or in a slightly albuminous fluid, they are of no use when the organisms are present in albuminous or oily substances. Peroxide of hydrogen is valuable as a germicide, but is useless against spores.

The consensus of opinion of those who took part in the discussion before the Medical Society of London as well as of those who wrote to the *British Medical Journal* was that in order properly to disinfect a wound incurred in fighting under such conditions as exist in France and Belgium strong antiseptic measures must be employed. And most of those who argued the point pinned their faith to pure liquid carbolic acid. It should be borne in mind that the skin of the soldiers, who frequently are fighting for days and nights together without changing their clothes, is of necessity dirty and septic. From the skin the microbes enter the wound and infect it deeply in a short time. Also the soil will infect it, and this has been shown in France by the large number of cases of tetanus which have occurred. Therefore, it would seem that a strong antiseptic is called for, one which will not only kill germs but spores. Aseptic measures act splendidly when carried out under favorable conditions, as in a modern hospital. The treatment then is ideal, but circumstances alter cases, and it will not be too much to say that on the battlefield to attempt to rely upon such a procedure will be to lean on a broken reed. Professor Tuffier of Paris, in his report of the inspection of the French Army, read before the Academie on October 13, stated that, in his opinion, antisepsis was incontestably superior to asepsis. Many of the older followers of Lister are now loudly exclaiming that antisepsis has come into its own again. However, the truth of the matter probably is that there are occasions when antiseptic treatment of wounds is indicated, and the time of war is the chief one of these occasions.

ANNUAL REPORT OF THE SURGEON-GENERAL OF THE NAVY.

THE annual report of the Surgeon-General of the U. S. Navy, recently issued, provides very pleasant reading. During the year 1913 the health of the Navy was good, showing a satisfactory improvement over the preceding year. With regard to diseases of special interest, the incidence of malaria increased from 11.63 per 1,000 in 1912 to 12.07 in 1913. This increase was accounted for by the cases occurring on ships in Mexican waters. The value of efforts to protect seamen from the bites of mosquitos was clearly demonstrated. Admissions for diphtheria increased from 0.93 per 1,000 in 1912 to 1.10 in 1913. An outbreak of smallpox occurred on the *Ohio*, and the result of this outbreak appeared to show plainly that in order to avoid contracting this disease vaccination is essential. The *Ohio* and *Vermont* visited Marseille, where smallpox of a virulent type was present. Liberty was granted the men of both ships. On the *Vermont*, whose crew had been carefully examined and vaccinated before leaving home waters, no case of smallpox occurred, while on the *Ohio*, whose men had not been vaccinated for two years, there were twenty-five cases of the disease. Further, eleven cases were malignant and hemorrhagic and in none of these could any scar of successful vaccination be found, but all the fourteen remaining cases of the varioloid type showed vaccination marks.

It is gratifying to note that typhoid fever con-

tinues to show a very marked decrease in the navy. The report, however, points out that this decrease is not altogether satisfactory, seeing that by means of the same procedure, antityphoid inoculation, the malady has been practically eradicated from the army. The question as to how long immunity conferred by this treatment lasts has not yet been successfully answered, and until this has been done the greatest care must be taken to ensure the safety of the men. The incidence of tuberculosis was about the same as for the previous year and venereal infection exhibits a considerable decrease. Alcoholism in the navy has diminished, but there was a slight increase in the rate for mental diseases over the previous year.

Referring to sanitary conditions afloat, the report, among other things, calls atention to the need for hospital ships and emphasizes the point that the only way to have hospital ships in an emergency is to provide them in advance. The personnel of the Navy Medical Department is adequate to meet all demands in time of peace.

THE HEALTH AND PHYSIQUE OF THE CHINAMAN.

It is interesting as well as instructive to learn all that is possible concerning the characteristics, mental and physical, of all races. At the present time when the yellow races are looming large in the public eye, it is especially instructive to gather as many facts as can be gathered regarding the Chinese. Consequently the eighth annual report of the collegiate and medical departments of the Yale mission in Changsha, China, contains many items of value to medical readers.

Referring to the physical characteristics of the Chinese students of the school in question, the report says: The general physical condition of 25 per cent. of 112 such students examined was poor while that of 53 per cent. was only fair, leaving but 22 per cent. in actually good all around condition. In muscular development the percentages were: poor, 39 per cent.; fair, 41 per cent.; good, 20 per cent.; and in the strength tests the average was 306.5 below the average for students of corresponding heights at Yale in America. Nutrition and fatty tissue were subnormal in 27 per cent., and only fair in 46 per cent. Examinations for digestion showed 33 per cent. poor, 25 per cent. fair. In 74 per cent. examination of the feces showed the presence of Ascaris eggs. Total neglect or very ineffective care of the teeth was common, as shown by a percentage of 63 per cent. that needed cleaning.

Unhealthy conditions in the respiratory system were noticeably prevalent, no less than 60 per cent. being in need of treatment for either nose, throat, or lungs. High pitched resonance was evident in 30 per cent. of the lungs examined. Other common defects were: adenoids, 11 per cent.; diseased tonsils, 47 per cent.; polyps, or narrowed fauces, 18 per cent.; deflected septum, 33 per cent.; swollen turbinates, 35 per cent. The vision of 40 per cent. was defective, several marked cases of trachoma were found and there was evidence of it in 16 per cent. In the circulatory system a thickening of the vessel wall was noticeable in 49 per cent., which is abnormal for an average age of 18 years, 6 months. Thirteen per cent. had some enlargement of the heart, while 20 per cent. had either murmurs or other signs of irritability.

From the physical standpoint it is obvious that the Chinese youth, in the district in which the Yale Mission works, is not the equal of his white brother in America. However, this is not a matter for surprise, by heredity he is not so well born in a physical sense, by environment he is not on the same plane, and lastly his mode of living and especially his diet do not tend to render him a large or muscular man.

The Homograde Thermometer.

A clinical thermometer has been introduced recently which the inventor claims to be superior in many respects to the Fahrenheit and Centigrade. This thermometer is the invention of Dr. F. E. Aspinwall of La Grange, Ky., and is described in a paper contributed by him to the *Dietetic and Hygienic Gazette* for September, 1914. According to Aspinwall, in the "homograde," the name by which this thermometer is known, the normal human animal heat at or near the surface of the body, where sensation mostly exists, is the unit of value and every degree in the scale is equivalent to the hundredth part of that unit. Thus every degree and every figure in the scale has an instantly apparent and definite value, and all temperatures are at once understood by comparison with the accepted normal animal heat. The homograde scale may be briefly described as follows: Beginning with 0° at the freezing point, 270° is placed at the boiling point of water. This brings 100° at the accepted normal for blood heat, viz., 98.6° F., or more exactly 98 2/3° F. Dr. Aspinwall has devised a short degree thermometer scale which may have many advantages over the Fahrenheit and the Centigrade, but we fear he will have a vast amount of conservatism to overcome before he can secure its general adoption by the medical profession.

News of the Week.

For the Relief of Belgian Physicians.—The Committee of American Physicians for the Aid of the Belgian Profession held a meeting in New York on December 20, at which time, as previously announced, officers were elected and an executive committee appointed. Inquiries are being made to learn direct from Belgium and Holland the most urgent needs of the profession at this time. The Commission for Relief in Belgium will deliver supplies so far as war conditions will permit, and without cost to the physicians' relief committee. In order to facilitate delivery it has been arranged that all shipments by the Committee of American Physicians will be made in boxes painted with a yellow band. This is in conformity with the color scheme adopted by the Commission for Relief in Belgium, which is designed to facilitate the safe passage of articles across the seas, through the various countries they must traverse, and to their ultimate destination. All subscriptions to the fund for the aid of Belgian physicians should be in the form of checks or postal orders payable to Dr. Frank F. Simpson, treasurer. They may be sent to Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pitts-

burgh, Pa. As many signatures are illegible all checks should be accompanied by a card giving the donor's name and address in typewriting or printing. The Union Trust Company of Pittsburgh has been selected as the depository of the committee. Checks will be promptly deposited and will at once be available for the purchase of supplies by the Executive Committee. A weekly report of receipts and expenditures will be made by the treasurer to the members of the committee and through the medium of the medical journals to the medical profession as well. During the week ending December 26 contributions to the amount of $405 were received.

Suggested Changes in the Work of the New York State Board of Medical Examiners.—On December 16 the Regents' Advisory Council in Medicine met and conferred with representatives of the State Medical Society, State Homeopathic Medical Society, State Eclectic Society, and State Osteopathic Society. At this meeting Dr. Heffron, dean of the Syracuse College of Medicine, recommended that pathology and bacteriology should be made separate subjects in the State Board examination; and, likewise, that the question papers for hygiene should be separate from those for sanitation. He also suggested that internal medicine and pediatrics be added to the list of subjects. Both Dr. Heffron and Dr. Williams of the Buffalo School of Medicine urged that the law be amended so as to permit the State Board of Medical Examiners to supplement the present written examinations with practical examinations.

The present requirement of one year's work each in physics, chemistry, and biology for a medical student certificate was severely criticised as being too rigid by President Lowell of Harvard University, who had been invited to be present. The council recommended that this requirement be amended so as to permit students with baccalaureate degrees to matriculate with a condition in physics or biology, or both of these subjects, but not in chemistry.

The several State societies urged the Regents to assume the responsibility of enforcing the Medical Practice Act. Commissioner Biggs of the Health Department said his department would undertake the enforcement if means were provided. The bill introduced at the last legislature defining unprofessional conduct was discussed and amended into a form that was recommended to the Regents to introduce anew at the coming legislature. The definition includes fee splitting and fraudulent advertising.

Canadian Medical Men at the Front.—In addition to the surgeons regularly attached to the Canadian troops now in France and Belgium about one hundred doctors and nurses from the Dominion are engaged in hospital work in France. Twenty members of the teaching staff in the medical department of McGill University, Montreal, with the Dean of the medical faculty, Dr. H. S. Birkett at the head, have effected a hospital organization and offered the same to the British Government. The offer has been accepted and as soon as mobilization can be effected the hospital personnel will sail.

Arrest of Drug Sellers.—Complaints received recently by the police from the parents of many school children that cocaine sellers have been plying their trade outside public schools and that children had come home under the influence of the drug led to the arrest of six men charged with selling the drug. The arrest of three other men about the same time led to the discovery of a large store of cocaine, heroin, morphine, veronal, and other narcotic drugs, to the value of over $10,000.

Epidemic of Diphtheria.—The nine public schools in Hoboken and the public library were closed early last week because of the rapid spread of diphtheria, and 9,000 students, including those in the high school, were started on their Christmas holidays two days ahead of time. One hundred cases were reported in six days.

The Classification of Medical Schools.—Dr. Henry S. Pritchett, president of the Carnegie Foundation for the Advancement of Teaching, will address the coming meeting of the Federation of State Medical Boards of the United States and the Association of American Medical Colleges on "The Classification of Medical Schools." This meeting will be held Wednesday morning, February 17, in the Congress Hotel, Chicago. Dr. Pritchett is understood not to favor the American Medical Association's method of classification.

A Ban on Roller Towels, Common Brushes, Etc.—Regulations recently adopted by the State Health Department, violation of which will be a misdemeanor, forbid the use of roller towels, the barber cup with soap for all comers in the bottom, the unsterilized hair brush in public places, spitting on the street and in public buildings, and various other indecent and unsanitary acts. The regulation will go into effect on March 15 and will rule in all parts of the State north of Bronx County.

State Civil Service Examinations.—The New York State Civil Service Commission announces an examination on January 23 for bacteriologist and assistant bacteriologist in the State Department of Health. Two lists will be established as a result of this examination: one eligible to appointment as either bacteriologist or assistant bacteriologist at a salary of $2,000, open only to men who have the degree of Doctor of Medicine; the other eligible to appointment as assistant bacteriologist only at salaries ranging from $1,200 to $1,500, open to both men and women. Applicants should have a thorough knowledge of the principles of bacteriology and must have had considerable practical experience in the bacterial diagnosis of infectious disease, and a general knowledge of clinical microscopy and of gross and histological pathology is desirable. Candidates will be rated on a written examination relating to the duties of the position and on their general and special training and particularly their practical experience and personal qualifications as shown by their sworn statements, and by answers to such inquiries as the Commission may make of their former employers and others acquainted with their qualifications and experience.

On the same date an examination will be held for the position of physiological chemist, State Department of Health. Salary $1,800 to $2,500. Applicants should have a thorough knowledge of the principles of organic and physiological chemistry. They must have had at least three years' practical experience in physiological or biological chemistry. Candidates will be rated on a written examination relating to the duties of the position, and on their general and special training and particularly their practical experience and personal qualifications as shown by their sworn statements and by answers to such inquiries as the Commission may make of their former employers and others acquainted with their qualifications and experience. Open to men and women, non-residents and non-citizens, subject to

the usual rule giving preference in certification to citizens and residents of New York State. Application blanks for either examination may be obtained from the New York State Civil Service Commission in Albany.

Persistent Milk Adulterators.—A firm of milk dealers in Brooklyn was recently fined $500 in the Court of Special Sessions for three violations of the section relating to the sale of adulterated milk. The members of this firm had previously been convicted twenty-one times for selling adulterated milk, sixteen times for violation of Section 183—returning uncleaned containers to the country, and eleven times for violation of Section 56a—mislabeling of milk.

Medical Society Elections.—The Montgomery County, Tenn., Medical Society, at its annual meeting in Clarksville on December 5, elected the following officers: *President,* Dr. W. R. Newton; *Secretary and Treasurer,* Dr. R. B. Taylor.

The Androscoggin County, Me., Medical Association, meeting at Lewiston on December 8, elected the following officers: *President,* Dr. J. W. Scannell; *Vice-President,* Dr. William Ness; *Secretary-Treasurer,* Dr. Elson B. Buker; *Board of Censors,* Drs. W. L. Haskell, S. E. Sawyer, and J. A. Dupras; *Delegate to the Maine Medical Association,* Dr. J. A. Donovan.

The Athens, Ga., Medical Society elected the following officers on December 5: *President,* Dr. S. S. Sisk; *Vice-President,* Dr. J. C. McKinney; *Secretary and Treasurer,* Dr. H. I. Reynolds; *Censor,* Dr. S. S. Smith; *Delegate to the State Association,* Dr. J. C. McKinney; *Alternate,* Dr. R. P. Glenn.

The Tuscaloosa County, Ala., Medical Association elected the following officers at its annual meeting on November 30: *President,* Dr. J. E. Shirley; *Vice-President,* Dr. H. B. Searcy; *Secretary,* Dr. J. H. Somerville.

The Miriam County, Texas, Medical Association meeting at Cameron on December 9 elected the following officers: *President,* Dr. E. E. Bert; *Vice-President,* Dr. W. R. Newton; *Secretary and Treasurer,* Dr. R. B. Taylor.

The Dallas County, Texas, Medical Society at its meeting on December 9 elected the following officers: *President,* Dr. W. C. Swain; *Vice-President,* Dr. J. D. Watson; *Secretary,* Dr. R. S. Loving; *Board of Censors,* Drs. W. T. Baker and C R. Hannah; *Delegate to the State Society,* Dr. W. A. Boyce; *Alternate,* Dr. A. B. Small.

The Bell County, Texas, Medical Association at its meeting at Temple on December 4 elected the following officers: *President,* Dr. J. J. Terrill; *Vice-President,* Dr. E. D. Maloy; *Secretary and Treasurer,* Dr. L. R. Talley.

The Jefferson County, Texas, Medical Society elected the following officers at its meeting at Beaumont on December 7: *President,* Dr. E. C. Ferguson; *Vice-President,* Dr. W. E. Tatum; *Secretary,* Dr. B. P. Holland; *Censor,* Dr. E. C. Moody; *Delegate to the State Society,* Dr. D. S. Weir; *Alternate,* Dr. O. S. Hodges.

The Tarrant County, Texas, Medical Society elected the following officers at a meeting held at Fort Worth on December 4: *President,* Dr. J. A. Gracey; *Vice-President,* Dr. C. O. Harper; *Secretary,* Dr. James J. Richardson; *Treasurer,* Dr. W. R. Thompson.

The Butte County, Cal., Medical Association at a meeting held at Chico on December 8 elected the following officers: *President,* Dr. M. P. Stansbury; *Vice-President,* Dr. C. C. Landis; *Secretary and Treasurer,* Dr. E. E. Baumeister; *Censor,* Dr. D. H. Moulton.

The Fall River, Mass., Medical Society, at its annual meeting on December 9, elected the following officers: *President,* Dr. C. A. Howland; *Vice-President,* Dr. A. J. Barre; *Secretary,* Dr. R. W. French; *Treasurer,* Dr. W. S. Lyon; *Librarian,* Dr. G. L. Richards; *Assistant Librarian,* Dr. A. C. Macrae; *Executive Committee,* Drs. A. C. Lewis and F. A. Chace; *Program Committee,* Drs. J. H. Lindsey, W. H. Creamer, and Mary W. Marvell.

The Medical Society of Kent County, R. I., meeting at West Greenwich on December 11, elected the following officers: *President,* Dr. Benjamin F. Tefft, Jr., of Anthony; *Vice-President,* Dr. Philip C. Means of Apponaug; *Secretary,* Dr. Charles I. Phillips of East Greenwich; *Treasurer,* Dr. Frank Bailey Smith of Washington; *Censor,* Dr. James N. Bodwell of Harris.

Prof. Jean Alfred Fournier, the well known dermatologist and syphilographer, died in Paris on December 24, at the age of 82 years. He was a Commander of the Legion of Honor, a visiting physician of the Paris hospitals, a Professor of the Medical Faculty at Paris, and a member of the Academy of Medicine.

Obituary Notes.—Dr. Alexander P. O'Malley of Wilkes-Barre, died at his home in that city on December 12 at the age of 62 years. He was born in Ireland and was brought at the age of two years to New Haven, Conn., by his parents. He was graduated from the medical department of the New York University in 1876, and soon thereafter began the practice of his profession in Wilkes-Barre.

Dr. Johnston McLanahan of Chambersburg, Penn., a graduate of the Jefferson Medical College, Philadelphia, in 1865, and a member of the Medical Society of the State of Pennsylvania and the Franklin County Medical Society, died at his home on December 13, aged seventy years.

Dr. Clarence Howard Hagmeier died at Reinholds, Pa., on December 16 at the age of twenty-eight years as a result of septicemia. He was graduated from the medical department of the University of Pittsburgh in the class of 1913, and he resided for a time at Iselin, Pa.

Dr. John F. A. Clausnitzer of this city, died on December 20 at the age of 61 years. He was born in Dresden and obtained his medical degree at the University of Leipsic in 1881. He had practised in New York since 1883.

Dr. J. S. McCorkle died in his home in Fort Smith, Ark., on December 11, at the age of 79 years. He served in the Confederate Army as surgeon and since the war had practiced in Arkansas. He retired several years ago.

Dr. Thomas W. Flood died of typhoid fever at his home in Haverhill, Mass., on December 16. He was born in Nashua, N. H., in 1883 and was graduated in medicine from the Johns Hopkins University in 1902.

Dr. Winfield S. Smith of Boston died at his home in Brookline on December 16, at the age of 53 years. He was born in Chatham, Mass., and was graduated from the Boston University School of Medicine in the class of 1883. He was surgeon to the Massachusetts Homeopathic Hospital, the Westboro Insane Hospital, and the Leonard Morse Hospital in Natick. He was professor of operative surgery at the Boston University medical school and consulting surgeon to the Emerson Hospital.

Dr. Edward W. Myers, a retired physician of

Kansas City, died on December 14 at the age of 77 years. He was born in York County, Pa., and was graduated in medicine from the University of Maryland in 1862. He practised in Kansas City from 1881 until about two years ago.

Dr. HARRY T. WALDER, formerly of Camden, N. J., died at Dubuque, Ia., on December 15. He was a graduate of Jefferson Medical College and of Keokuk Medical College.

Dr. JAMES WINTER WAMSLEY died at Philadelphia on December 21 at the age of 40 years. He was graduated from Jefferson Medical College in the class of 1893, and he served afterward as resident physician in Cooper Hospital, Camden, N. J.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CHADWICK LECTURE—INJURIES IN WAR—ENTERIC FEVER IN WAR—GENERAL MEDICAL COUNCIL—ROYAL COLLEGE OF SURGEONS—LONDON HOSPITAL—NAILS REPRODUCED.

LONDON, December 12, 1914.

SIR RONALD ROSS delivered the first Chadwick lecture for this year on Friday last, taking as subject "Government Civil and Military Sanitation in the Tropics." He considered that the exclusion of civilization from large tropical areas was due to a considerable extent to diseases prevalent in such areas which had not been investigated until recently. We have now found out how many tropical diseases are caused and how they might be prevented, but the question remains whether public administration can utilize the measures suggested by science. The ancients took some care of sanitation, as witness the success of Empedocles in expelling malaria from a Sicilian city 500 years B.C. But in the Middle Ages nothing advanced. In modern times the history of sanitation began with that of colonization as diseases were encountered by the early voyagers and explorers who paid little attention to food, water, dress or housing. Towards the middle of last century some growth of sanitation in Europe was manifest, and that naturally extended to the tropics. Sir Ronald said the seven commandments of sanitary science were: Pure water supply, pipe sewerage, no vermin, efficient management of towns and villages, special measures against special diseases, adequate sanitary law and adequate sanitary organization. These were, he thought, beginning to be obeyed by governments and people in the tropics.

Sir J. Crichton-Browne, who presided, thanked Sir Ronald Ross and said sanitation was more than armaments. He also regretted that the antivaccination league was luring men into opposition to typhoid inoculation which was an undoubted protection.

Mr. Lockhart Mummery at the Royal Society of Medicine read a paper advocating expectant and conservative treatment in injuries to the bowel from shell or bullet wounds. He said the worst cases were those in which there was fracture of the pelvis or sepsis. He described a case of faecal abscess opened by a traumatic aperture through the ileum. The bowel was sutured and complete recovery followed. In such cases he thought temporary transverse colostomy was usually advisable.

Enteric fever in war has been discussed at the Society of Tropical Medicine and Hygiene, on the introduction of Sir William Osler, who treated it from several aspects, but chiefly in regard to the results of immunization as shown in the United States army. The figures he considered quite conclusive as to the benefits of antityphoid inoculation, and while admitting the possibility of unpleasant after effects said he found in cases brought to his notice only slight headache with rise of temperature the day after the injection and some diarrhea or perhaps constipation a day or two later. At present, cases from the front were few, he had only seen two or three at the Oxford base hospital, but the conditions of the war predisposed to an outbreak and it would be a triumph of sanitation if one did not occur.

The president, Sir Havelock Charles, expressed strong belief in inoculation and gave statistics of the Indian army showing the improvement since it had been employed. In India isolation stations for convalescents proved valuable against typhoid carriers. Sir John Broadbent referred to paratyphoid in relation to carriers. Dr. Walter Broadbent told of six cases of illness after inoculation; one of pneumonia the day after when feeling unwell he refused to lie up and caught a chill; four of pyrexia for a few days of men inoculated the same day, so possibly defective serum; one feverishness two days after second inoculation. Dr. Goodall was disappointed with the lack of news from the front, enteric being often prevalent in France and Belgium. He was sceptical about carriers, but believed in personal infection. Fleet-Surgeon Bassett-Smith reported free use of inoculation in the navy. He knew one case of a carrier taking typhoid from one ship to another. Dr. Atkinson said men ought not to be sent to the front too soon after inoculation; he knew of influenza and albuminoria coming on after inoculation. Dr. F. M. Sandwith had done more than 1,000 inoculations without any after ill-effects, and thought those reported must be due to want of care or exposure afterwards, as happened to some men taken next day for a route march. Rest for twenty-four to thirty-six hours should be insisted on after every injection. He questioned if the deltoid was the best site. So did Sir W. Osler, who in his reply recommended the pectoral or the abdominal wall, and endorsed what had been said as to rest and some other points.

The General Medical Council has concluded its session. Though a good deal of business was got through there is not much in the proceedings to interest your readers. Much of the time of the meeting was occupied by trying accusations of "infamous conduct in a professional respect," which is the form under which all charges of misconduct have to be made. So the only penalty in the power of the council is removal of the name of one found guilty from the "Medical Register," and that disqualifies him from practice. As this is too severe for minor offences, involving the ruin of the person, the council has invented for itself a minor punishment—a temporary suspension from practice. This is managed by postponing the decision until the next meeting of council when the accused has to appear again and bring evidence of his conduct during the interval. As he can during that time obtain the help of a qualified person to carry on the practice, though he will suffer great loss, no doubt in many cases he may, if eventually permitted, recover a number of his patients. Even so the sentence is heavy. Several were thus dealt with during the session and in one or two the full penalty of erasure from the Register was inflicted.

On a report of the executive committee it was decided to postpone for the present the visitation and inspection of examinations by the qualifying bodies.

A report on the examinations of the Apothecaries' Hall of Ireland led to a long unsatisfactory discussion. The representative of the Hall was able to quote reports of examiners to the council expressing favorable views as to the adequacy of the examinations. To listen to this and what followed, if you had some knowledge of the history of the different bodies here represented, might very well suggest that we knew very well that we have too many examining bodies, but each thinks his own is not the one that should be sacrificed. Few would deny that the majority could very well be spared. It was at length decided to send the report to the Hall and request their observations upon it, which postpones the matter until the next session in May, 1915.

Other committee reports were received and approved on: The public health, the pharmacopeia, students' registration, dental education, and prevention of unqualified practice. The last named desired that the council should convey to the Prize Council its complete approval of the recommendations of the select committee of the House of Commons on patent medicines and also represent to the Lord President the necessity for the immediate creation of a Ministry of Public Health in pursuance of the advice of the same select committee. The council adopted both these recommendations and concluded the session.

Yesterday at the Royal College of Surgeons the council decided that the Hunterian oration should be delivered as usual on the fifteenth of February, 1915, but that the dinner in the evening should not be held. Many other institutions are omitting their customary festivities during the war. At this meeting the recent resolution of fellows and members in favor of admitting members to direct representation on the council was considered. The council held that as the matter was fully considered last March they could see no advantage in reopening it at the present time.

The London Hospital has offered the Government to despatch to France a contingent staffed by physicians, surgeons, dressers, nurses, radiographers, and others. The contingent can start at once. At the meeting of governors when this offer was made it was stated that the cost of various drugs had increased since the war—carbolic acid, for example, had gone from 3¾ pence to 16 pence per pound. Sir F. Eve, after thirty years on the surgical staff, was elected a consultant. To the chairman, after nineteen years' service, the committee presented his portrait, which he in turn presented to the hospital. It was decided to cancel all festivities this Christmas.

Dr. Leslie Dunro mentioned at the Aesculapian Society the case of a woman of forty-five whose finger and toe nails had long been absent. She had to undergo ovariotomy. After the operation the nails began to grow rapidly and in three weeks were completely restored.

Parotid Ablation and Pluriglandular Insufficiency.—Lorenzo Neri has shown by experiments on dogs and rabbits that following extirpation of the parotids there are structural changes in the thyroid, ovaries, testicles, pancreas, suprarenals, spleen, and kidneys. These changes consist at first in a diminution in the tinctorial reactions, and later in an involution and atrophy of the respective organs with an intra- and extracellular fatty infiltration.—*Giornale Internazionale delle Scienze Mediche.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 17, 1914.

1. The Significance and Effect of Pain. J. M. T. Finney
2. Community Health. G. M. Katsainos.
3. Critical Defervescence in Typhoid Fever. E. J. Wood.
4. The Present Status of Crotalin in the Treatment of Epilepsy. D. R. Thom
5. Trauma to the Kidney Resulting in Nephrectomy Report of Two Cases. W. E. Hartshorn.

1. Significance and Effect of Pain.—J. M. T. Finney in the Ether Day address states that his own clinical observations support the contention of Ross that there are two forms of pain, splanchnic and somatic. Any nerve ending may be sensitive to some one form of stimulation which has been called "the adequate stimulus" but insensitive to all others. The adequate stimuli vary for different parts of the body—therefore visceral pains are not of the ordinary tactile or thermal types to which the skin and mucous membranes so promptly respond. The threshold of pain may be raised or lowered according to certain established conditions. Tension in some form or other is the commonest, perhaps the sole cause of visceral pain. The referred pains arising in the course of disease of the internal organs increase the difficulties of diagnosis many fold. There is a psychology of pain. Some one has said that pain is the resultant of two factors, the lesion and the patient. It is difficult to estimate the degree of pain but there are certain signs of suffering which are unmistakable—the pinched features, the knotted brow, the rolling eyes with widely dilated pupils, the ashen countenance, the cool and clammy skin, the thready pulse, the increased blood pressure, the hands alternately clenched and opened, the cries and groans, and the bodily contortions—all these present a definite picture. The fear of pain plays a large part in its psychology. While on the one hand pain breaks down the powers of inhibition so that the individual who has at first exhibited fortitude becomes a complaining creature or one embittered or hardened, nevertheless on the other hand pain has an ennobling influence and brings out the higher qualities of heart and mind. Pain as a diagnostic sign is of the utmost importance. Ninety per cent. of all diseases either begin with it or at some time in their course are accompanied by it. Pain arising in inflammatory processes, particularly of bone, is described as "boring" or "throbbing" or "jumping" in character. Nerve pains are burning, shooting, or stabbing. The terms "stinging" or "sticking" describe the sensation experienced early in the course of cancer of the breast. The postprandial pain of gastric or duodenal ulcer, and the pain of anal fissure, increasing for several hours after defecation, are characteristic. Pain is notoriously worse at night. Weather conditions have an important effect upon pain. Individuals of the phlegmatic type bear pain better than others. Abdominal pain is usually accompanied by spasm of the overlying muscles. The sudden cessation of pain in the course of an acute inflammation of the right side of the abdomen may be of the gravest import, particularly if not associated with a corresponding drop in the temperature, pulse-rate and leucocyte count. Under these circumstances it is an unfailing index of gangrene or rupture of the appendix or of a sudden breaking down of the barriers between an abscess and the general peritoneal cavity. It is essential to the successful treatment of any case in which pain is a prominent feature to know when to withhold anodynes so as not to mask the clinical picture, and when to administer them.

2. Community Health.—G. M. Katsainos makes a plea for the more thorough teaching of venereal dis-

eases in the medical school; a wider education of the public regarding the horrors of these diseases; a suppression of quack advertising in the newspapers; the isolation of infected prostitutes; a boycott of the indecent drama; and the payment of better wages to the working woman.

3. Critical Defervescence in Typhoid Fever.—E. J. Wood calls attention to the rarity of crisis in typhoid fever. Curschmann has noted a so-called "pseudo-collapse" occurring during the height of the fever, but unattended by any alteration in the character and rate of the pulse. The *crise hypothermique* of the French is unaccompanied by collapse and is followed by a return of the temperature to the former level. In the presence of a sudden fall of temperature in typhoid fever it is necessary to exclude all possible sources for this drop, such as hemorrhage or perforation. According to the author's experience crisis in typhoid fever is not to be dreaded, for it is unattended by dangerous depression. Crises usually occur after a high run of temperature in cases of severe toxemia.

New York Medical Journal.

December 19, 1914.

1. Report of a Case of Aphasia and Apraxia. A. B. Evarts.
2. Glénard's Disease. O. Lerch.
3. Gonorrheal Epididymitis and Its Nonoperative Treatment. W. J. Robinson.
4. Cirrhosis of the Liver in Wild Animals. H. Fox.
5. Penetrating Gunshot Wounds of the Abdomen. J. Frank.
6. Phenolsulphonephthalein Renal Function Test. J. I. Fanz.
7. Autoserum Injections in Streptococcic Endocarditis. R. Abrahams.
8. Eyestrain in the Development of Tuberculosis. F. D. W. Bates.
9. Sulphurous Acid in the Treatment of Furuncles. P. G. Skillern, Jr.
10. The Treatment of Chronic Leg Ulcers. Harry D. Sonnenschein.

1. Aphasia and Apraxia.—A. B. Evarts reports the case of a woman in whom these conditions were present. He notes that Frantz has described sixteen varieties of aphasia ranging all the way from cortical motor aphasia to member apraxia. The patient was able to say a few words and sentences voluntarily, but many of her attempts at speech could not be understood. When given a ring she named it correctly. A pencil she called a knife. Given a hairpin she called it a "cake, no ring," and then said, "What is that now? Tell me, I can't speak it." She was unable to write her name with either hand, making only a few purposeless movements. She could promptly follow simple commands when told to stand up, to cross her legs, squeeze the examiner's hand, etc., but any command containing two or more ideas brought about confusion and inability to obey. She was unable then to name certain pictures which were given to her, but recognized the correct name when it was supplied. In this case the aphasia is not pure. The power of expression by speech seems to have received the chief injury, but there were frequently noted times when words failed to provoke their proper engrams. There was an accompanying apraxia of the right hand and to a lesser degree of the right leg and a dyspraxia of the left hand. How great may have been the injury to that portion of the brain which exercises control over reading and writing was hard to say because the patient never could write anything but her own name. The author infers, therefore, that this was a cortical lesion. The trouble was motor rather than sensory, and Broca's center was the one probably affected, this being in the posterior portion of the inferior frontal convolution where it borders upon the operculum. An interruption of the association fibers alone was sufficient to account for what sensory disturbance was found as well as to account for the apraxia. Whether the actual lesion in any way involved Wernicke's center, which is in the left superior temporal convolution, and concerns itself with the tone pictures necessary to the understanding of speech, was difficult to say. The posterior portion of the inferior frontal convolution is inferred to be the area in which the lesion was present in this case.

2. Glénard's Disease.—O. Lerch has come to the conclusion that enteroptosis is due to an abnormal form of the spine and that hysteria, neurasthenia, and the visceral neuroses are caused by circulatory disturbances in this constitutional anomaly.

9. Sulphurous Acid in the Treatment of Furuncles.—P. G. Skillern, Jr., recommends the administration of one teaspoonful of this drug in a large glassful of water three times daily after meals. As much as three teaspoonfuls may be given. The mouth must be well rinsed after each dose; the remains of the acid in the mouth may be neutralized with milk of magnesia. The breath hould be held while the dose is being swallowed, for the fumes are slightly irritating to the respiratory tract. This method of treatment shortens the course of boils and prevents recurrence.

Journal of the American Medical Association.

December 19, 1914.

1. The Social Status of Medical Practice. E. P. Lyon.
2. The Neglect to Provide for the Infant in the Antituberculosis Program. A. F. Hess.
3. The Heart in the Acute Infections. R. N. Willson.
4. The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis. C. M. Byrnes.
5. A Morphological and Chemical Study of the Double Refractive Fats of the Adrenals in Delirium Tremens. E. F. Hirsch.
6. Autogenous Serum in the Treatment of Psoriasis. H. Fox.
7. Observations on Military Surgery in the Early Weeks of the War. J. P. Hoguet.
8. The Relation of Posture and Internal Derangement to Coxitis. R. B. Osgood.
9. The Syndrome of Adrenal Insufficiency. T. A. Williams.
10. Papilloma of the Larynx. H. Smith.
11. The Treatment of Chronic Pyelitis. J. T. Geraghty.
12. The Relation of Urea to the Total Nitrogen of the Blood in Hepatic Disease. C. B. Farr and E. B. Krumbhaar.
13. Latent Atypical Malaria Complicating the Puerperium. M. J. Seifert.
14. A Method of Diminishing Hemorrhage After Suprapubic Prostatectomy. F. L. Keyes.
15. The Treatment of Hydrocele, with Special Reference to Phenol Injections. R. H. Herbst.
16. Sonorous Vibrations in the Treatment of Ear Diseases. L. M. Hubby.
17. The Etiology of Splenic Anemia or Banti's Disease. Preliminary Note. J. L. Yates, C. H. Bunting, and H. T. Kristjanson.
18. The Use of Antistreptococcus Serum in Chronic Arthritis. H. K. Nicoll.

4. Mercurialized Serum in Treatment of Cerebrospinal Syphilis.—C. M. Byrnes describes the technique of this method as follows: Sufficient blood is withdrawn to yield from 12 to 30 c.c. of serum. The larger amount is obtained if concentrated serum is to be used. After the blood has coagulated the serum is pipetted, and if necessary the blood is centrifugalized for twenty minutes. If diluted serum is to be used, to 12 c.c. of the centrifugalized specimen is added 1 c.c. of a solution of mercunric chloride in freshly distilled water so made that each cubic centimeter contains 0.0013 gram of mercuric chloride. To the serum thus prepared is added a sufficient quantity of physiological salt solution to make a total volume of 30 c.c. If the concentrated serum is used this step is omitted. The serum is heated at 56° C. for half an hour and administered by gravity at body temperature. The author believes that the method is equally as efficacious as the use of salvarsanized serum. The immediate reactions following its administration are, in general, not so severe as those after the use of salvarsanized serum, and the cell count in the spinal fluid appears to be more quickly reduced. Since preliminary medication is not required, the blood may be obtained at any time; and because of the greater stability of the mercurialized serum it may be prepared at leisure and

kept in sealed flasks until it is convenient to administer it.

5. **The Suprarenal Glands in Delirium Tremens.**—E. F. Hirsch states that Le Count, a coroner's physician of Chicago, regularly found alterations in the cortex of the suprarenals in patients that had died from delirium tremens. The changes consisted in a diminution in the yellow color normally present in the cortex. In thirty-four cases studied by the author it was found that the doubly refractive droplets in the suprarenal cortex were diminished to a greater or less degree, or were even entirely absent.

6. **Autogenous Serum Treatment of Psoriasis.**—H. Fox finds a decided value in this method of treatment when it is used in conjunction with chrysarabin. The serum is injected intravenously, a method which is devoid of danger. The technique of the treatment is as follows: Fifty c.c. of blood removed from the cubital vein by means of a MacRae needle are allowed to flow into a sterile cylindrical glass bottle. The bottle and its contents are then properly balanced and placed in an electric centrifuge having a speed of eighteen hundred or more revolutions a minute. When the serum is thoroughly separated from the corpuscles and fibrin it is drawn off into a glass syringe and injected without delay, either intravenously or intramuscularly. The amount of serum that is generally obtained from the 50 c.c. of blood varies between 15 and 25 c.c., the latter being the maximum. In every case the serum is injected in an active state. As a rule the entire procedure of drawing the blood and injecting the serum is completed in half an hour or less.

15. **Phenol Injections in Hydrocele.**—R. H. Herbst points out that the common recurrences following the old method of injecting phenol without the preliminary washing out of the sac were due to the fact that the sac wall was covered with serum, which coagulated the phenol and did not allow the acid to come into contact with the sac wall. To obviate further such a contingency it has been the practice to test the return fluid for albumin and to continue the washing of the sac until the fluid fails to give a reaction to nitric acid. Then from 10 to 12 c.c. of 95 per cent. phenol are injected, the scrotum at the same time being manipulated so as to bring the acid into contact with all parts of the sac; then the excess is allowed to flow out, after which about 15 c.c. of alcohol are injected. The injection of sterile water into the sac serves the double purpose of cleansing the sac wall and prevents the not infrequent accident of injecting the phenol into the tissues of the scrotum. During the emptying of a well-filled tunica vaginalis the receding sac wall is likely to draw away from the end of the cannula without the knowledge of the operator. If this does occur and the water is injected, it does not return, but remains in the tissues of the scrotum, which appear edematous. Under such circumstances the sac must be allowed again to fill with serum before an attempt is made to inject the phenol. The use of the Belfield hydrocele trochar and cannula, however, practically always prevents this accident because it fixes the sac, by passing through two of its walls. The refilling of the sac which is commonly seen during the first twenty-four hours after the injection is due to the reaction of the tissue to the phenol and disappears spontaneously within a few days.

The Lancet.

December 12, 1914.

1 Modern Aspects of Certain Problems in the Pathology of Mental Disease. E. Goodall.
2. The Wounds of the Soft Parts Produced by the Modern Bullet. G. H. Makins.
3. A Fatal and Exceptionally Intense Infection with Malaria (*P. falciparum*). J. W. Scott Macfie.
4. Insomnia and Suicide. C. E. Pronge.
5. Experiments in the Germicidal Action of Colloidal Silver. W. J. Simpson and R. T. Hewlett.

1. Problems in Mental Pathology.—E. Goodall in his second lecture on this subject discusses such topics as the ductless glands and mental disease, the toxicity of fluids in the insane, and leucocytosis in mental disorders. As regards the bacteriology of the feces in acute mania and melancholia researches have shown that there is an increase in the total number of organisms and of *Bacillus coli* in the great majority of the cases of mania, and in rather more than half the cases of melancholia; a diminution in the anaërobic organisms investigated in the great majority of the mania and the majority of the melancholia cases; a considerable diminution (or absence) of aërobic spores in both kinds; an absence of atypical *Bacillus coli* and of unusual organisms in both kinds. Lastly, these cases afford no evidence that *Bacilli coli*, even though present in abnormal quantity, exercises any influence in the conditions dealt with. As regards leucocytosis in insanity the studies show that in the earlier phases of dementia præcox there is a moderate increase in the total white cell count with a relative increase of the neutrophiles. At the beginning of an attack of acute mania or melancholia there is a leucocytosis with an increase of the neutrophiles. In puerperal insanity the leucocyte counts resemble those of acute mania.

4. Suicide and Insomnia.—C. E. Pronge refers to the frequent association of insomnia and suicide as cause and effect. The insomnia is in many instances to be attributed to slight errors of refraction.

British Medical Journal.

December 5, 1914.

1. The Value of Radiography in the Diagnosis of Bullet Wounds. Sir John Bland-Sutton.
2. The Threshold of Disease. J. H. Lindsay.
3. Acuts Appendicitis and Acute Appendicular Obstruction. D. P. D. Wilkie.
4. Leeches: Exotic Leeches. H. E. Shipley.

3. Acute Appendicitis and Acute Appendicular Obstruction.—D. P. D. Wilkie concludes that two acute pathological processes are met with in the vermiform appendix—acute appendicitis and acute appendicular obstruction. Clinically acute appendicitis is distinguished by the signs of inflammation, there being from the onset a rise in pulse and temperature. Acute appendicular obstruction gives rise to vomiting, colicky pain, and abdominal tenderness, but at the outset to no appreciable rise in pulse or temperature. The changes occurring in an appendix the lumen of which is completely obstructed depend on the presence or absence of fecal matter within its lumen. In experimental obstruction in an artificial appendix the changes vary greatly according to the nature of the diet of the animal previous to the experiment, rich protein diet being associated with much more rapidly destructive changes than carbohydrate. Undigested protein, putrefactive bacteria, and an alkaline reaction together produce rapid gangrene in the walls of the obstructed organ. The prevalence of the severer forms of acute appendicular disease in Western as contrasted with Eastern peoples is probably to be explained by the animal diet indulged in by the former. On the same lines may be explained the increasing frequency of such disease in large industrial areas and its relative frequency in the male sex.

British Medical Journal.

December 12, 1914.

1. Transient Paraplegia from Shell Explosives. T. R. Elliott.
2. Antiseptics in War. G. Lenthal Cheatle.

3. Cockroaches. A. E. Shipley.
4. The Incipient Pulmonary Phthisis of School Children. W. Overend.
5. The "Elderton" Method of Control in Testing the Value of New Tuberculin. H. Patty Shaw.
6. Artificial Pneumothorax. H. de Carle Woodcock and J. A. M. Clark.

1. Transient Paraplegia from Shell Explosives.—T. R. Elliott describes this condition as follows: Numbness and complete paralysis of the legs are complained of when the injured man receives help from his comrades immediately after the explosion, and yet there is no manifest wound of the body. The arms are generally unaffected, but the legs remain powerless, so that the patient has to be carried from the field on a stretcher. Within a week movement and sensation are returning in the legs, and after the lapse of a fortnight the soldier as a rule can walk about again, though he continues to complain of extreme tenderness in the lumbar region and aching pains that shoot up the back. There is rarely any trouble with the sphincters. During the paralysis the leg muscles are slightly flaccid, and both the superficial and deep reflexes are depressed, while there is nearly always an area of hyperalgesia encircling the abdomen above or below the level of the umbilicus. The plantar reflex is never extensor. Two theories have been advanced to explain the cause of this condition. One explanation is that the paraplegia is functional and the residual tenderness is neurasthenic. The second tentative diagnosis is that of "gassing," a toxic action of the fumes evolved in the explosion.

4. Incipient Pulmonary Tuberculosis of School Children.—W. Overend states that the coexistence of the five conditions: (1) Intermittent sudden cough in the absence of cases of pertussis; (2) wasting, pallor, and tiredness; (3) a subfebrile temperature rising occasionally to 100°; (4) the presence of capillary veins and a growth of hair over the upper thoracic spines; and (5) the absence of any obvious disease should induce the physician to examine carefully for pulmonary tuberculosis and enlarged bronchial glands. The *x*-rays may be helpful in the diagnosis.

Berliner klinische Wochenschrift.

November 23, 1914.

Nervous Disorders in Children.—Katz speaks of the remarkable cumulation of a relatively uncommon condition which he has recently seen. First there was a series of phobias such as are common in adults but almost unknown in childhood. In the last four weeks he has seen five such cases, all in girls from six to ten years of age. Two patients were "only children." The clinical picture was as follows: Children originally in perfect health began to look ill. They were pale, flabby, the facial expression indicated fatigue mixed with melancholy. Appetite failed. From time to time play was abandoned and instead there was revery or aimless restlessness. After an interval of five to fifteen minutes they resumed their usual activities. One very active girl of six years ceased playing altogether. Two of the patients complained of vertigo for which no organic cause could be found. The theory of some parents was that the children had been greatly shocked by the war, and the author succeeded in eliciting that this cause inhered in all the cases. Not the mere idea of war, but the recital of details, especially of deeds of cruelty, which they were told or which they overheard. Four of the five children had nervous parents, but no real taint was present. The other child had a severe taint, her mother being probably a paranoiac. All of the children told about the same story. They were suddenly thrown into a state of anxiety and remained thus for a short time, whereupon the seizure terminated. Two patients developed these phobias when they chanced to think of some cruel deed of the sort mentioned, but the others could assign no reason whatever for their seizures. All the children come from the better classes. The one with the bad taint happened to be the only one whose father is in the field. This one each evening at bedtime begins to cry out "I am so afraid!" The darkness plays no part in causing the fear, nor is the latter the ordinary pavor nocturnus. The mother must sit with her for two or three hours before the child is quieted. Her sleep is very restless. The prognosis was apparently good in all but the case just mentioned. The treatment was purely psychical. The tales of cruelty had caused psychic trauma. The author has also noted a number of cases of enuresis nocturna and pollakiuria in both sexes.

Fungous Disease of the Skin from Woolen Underwear.—Isaac describes a dermatosis which bears a strong resemblance to ordinary ringworm, and appears in the late autumn. The affection agrees with that variously termed pityriasis rosea and herpes tonsurans maculosus, clinical affections for which parasites have never been described. The lesions consist of oval macules which come out in great numbers and when their centers are scratched with the curette show a certain scaling. The affection may be confounded with lues and psoriasis. It yields readily to red sulphide of mercury ointment of 10 per cent. pyrogallic acid ointment. The chief point of interest is an unsuspected relation between the disease and the wearing of woolen sweaters. But the lesions in these cases differ slightly from the typical eruption in being localized, the lesions clearing up in the centers and a much higher degree of itching present. The author is convinced that some unknown fungus is carried by the wool. The latter as a rule is laid by in the summer and evidently becomes contaminated by some fungus. All woolen garments should therefore be sterilized before wearing, using ordinary soap and hot water and drying carefully. In view of the warfare going on attention to so small a matter should be well repaid by the great relief in suffering for the troops.

Münchener medizinische Wochenschrift.

November 17, 1914.

Treatment of Tetanus.—In the military supplement of this number of the *Wochenschrift* are to be found six articles on this subject. Professor Hochhaus of Cologne states that we now have enough material to test all plans of treatment, to note initial symptoms, and in all respects to correct any false teachings now in our text-books. The infection begins with vague sensations in the face or neck, and ofttimes a tickling in the throat suggests a beginning angina. One set of symptoms may point to the face and mouth, another to the throat, a third to the nuchal region, etc. Other prodromes are seated in the injured members. In regard to the latter the author states that he has amputated five times for bad wounds of extremities without preventing the subsequent appearance of tetanus which destroyed all but one of the lives. This he regards as a document that amputation as a preventive of tetanus is not indicated. In regard to serotherapy the latter was tested in relatively large doses in a material of twenty-two cases of severe tetanus. Of eleven of this number who received large timely doses of serum four patients were saved, but the seven who died represented the seven severest cases. Taking the entire series of twenty-two, the survivors, eight in number, seemed to owe their recovery not wholly to the serum but in part to the mild degree of symptoms. Still a recovery of over one-third of cases thus treated would argue that serum injected early and in large quantities is a factor in recovery. At any rate the author incorporates it into the general

treatment of the disease. The author also treated a series of seventeen severe cases with magnesium sulphate in conjunction with serotherapy. In this series there were twelve deaths and five recoveries (60 per cent. recoveries). Bacelli's method was tested in fifteen cases with 60 per cent. recoveries. These cases were, however, mild in character. At present his attitude is as follows: he would injust serum, if necessary into the cord and nerve trunks and give magnesium sulphate and morphine for the symptoms. Kreuter gave the serum a grand tryout in a series of thirty-one cases. It was injected into the cord and blood in very large doses, and what is termed the mortality under the proper use of serum was reduced from about 60 to 35 per cent. A higher mortality is therefore held to be due to defective technique in serotherapy. Other remedies played but a very minor rôle in this series. Müller gives hot baths in the less severe cases of tetanus and makes considerable use of mild anticonvulsivants. In regard to serum and magnesium he is unable to convince himself of their value. Serum is too expensive. The author defends the practice of tracheotomy in cases with threatening spasm of the glottis—evidently, however, only when death seems imminent. He believes that he has saved at least one life thus. Rothfuchs mentions the alleged successful treatment of severe cases of tetanus under the use of serum and magnesium, carbolic acid and peritoneal transudates. But there have also been reported series with fearful mortalities where serum or magnesium was freely used. He has seen apparent benefit from salvarsan, for that matter. His complete experience with the disease is as follows (six cases): I—Type severe, incubation fourteen days. The wounded foot was amputated and serum given *ad lib.* Nevertheless the disease went on to spasms of the diaphragm. There was no serum on hand, so that a dose of salvarsan was injected by a vein. The improvement was startling, and from that time the patient was out of danger. II—Case quite similar to preceding. Recovery. It would be called of medium severity. III—Severe type. Incubation thirteen days. No serum available, so that salvarsan was substituted. Later serum arrived and was used freely. There was slow recovery. IV—Case fatal from intercurrent pneumonia, although patient died with trismus. This patient received serum and salvarsan *ad lib.* V—Medium, incubation thirteen days. Received serum and salvarsan *ad lib.* and made a good recovery. VI—Severe, nine days' incubation. Serum and salvarsan given *ad lib.* Good recovery. In other words the author's series of six cases gives a mortality of but 17 per cent. and some of the life-saving must be set down to salvarsan. The author has taken pains to have his serum-salvarsan tested in future cases. Alexander writes up a series of ten cases with eight recoveries. Credit is given to the immense doses of chlorad hydrate used. The first two patients who received small doses died. Afterward the dose was doubled. Serum was given in moderate quantities, doses according to severity. All of the chloral was given by enema.

Deutsche medizinische Wochenschrift.

November 19, 1914.

Treatment of Severe Cases of Tetanus.—Kocher concludes his serial article on the use of magnesium sulphate as follows: This substance is at present the most important remedy against tetanus. Its action is, fortunately, transitory, and comprises anesthesia and muscular relaxation. The former result increases with the concentration of the salt; the intralumbal injection causes a local dehydration of the cord and nerve roots, which should have no ill consequences. Only the full dose can be counted upon to do the work, so that in failure we must continue to inject even until the potential of the tetanus toxin is exhausted. The author has given as many as ten consecutive intradural injections. The duration of the subcutaneous action depends on the dose; it is often possible to maintain the desired dose with a minimum of substance. When confronted with a case of the disease a trial dose of magnesium sulphate should be injected subcutaneously, and if this produced favorable results the remedy should be pushed by this route rather than by a change to the intraspinal method. The war furnishes ample opportunity to test the subcutaneous route by injecting after each exacerbation. The remarkable results in tetanus neonatorum recently reported appear to justify this procedure. On the other hand the author's remarkable series of cures in adults was brought about by the intraspinous use of the remedy conjoined with tracheotomy and intratracheal insufflation of oxygen. Kocher now lays down a special series of indications for the use of magnesium. In mild cases with initial symptoms of local increased tendon reflexes, dysphagia, mild trismus, etc., serum should be used to block off the infection. Ten ccm. should be infiltrated about the wound field and the (exposed) muscles. Endoneural blocking should be employed if practicable and 10 ccm. of serum injected into the dural sac after the withdrawal of the same quantity of the intraspinal fluid. The wound is naturally given complete aseptic treatment. Then in strong men from 30 to 45 ccm. of a 25 per cent. magnesium-sulphate solution should be injected subcutaneously to relax the muscular rigidity and diminish the reflex excitability. At the same time large doses of chloral hydrate should be given, as much, if required, as 12 gms. in twenty-four hours. The preceding measures refer to moderately severe cases. If the degree is more severe in that arrest of respiration is to be feared, magnesium should be thrown into the cord, 10 ccm. of a 15 per cent. solution, the body kept horizontal, the head held up. If no impression is made on the symptoms in fifteen minutes the head should be lowered and one should be ready to combat any tendency to respiratory arrest by the presence of a tracheotomy outfit and oxygen. More serum may be required. If the case shows no signs of improvement magnesium must be pushed intralumbally with gradually decreasing dose, or subcutaneous injections with chloral may be renewed.

Alcohol in the Field.—Schwalbe states that the great war is causing changes in values in the minds of people. Most of the nations banished the use of alcohol from the time mobilization began. This proscription seemed to involve no hardship, but somewhat later there was a demand for alcoholics, round robins having been sent out by the troops. A propaganda for stimulants was inaugurated, certain telegrams from officers in regard to a supply of liquor were made public, and as usual liquor dealers were opposed to "whipped cream lickers" and "coffee patriots." The average demand seemed to be for Jamaica rum. One of the German temperance societies communicated with the Crown Prince, who was believed to have been responsible for letting down the bars, but the latter replied that rum had been requisitioned purely for medical uses. The upshot of the entire matter was naturally that grog rations or any equivalent were bad for the army as a whole, although when the problem was applied to the individual varying degrees of tolerance were found. The policy of using alcohol in borderline cases between health and illness, as a preventive of certain diseases, and as part of the treatment of established diseases cannot be settled to the satisfaction of all. The expense of supplying spirits to armies would be very great.

Insurance Medicine.

SUGGESTIONS TO MEDICAL EXAMINERS.

BY THE INSURANCE EDITOR.

INFLUENCE OF BUILD ON MORTALITY.

EXPERIENCE proves that men of the average standard of weight and height have better chances for resisting disease and living longer.

Underweight.—The increasing ratio of mortality with the decreasing weight at the younger ages of entry, as well as the decreasing influence of underweight with the increase of age at entry, are noticeable in table No. 1, compiled by the Medico-Actuarial Investigation Committee.

TABLE NO. 1. MEN—UNDERWEIGHTS.

ALL POLICY YEARS COMBINED, RATIO OF ACTUAL TO EXPECTED DEATHS.

Ages at Entry	VARIATION FROM AVERAGE WEIGHT IN POUNDS		
	−5 to −10	−15 to −20	−25 to −45
20–24	107%	115%	134%
25–29	99	108	116
30–34	104	100	108
35–39	91	103	102
40–44	85	87	97
45–49	97	99	89
50–56	90	92	91
57–62	93	82	81

Some allowance must be made in the figures of these tables for the modification due to careful selection. Underweight has long been considered an important feature at the younger ages, so that it may be assumed that great care has been exercised in selecting underweights at these ages, even though the results disclosed by the table remain unsatisfactory. On the other hand, it is seen that underweight among persons over 40 years of age is in itself no disadvantage.

Underweight, especially when combined with digestive disturbances or a poor family history, is a fairly immediate and decreasing hazard and is, therefore, an element which is difficult to provide for in the way of substandard insurance except through the lien system.

Overweights.—Table No. 2 of the Medico-Actuarial Investigation Committee suggests that overweight to a moderate degree is not a serious impairment at the younger ages of entry, but has a material effect at and after the middle ages. When, however, men were unduly fat before puberty, they should be regarded as poor risks, especially if they inherited the obeseness.

TABLE NO. 2. MEN—OVERWEIGHTS.

ALL POLICY YEARS COMBINED, RATIO OF ACTUAL TO EXPECTED DEATHS.

Ages at Entry	VARIATION FROM AVERAGE WEIGHT IN POUNDS			
	+5 to +10	+15 to +20	+25 to +45	+50 to +80
20–24	96%	96%	101%	103%
25–29	93	90	112	117
30–34	99	86	119	134
35–39	100	101	131	155
40–44	94	110	140	175
45–49	103	109	131	151
50–56	102	121	124	149
57–62	102	125	112	138

The mortality among those more than 20 lbs. overweight is an increasing percentage of the normal mortality at the earlier ages of entry, reaches a maximum at ages 40-44 and a diminishing percentage at the older ages. The lower mortality among the older overweights is undoubtedly due to the great care in selecting risks at these ages.

The Medico-Actuarial Table unfortunately pays no attention to the distribution of the weight as shown by the relation of the weight to the chest and abdominal measurements. No man ought to have an abdominal measurement in excess to that of his chest. The predisposing causes of this unnatural enlargement are sedentary habits, excessive imbibition of liquids and a plentiful farinaceous and fatty diet. Abdominal protuberance, due to excessive indulgence in liquids, is common among Germans, French, Belgians and Dutch. Italians and Spaniards get stout and flabby owing to inactive lives, and farinaceous and oily diets. Observations prove that overweights with an excessive abdominal measurement are decidedly poorer risks than those with a measurement less than the chest.

Overweight is an increasing hazard and, unless too excessive, may be taken care of by an endowment or a rated-up policy.

Height.—The height of a man seems to have little effect on the rate of mortality, until it exceeds the extremes which may be set at over 75 and under 60 inches. The extremes have proved a short-lived class and die out of all proportion to their expectation after the age of 55.

The Medico-Actuarial Investigation Committee have not considered the extremes in heights but even in the records made up from those of 5 feet, 3 inches to 6 feet, 2 inches, there is a significant difference in the mortality.

TABLE NO. 3. ALL POLICY YEARS COMBINED.

RATIO OF ACTUAL TO EXPECTED DEATHS—MEN.

Ages at Issue	Height 5 Ft. 3 In. to 5 Ft. 6 In.	Height 5 Ft. 7 In. to 5 Ft. 10 In	Height 5 Ft. 11 In. to 6 Ft. 2 In.
20–29	96%	110%	122%
30–39	107	109	113
40–49	110	109	120
50–59	108	109	101

From table No. 3 it is seen that at the younger ages, tall men have proved less desirable risks than the short men. At the older ages, the taller men seem to have fared better, but it is probable that this better result is one of the freaks that will creep into statistics. In a general way, it can be stated that a tall, stout man is a worse risk than a short, stout man of comparatively equal weight.

Dr. William M. Brumby of San Antonio has been appointed assistant medical director of the Amicable Life Insurance Company of Waco, Texas, *vice* Dr. J. M. McCutchan, deceased. Dr. Brumby was for four years medical director of the Equitable Life Insurance Company of San Antonio and has also served as State health officer and as health officer of Houston.

The Medical Aspects of Accident Insurance.—An address on the "Medical Aspects of Accident Insurance" was delivered by Dr. W. C. W. McDowell in the Chamber of Commerce, Auckland, under the auspices of the Insurance Institute. The medical aspect of accident insurance, he said, was more complicated than the surgical aspect, the latter being more easy to follow, as the *x*-rays threw such a light upon injuries requiring surgical aid. He dealt with some of the problems presented in cases of heart strain, apoplexy, and hernia as being particularly interesting from the medical aspect of accident insurance, and made a strong plea for the appointment of medical referees to hear compensation cases in which the position depended on the medical evidence.—*The Australasian Medical Gazette.*

Book Reviews.

Sclerocorneal Trephining in the Operative Treatment of Glaucoma. By Robert Henry Elliot, M.D., B. S. Lond., Sc.D. Edin., F.R.C.S. Eng., etc., Lieut.-Colonel, I.M.S., Superintendent of the Government Ophthalmic Hospital, Madras; Professor of Ophthalmology in the Medical College, Madras; Hon. Fellow of the American Academy of Ophthalmology; and Hon. Member of the Minnesota Academy of Ophthalmology, of the Chicago Ophthalmological Society, and of the Detroit Ophthalmological Club. First Edition, 1913. Second Edition, 1914. Price, $3.00. New York: Paul B. Hoeber; London: George Pulman & Sons, Limited.

The second edition of Col. Elliot's work, appearing so shortly after the first, attests to the interest that is taken in the subject and the desire that opthalmologists have to better equip themselves for the treatment of glaucoma. The volume is one of 187 pages, fully illustrated, and with a very complete index. The work has been practically re-written since the appearance of the first edition. Col. Elliot has gone into the subject of trephining in glaucoma very thoroughly. A brief reference to the history of the operation is followed by a chapter on the newer operation for glaucoma; the indications for the operation; the technique of trephining after the method of Col. Elliot; the complications met with; after treatment; results; experiences of other surgeons than himself; modifications introduced by other surgeons; statistics, etc. Ophthalmic surgeons are deeply indebted to Col. Elliot for the introduction of and insistence on an operation that has proven to be of such great value to humanity. The book should be in the possession of all ophthalmic surgeons.

A Clinical Study of the Serous and Purulent Diseases of the Labyrinth, by Dr. Erich Ruttin, Privatdocent in the Otological Clinic University of Vienna with a foreword by Prof. Dr. Victor Urbantschitsch, authorized translation by Horace Newhart, A.B., M.D., Instructor in Otology, University of Minnesota; Otologist and Rhinologist, Northwestern Hospital; Fellow American Academy of Ophthalmology and Oto-Larynology; Fellow American College of Surgeons, etc. With 25 textual figures. Price, $2.00. New York: Rebman Company, 1914.

This very excellent book is a practical treatise of the subject of labyrinthian disease, with recent progress in the diagnosis and treatment of its complications. It consists of a detailed description of the diseases of the labyrinth, in which the functional manifestations of the normal and diseased labyrinth, the different clinical aspects, and the therapeutic considerations in each case are discussed and presented in a manner comprehensible even to the non-specialist. Of great interest are the brief though complete case histories.

A Text-Book of Military Hygiene and Sanitation. By Frank R. Keefer, M.D., Lieutenant-Colonel, Medical Corps, United States Army; Professor of Military Hygiene, United States Military Academy, West Point. Illustrated. Price, $1.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

This book, dealing with a subject that is now of vital importance to half the world, gives a logical exposition of those topics of hygiene in relation to a large body of men which would appeal to the layman. It is well illustrated, treats of the care of troops in the aggregate in times of war and peace. The major part of the book is devoted to personal hygiene, and the general topics of water supply, food, disposal of wastes, etc. Short sensible chapters on the venereal diseases, alcohol, and other narcotics complete the book. With a clear comprehension of these matters, everyone can then determine for himself what his relations with these topics shall be.

Über die Ernährung des Auges. Von Dr. Med. C. Hamburger, Augenarzt in Berlin. Mit 26 Textabbildungen und 8 Farbigen Tafeln. Leipzig: Verlag Von Georg Thieme, 1914.

This work which is published is a brochure of 117 pages with a number of figures in the text, and five colored plates, has been conducted in a thorough and comprehensive manner, and presents all that is known to date on this subject. The author has made himself conversant with the work of others and has analyzed their results. He fully reports his findings after exhaustive, more or less original, research work. Part one has to do with the source of the intraocular lymph flow. Part two on the course of the lymph streams. Part three on the avenues of escape of lymph from the interior of the eye. The work represents a very careful study of the subject, and will well repay perusal by those who are interested in ophthalmology.

Local Anesthesia. By Dr. Arthur Schlesinger. Berlin. Translated by F. S. Arnold, B.A., M.B., B.Ch. (Oxon). Illustrated. Price $1.50 net. New York: Rebman Company, 1914.

This book of about 200 pages is designed to enable those who have no opportunity to gain acquaintance with the various methods by observing them in actual practice to perfect themselves in the technique by proceeding gradually from the simpler to the more difficult tasks. The author has thus attempted to put before the reader what he has found by experience to be the most simple and yet practical method. Beginning with a short review of the history of the development of local anesthesia and the physical principles involved, the author soon passes to the consideration of the materials used, adjuvants in local anesthesia, such as cold and anemia, and the methods of producing local anesthesia and their application. About 75 pages are devoted to these introductory chapters, the balance of the book covering general technique and the application of the various methods in the anesthetization of special regions and tissues of the body. The descriptions are simplified as far as possible and the novice in the use of local anesthesia should find the book most useful, though if success crowns his efforts in the simpler operations he will probably soon feel the need of a larger work where technique is given in greater detail.

A Textbook of Pathology for Students of Medicine. By J. George Adami, M.A., M.D., F.R.S.; Strathcona Professor of Pathology, McGill University, and Advisory Pathologist to the Montreal General and the Royal Victoria Hospitals, Montreal, and John McCrae, M.D., M.R.C.P. (London); Lecturer in Pathology and Clinical Medicine, McGill University, Montreal. Second Edition. Price $5.00 net. Philadelphia and New York: Lea & Febiger, 1914.

In this new edition which appears only two years after the first, the necessary changes have been made to bring the text up to date. There appear also one or two new features which deserve comment. A new chapter on "The More Important Infections and Their Prominent Features" contains material which was scattered throughout the first edition together with a mass of new material. The classification of tumors has been considerably simplified, the authors dividing all neoplasms into teratomas, teratoblastomas, and blastomas. While, of course, much can be said against such a classification, still it is an exceedingly useful one and the simplification is a distinct advantage. Recent work in toxins and the effect of "split products" are considered and the chapter on "Monstrosities and Abnormalities" has been placed in an appendix where it really belongs. The revisions embodied in this edition make the work more valuable than ever to the student and also, it may be said, to the practitioner.

Kirkes' Handbook of Physiology. Revised and Rewritten by Charles Wilson Greene, A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri. Eighth American Edition. Price $3.00 net. New York: William Wood & Company, 1914.

The new edition of this standard textbook will be welcomed on all hands. Its position is too well assured to fear any criticism. This edition contains new material, especially along the lines of internal secretion, and retains some of the features of the older editions which are at least open to criticism. In his preface the author says, "Under present day conditions, the determining pedagogical horizon includes not only the subject matter of physiology, but that of the field of clinical medicine and surgery for which physiology furnishes the foundation." The reviewer feels that the field of the book has been widened to its detriment. For instance, a large space is devoted to uranalysis, while the physiology of the kidney is cut rather short. In these days when we have books on clinical pathology and special courses in that subject, why not leave all clinical pathology out of our physiology? An attempt to include both causes an abridgement of both. Still no one will question the great value of the work, both to teachers and to students.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 3, 1914.

THE FIRST VICE-PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THIS meeting was arranged by the Section on Otology.

Open-Air versus Open-Window Classes.—The COUNCIL OF THE ACADEMY presented the following report and recommendations. By open-air classes was meant classes of children taught in specially constructed rooms or houses which were practically open-air pavilions. By open-window classes was meant classes taught in regulation rooms of school buildings, but where the windows had been altered to open on pivots, thus securing the full benefit of the window openings, and where these windows were kept open all the time. It was understood that classrooms of both types were designed for children who were anemic or below par in physical condition. One of the main features desirable in these classes was a relatively low temperature, probably best ranging from 40° to 50° F. There was no evidence to show that any increased advantage was obtained by temperatures below 40° F. It was also desirable to maintain a relative humidity more nearly normal than was usual in steam-heated rooms, and, in addition, adequate but not excessive air movement. A maximum amount of sunlight in the winter months was desirable, and protection from the sun, preferably by awnings, in the spring and autumn. Freedom from dust and noise was important, and for that reason rooms should be at least three floors from the ground. In winter more protection from wind and draft was needed, while in spring and autumn the maximum of air movement that could be obtained was usually desired. In addition to these physical conditions it was understood that there should be a special régime providing for more relaxation from the strain of regular classes, and increased periods of rest. Adequate clothing for the comfort of the children was also understood to be necessary. Objections to open-air classes were: (1) That there was needless and possibly harmful exposure to cold in winter and to storms in all seasons. (2) That there was too great exposure to sun and heat in the spring and autumn. (3) That the cost of construction and equipment was considerable. It had been found that the cost per child for construction and equipment in the Chicago public schools was twenty dollars, as against five dollars per child in the open-window rooms. The objections to open-window rooms were: (1) There was too little air in movement in the spring and autumn. (2) There was too great exposure to the sun in the spring and autumn, because of the southern exposure of such rooms. This objection, however, could be adequately met by awnings. (3) There was an unequal distribution of air movement in the room, particularly in winter, exposing the children near the windows to too great drafts and cold. All these objections seemed to be of minor importance. A comparison of the results in the physical condition of the children seemed to show that probably the best results had been obtained in open-air classes situated in the country or small towns, where suitable and inexpensive types of construction were possible, and where facilities for exercise and play in the open immediately adjoined the schoolroom. The forest schools of Germany were ideal examples of this class of school. Reports based on a careful study of the results obtained in the improved physical condition and increased mental efficiency of the children in large cities showed a slight balance in favor of the open-air classes. These reports however, did not indicate sufficient difference to demonstrate any marked superiority of open-air classes over the open-window classes. The conclusion reached was that in the public schools of large cities the provision of open-air classes presented considerable difficulties and objections, especially in a climate with such variations of temperature as obtain in New York City. Consequently, inasmuch as the money available for fresh-air classes was limited, and the expense for the construction of open-air classes very considerable, the Council recommended that the Board of Education provide a large number of open-window rooms with pivoted windows and suitable awnings, rather than to so-called open-air rooms. They also recommended that the Board of Education encourage the practice among teachers of opening the windows in all regular schoolrooms.

Metastatic Conditions Complicating Suppurative Otitis Media with Special Reference to Secondary Inflammatory Processes in the Joints.—Dr. SEYMOUR OPPENHEIMER presented this paper. He stated that diseases of the ear maintained close relations with the body as a whole, and that a suppurative otitic process might give rise to secondary lesions remote from the focal point of infection. These were in the nature of metastatic processes. Their general symptomatology was that common to all cases of infective thrombosis. In addition to the general symptoms others arose according to the location of the metastases in the abdomen, the cranial cavity, or whether they were locally evident, such as cutaneous lesions, or cardiac, or in the joints and muscles. The course of the temperature might be so like that of typhoid fever as to lead to a wrong diagnosis. Two such cases had been reported by Dr. E. Libman in a paper read before the International Otological Congress. The first patient was a woman admitted to Mount Sinai Hospital with the clinical diagnosis of typhoid fever. The spleen was palpable, and there was a roseola and high remitting temperatures. Five weeks previously there had been an acute suppurative otitis, now completely subsided. The blood cultures were positive. A mastoid operation was performed and a perisinuous abscess and thrombosis of the sinus and of the upper part of the jugular vein was found. The second case gave a history of profuse aural discharge with high temperatures. The mastoid symptoms were most indefinite. The spleen was palpable one inch below the free border of the ribs. The blood culture was positive and operation revealed a mastoid filled with pus and thrombosed jugular vein. Dr. Libman in commenting on these cases designated them as being of a type that raised the question of the differential diagnosis between typhoid fever and an infection of doubtful otitic origin. They had observed three pulmonary cases in which an infective pleuropneumonia developed after a mastoid operation and complicated by a sinus thrombosis. These cases all died. Two cases of endocarditis secondary to otitis had also come under his observation. The cerebral cases were those in which there was development of a suppurative meningitis or extradural or subdural abscess. Whether these could be construed as direct metastases was open to question; more likely they were in the direct nature of a complication arising by contiguity. The cutaneous symptoms were manifested by petechiæ or ecchymoses and the ocular by purulent processes of embolic origin. Abscesses in the kidney and spleen could only be considered in the nature of a general bacteriemic process. Abscess in the muscles, and more particularly in the subcutaneous connective tissues, were not infrequent, and their symptoms were objectively and subjectively local. Seth MacCuen Smith of Philadelphia had described three cases of hepatic abscess occurring in the course of suppurative otitis media and mastoiditis, in none of which could he determine the existence of a sinus thrombosis, although the symptomatology was very suggestive. The writer said that he was at a loss to explain the development of these metastatic lesions without a sinus thrombosis and general bacteriemia being present, unless one reverted to the theory of Kearner on the osteophlebitis of the temporal bone causing direct absorption of septic material into the circulation from spaces in the bone. He was also at a loss to explain a case of acute appendicular inflammation and three cases of gall-bladder inflammation, all occurring in his practice, and following within two weeks after an acute mastoiditis. In none of these cases was there a sinus thrombosis, nor were the laboratory findings complete so that he could not state whether the same organisms were found in the diseased appendix and gall bladder that were recovered from the mastoid. In considering arthritic inflammations resembling acute rheumatism the writer said that eight cases had come under his observation in which symptoms were manifest which allowed of the recognition of the otitic basis of the infection, but in five cases the ear symptoms were so slight, or not referred to at all, so that a medical attendant might have completely overlooked the etiological disease, namely a sinus thrombosis. The characterization of acute articular rheumatism as a genuine disease, while still held by many clinicians, was energetically combated by many others, who believed that various microorganisms were able to produce the typical picture of acute articular rheumatism. Among those who had produced evidence supporting this view were Chostek, Sahli, Budy, Singer, Rosenow, Poynton and Paine, Cheadle, Netter, Lanz, Margaliano,

and others. Animal experimentation had undeniably demonstrated that weakened pyogenic cocci could produce the picture of articular rheumatism, and one could understand that as a complication of middle ear suppuration and infective phlebitis, symptoms of joint inflammation might exist, which symptoms might be so prominent as to overshadow the original causative disease. The writer then reported in detail the five cases above referred to in which an otitic thrombosis had its clinical history completely masked by the existence of an acute arthritis. In the second case the joint symptoms were associated with an endocarditis which improved sufficiently to allow the patient to go to work and was followed by a relapse of the joint swelling. In two of the other cases a number of joints became involved in turn, which, peculiar to say, were in a measure improved by specific remedies. In the fifth case, there had been an old suppurative otitis, but the arthritic symptoms had been manifested for two months before evidence of a sinus thrombosis.. In the second case three months passed before striking evidence of a sinus thrombosis appeared, the clinical picture having been entirely dominated by the joint swellings and the inflammation of serous surfaces. In the fourth case aspiration of the joint failed to recover bacteria. This experience in other cases led to the conclusion that it was unjustifiable to presuppose that pyogenic cocci were present in all secondary joint manifestations, otherwise abscesses of the joints would be observed much more frequently in general bacteriemic processes. Toxins could be designated as the cause of such bacteria-free joint exudations. Dr. Oppenheimer said that by no means was it contended as unlikely that after an acute middle ear infection symptoms of acute joint inflammation might not arise, which would then have to be considered as a symptom; but if after an acute otitis or during the course of a chronic suppurative otitis, acute arthritic symptoms were present, they must not be considered as primary, but as secondary metastatic complications resulting from an infective otitic phlebitis and an associated general bacteriemia. It did not seem amiss in view of the facts presented to suggest that the general practitioner should bear in mind in all cases of arthritic inflammation with associated otitic lesion that it was wise to consider the latter as the primary causative factor.

Dr. JOHN ROGERS, in opening the discussion, said that there were a great many of the acute and subacute non-suppurative inflammations of the joints that were bacterial in origin. A clear distinction should be made between the suppurative and the non-suppurative cases, both metastatic conditions which might complicate otitis media. The suppurative cases should be treated radically. The non-suppurative cases were the ones that gave the most difficulty because the diagnosis was not always easy. The gouty joint was not easy to differentiate from the metastatic joint complicating an otitis media which did not go on to suppuration. In cases of chronic rheumatoid arthritis there was often the doubt whether they were solely bacterial in origin, metabolic, or both. Dr. Rogers referred to one class of cases of subacute inflammation of the joint, or joints, in which invasion of the heart by bacteria occurred. With regard to the treatment of these metastatic mild rheumatic, so-called, infections, bacterial in origin, the surgical treatment was, in his opinion, always useful. It was not necessary in all these cases to incise and drain, but the institution of such mild treatment as immobilization by plaster splints or strips was of great value and productive of the best results. The treatment by vaccines had always appealed to him as a very useful way of improving these cases. In these conditions there were several kinds of bacteria involved and it was by no means easy to state which micro-organism was the cause of the trouble. With a chronic infection of the ear and with metastatic foci elsewhere it could be well assumed that these foci developed from the ear process. It was sometimes very difficult to determine what bacteria could be used in the preparation of a vaccine in these cases and he said that he had been disappointed in the results that he had obtained, but what results he had had offered hope for the future.

Dr. WELLS P. EAGLETON of Newark, N. J., said that he had seen personally but one case of a metastatic condition complicating suppurative otitis media and the symptoms of the involved joint overshadowed those of the ear. There was no doubt in this case of the primary source of infection. There might have been many cases he had seen perhaps which really originated from the ear. With regard to a statement made in relation to a general pyemic infection in which it was said that the cerebral condition was the result of invasion by direct continuity, Dr. Eagleton said that he had seen one case in which an embolism circulated in the blood and at last found lodgment in the brain, but this was not due to any direct continuity of tissues. With regard to what they should do in cases of a general involvement, this was what interested him very much. Many years ago he met with what might be called an unfortunate experience. Following a sinus thrombosis operation the patient complained of pain in the nose. The thrombosis was discovered and operation was performed and the thrombosis turned out. The pain was very severe and the temperature was high. Four days after an orthopedist was called in consultation and it was shown that the hip joint was involved and an extension apparatus was placed on the patient. One week following it was found that this hip was spontaneously dislocated. An abscess formed which was evacuated. One week later the other hip became dislocated, an abscess formed and this too was evacuated. In this case there were two primarily damaged hips. In these cases of general involvement of the joints, whether there was fluctuation or not, he advised aspiration of the joint and a bacterial investigation of the fluid. If, after aspiration of a joint, after smears had been made and examined and pyogenic organisms had been proven to be present, the joint should be opened, irrigated, and then closed. This procedure was uniformly successful in caring for the infection but always in effecting a complete restoration of function. On the other hand, many cases would recover after immobilization of the joint if there were no bacteria in the joint. There was great danger in delay in these cases. Dr. Eagleton believed that these joints should always be aspirated in order to determine whether any bacteria were present or not.

Dr. L. A. LA FETRA said that during the period from January 1, 1913, to November 15, 1914, there were treated in the children's wards of Bellevue Hospital 177 cases of otitis media. Of these 132 were acute; the treatment consisted of single paracentesis in 36 cases and double paracentesis in 66. There was spontaneous opening, frequently before the patient entered the hospital, in 28 instances. The opening was double in 10 of these and single in 18. In eight cases there was no opening and no paracentesis was done. Among these 132 cases of acute otitis the complications were as follows: Acute colitis, one case; post-auricular adenitis, one case; pneumonia, ten cases; serous meningitis, one case; septicemia with pericarditis and pleuritis, one case. In the case of serous meningitis the blood culture was negative throughout and the cells in the spinal fluid numbered on the fourth day 480; on the fifth day 262; on the seventh day 20, and on the eighth day 37. The infant made a complete recovery. In the case of septicemia with pericarditis and pleuritis there was acute purulent otitis media involving both ears. The infant was seven months of age and died of general poisoning, the termination having been due to a hemorrhagic infarct in the right lung. It was to be noted that there was not a single instance of mastoid disease developing in these 132 cases. The speaker said his experience in private practice had led him to feel that with early and perhaps frequent opening of the drum membrane, mastoid complications in infants and young children should be exceedingly infrequent. During the past fifteen years he had had arise in his private practice only five cases of mastoid complication. He had had no experience either in the hospital or in private practice with the complication of sinus thrombosis, and the hospital case of general septicemia mentioned was the only one he had seen. During the same period there were 45 cases of chronic otitis media. Double paracentesis was done in one of them and single in three. In one instance there was no opening and no paracentesis was done, while in 38 cases there was spontaneous opening before entering the hospital, double in 22 and single in 16. Among these 45 chronic cases, there was one instance of mastoiditis and one of temporal venoidal abscess with no mastoid involvement. Among the whole number of acute and chronic cases there was not a single instance of rheumatism or septic joints. It seemed to him that it would be of interest to add in this discussion the number of cases of rheumatic fever and of sepsis treated in the hospital during the same period. During the year 1913-14 there were 33 cases of rheumatic fever. In one case there were trifling ear symptoms which soon subsided. This patient had a hemolytic streptococcus in his blood, but at the

time of discharge this organism had disappeared and both ear drums were normal. During the same period there were treated in the wards 33 cases of valvular heart disease, some of which were acute, but most of which were chronic. In none of these was there any symptom or sign referable to the ear. There were 10 cases of septicemia during the same period. Of these one infant of four months had acute purulent otitis on the right side and one infant, 18 days old, had a double otitis with meningitis, a part of a general septicemia. Altogether then there were among the 177 cases of otitis, one case of septicemia, none of joint involvement. Among the 33 rheumatic cases there was only one of mild otitis; among 10 cases of septicemia, there were two with otitis.

Dr. J. H. GÜNTZER reported the case of a girl, eight years of age, who had had her tonsils and adenoids removed two years ago. Because of frequent colds, the family physician had advised the removal of the remaining adenoid tissue. This was done on April 27, 1914. On May 6 the speaker saw the patient complaining of earache. There was slight mastoid tenderness and a myringotomy was done. There was a free discharge for a few days. On May 11, the tenderness increased and a mastoidectomy was performed. The culture showed staphylococcus. The mastoid was filled with granulations and zygomatic cells well developed. On May 17 pus was evacuated from the zygomatic region, following which there was fluctuating temperature for three days, when clinical manifestations of sinus thrombosis were noted. A jugular resection was then done. On May 20 there was no abatement of the septic temperature and the jugular bulb was exposed and pus evacuated from this region. The temperature had distinct evening rise for about two weeks before a swelling of the right ankle joint appeared, with fluctuation. This joint was drained. On June 14, Dr. John Hartwell excised the astragalus which was necrosed. The joint was thoroughly drained. On turning the child over a bulging was found in the right scapular region which was opened and pus evacuated; exploration revealed necrosis of the bone. On June 21, pus was evacuated from the right hip joint. On July 11, pus was evacuated from behind the right hip. On July 15, the right femur was opened and pus evacuated from the medullary canal. On August 12 there was a second opening and evacuation of pus from the right femur below and behind. The general condition varied during all this time. The child had no chills, never vomited, and had no cerebral symptoms. She had paralysis of the external rectus muscle of the left eye which entirely cleared up in about three weeks. During these five months necrosis of the skin occurred wherever there was bodily contact. The occiput was exposed, every spinous process of the vertebræ, the crest of the pelvic bones, the posterior aspect of nearly all the ribs, the heels, and the contact surfaces of both legs. The urine later showed albumin and casts; various blood counts showed leucocytosis and increased polymorphonuclears. Warm days in the early part of September caused watery diarrhea from which the patient never rallied, which was either toxic or compensatory for the poor kidney action. These were the worst toxic cases that could fall to one's lot.

Dr. GODFREY R. PISEK agreed that they did meet with cases of arthritic involvement which followed a pus focus somewhere and undoubtedly could have joint involvement from a suppurative otitis media. He did not like the term "rheumatism" as it had been applied. In the minds of many practitioners there still existed the old idea that scarlet fever might be followed by a "rheumatic" attack. In this disease they did meet with cases of arthritis, usually multiple in form, but rarely did they go on to joint suppuration. He hoped that light would soon be thrown upon these non-suppurative arthritides. In young children we occasionally see a pneumococcic arthritis. These are supposed to be primary, since no focus can be found elsewhere. Probably there is a hidden focus perhaps related to such conditions as described by the reader of the paper. A number of cases of otitis and arthritis had occurred at the Willard Parker Hospital. Among 934 cases of diphtheria, 83 or approximately 8.8 per cent. had an otitis media and there were among these no cases of arthritis that developed. In the scarlet fever division, 1,079 cases, 223 developed an otitis, 30 coming to mastoid operation. Taking the cases of certain infectious diseases, such as scarlet fever, diphtheria, measles, etc., there were during the last and up to the present time of this year, 6,408 cases; among these there were 677 cases of otitis media, *i.e.* about 10½ per cent. There were 128 cases of arthritis, or about 2 per cent. It was shown that suppurative arthritis was uncommon. In the treatment of these cases immobilization was usually sufficient. The salicylates if given at all should be given purely for their analgesic effect. Sinus thrombosis was uncommon in early life.

Dr. JAMES F. MCKERNON said that these metastatic abscesses did occur and much more frequently than was formerly supposed. They often saw cases of septic sinus thrombosis and wondered why they did not occur more frequently, and it struck him that some explanation might be given, such as the virulence and activity of the organism producing the trouble and, of course, the resistance of the patient. These cases developed later in life, and to him it was strange that they did not develop earlier. He recalled one case of a metastatis following a suppurative otitis media which had practically cleared up. Some time later the hip was examined and found to be practically ankylosed and there was present a large amount of swelling. An abscess had formed which had opened and drained. Dr. McKernon said that he was inclined to side with the views taken by Dr. Eagleton in regard to these joint conditions—in every joint abscess following a septic sinus thrombosis one should examine carefully to find the specific microorganism that was present and causing the trouble.

Dr. REGINALD H. SAYRE said that he had seen instances of arthritis involving the cerebral vertebra which followed the mastoid operation. These cases, which usually involved the first and second cervical vertebræ were sometimes mistaken for torticollis. Undoubtedly an infection of the first, second, or third cervical vertebra from a metastaic process from the middle ear which was suppurating was as common as from a suppurating tonsillitis.

Dr. LEO B. MEYER said that Dr. Oppenheimer reported five cases of suppurative arthritis in which the primary focus, the ear, was so mild as to be discovered only on careful search, and referred to eight other cases in which the ear as primary focus was very evident. In all these cases a sinus thrombosis existed. It was generally understood that where general infection with bacteriemia occurred, following an otitis media, a sinus thrombosis must exist. In fact bacteriemia occurring in the course of an otitis media meant sinus thrombosis. That, however, general infection could occur following an otitis media without sinus thrombosis being present was not generally known; in fact was doubted by many, though Libman, to whom they were indebted for most of the knowledge on this subject, mentioned the possibility, especially where children were concerned. Dr. Oppenheimer would remember a case he presented last year at another medical society, and which he discussed, where exactlv this condition was present. It was the case of an infant, sixteen weeks old, that was operated upon by him for a suppurative arthritis of knee (incision of joint, irrigation with 2 per cent. formalin in glycerin, and complete closure of joint) following suppurative otitis media without any evidence of either mastoiditis or sinus thrombosis. The child, on whom he had to operate subsequently for several other metastatic infections, made a complete recovery, with normal knee-joint function. That this child might have had an unrecognized mastoiditis and sinus thrombosis was not impossible, but if it did it recovered without beng operated upon for it.

Dr. M. D. LEDERMAN recalled the history of the patient he had shown before the Otological Section about a year ago. A female child, seven years of age, was admitted to his service at Lebanon Hospital for mastoid and sinus complications following an acute purulent otitis media of severe character. A week after the mastoid and sinus operation, during which a parietal thrombus was found and removed, characteristic symptoms appeared which demanded prompt resection of the internal jugular vein, though physical signs of the chest showed the presence of a pneumonic involvement of the right side, posteriorly at this time. Two severe chills, with typical septic temperature and sweating, indicated prompt intervention in spite of the existing pneumonia. Two inches of the internal jugular vein were resected, and in cutting through the vein near the clavicle a white thrombus was seen. No further chills were noted after this operation, and the fever gradually subsided for a few days as the pneumonia improved. A week later the temperature jumped to 105°, when pain and tenderness in the region of both ankle joints appeared. Every movement of the feet caused much suffering. Both areas were incised and considerable pus

was found. Bacteriological examination showed streptococcus infection similar in character to that found in the mastoid disease. Another abscess of the left foot developed and was opened. Severe pain and tenderness in the right thigh also followed, but under wet dressing this invasion cleared without suppuration. Another collection of pus was evacuated in the left foot. In the meantime the mastoid and neck wounds had healed, but the ankle abscess required further treatment. The joints proper were not involved. For fully a month after her discharge from the hospital the little girl was confined to her room, with an irregular temperature touching 105°. After she was able to get out of bed it was two weeks before she could walk properly. During her stay at the hospital she received a number of streptococcic vaccine injections. Another case, which the speaker showed before this section a few years ago, which belongs to this group of complications, was that of a young girl, fifteen years of age, who developed a pulmonary abscess, cervical infection, and alveolar infection following a chronic suppuration of the middle ear, with mastoid sinus and internal jugular involvement. The clinical history in this instance at first suggested a typhoid infection, as no subjective aural symptoms were offered. The girl came to the Lebanon Hospital with high temperature, pain in the right iliac region, and on general examination was found to be about three months pregnant. Following the mastoid and jugular operation the patient aborted at the third day. At about the fifth day pulmonary symptoms appeared, and a day later more purulent expectoration was observed with the frequent paroxysms of cough. The secretion from the chest was foul smelling and soon assumed a distinct purulent character. The bacteriological examination showed streptococcus infection. About four or five weeks later the chest was aspirated posteriorly, as the temperature persisted, but no pus was found in the pleural cavity. Gradually the lungs cleared and the purulent expectoration lessened. Severe toothache appeared and an alveolar abscess was discovered and incised. The patient was discharged from the hospital about two months, following the mastoid and jugular operations, in good general condition. The ear discharge was still active, but ceased under local treatment in about six weeks. Both these cases were instances of severe metastatic infections following purulent disease of the middle ear, and their ultimate recovery was indeed very fortunate.

Election of Officers.—*President*, Dr. Walter E. James; *Vice-President*, Dr. Edward D. Fisher; *Corresponding Secretary*, Dr. D. Bryson Delavan; *Treasurer*, Dr. Reginald H. Sayre; *Trustee*, Dr. Wisner R. Townsend; *Member of Committee on Library*, Dr. Lewis F. Frissell; *Members of Committee on Admissions*, Dr. N. R. Norton (5 years); Dr. W. L. Stowell (3 years); Dr. W. L. Niles (1 year)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEW YORK STATE BOARD OF MEDICAL EXAMINERS.

May, 1914.

ANATOMY.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. Describe the head of (*a*) the radius, (*b*) the ulna, (*c*) the femur, (*d*) the humerus.
2. Name the ligaments of the knee joint and describe one of them.
3. Describe the sinuses of the dura mater.
4. Describe the minute anatomy of the pancreas.
5. Give the position and the relations of the kidney.
6. Name the important structures at the base of the brain.
7. Give the course of the aorta and the names of its branches.
8. Give the origin, insertion, and nerve supply of the latissimus dorsi muscle.
9. Give the boundaries of the left lung and the liver in relation to the surface of the body.
10. Describe the broad ligament of the uterus and give the position and the relations of the structures contained therein.
11. Describe the internal semilunar fibrocartilage (*Meniscus medialis*) and the triangular fibrocartilage (*Discus articularis*).
12. Describe the differences between the male pelvis and the female pelvis.

PHYSIOLOGY.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. Describe in detail the functions of the cardiac centers of the medulla.
2. Describe the normal condition of skeletal muscles as regards elastic tension and its effect on the contractility.
3. Describe in detail the action of the muscularis in the small intestine.
4. Describe in detail the chemical changes taking place in the blood during respiration.
5. In a well balanced diet what is the average proportion of (*a*) proteids, (*b*) fats, (*c*) carbohydrates? How many calories would be derived from such a diet?
6. Describe the paralysis resulting from a destructive lesion that involves the posterior limb of the internal capsule (capsula interna) of the brain.
7. What is the active principle of the internal secretion of adrenals? What is its function?
8. Describe the causes of secretion by the pancreas.
9. How are the dissipation and the conservation of heat controlled?
10. What is the function of the Eustachian tube?
11. Describe in detail the coagulation of the blood.
12. Give three examples of enzymes and state the specific function of each.

ANSWERS.

May, 1914.

ANATOMY.

1. The *head of the radius* articulates with the capitellum of the humerus and with the lesser sigmoid cavity of the ulna; it is surrounded by the orbicular ligament; immediately below it is a constricted portion called the neck, and below this is the bicipital tuberosity for the insertion of the tendon of the biceps.

The *head of the ulna* is situated at the lower extremity of that bone and articulates with the interarticular fibrocartilage which separates it from the wrist-joint; it also articulates with the sigmoid cavity of the radius.

The *head of the femur* is globular, with an ovoid depression near the center for the attachment of the ligamentum teres; it is received into the acetabulum to form the hip-joint.

The *head of the humerus* is nearly hemispherical, and articulates with the glenoid cavity of the scapula; it is slightly constricted at the anatomical neck.

2. The *ligaments of the knee-joint* are divided into two sets, the external and internal ligaments. The external ligaments are the anterior, posterior, internal lateral, two external laterals, and capsular; the internal ligaments are the anterior or external crucial, posterior or internal crucial, two semilunar, transverse, coronary, ligamentum mucosum, and ligamenta alaria.

The *posterior ligament* is attached above to the upper margin of the intercondyloid notch of the femur, and below to the posterior margin of the head of the tibia. Attached to it is the posterior ligament of Winslow, which is an expansion from the semimembranosus muscle. The posterior ligament forms part of the floor of the popliteal space, and the popliteal artery rests upon it.

3. SINUSES OF THE DURA. There are seventeen of them. "*Superior longitudinal sinus:* begins at crista galli, where it may communicate through foramen cecum with nasal veins, runs back in upper border of falx cerebri to torcular Herophili, usually joining right lateral sinus; receives superior cerebral, parietal, and emissary veins. Intersected by fibrous bands, the chordæ Willisii; the lumen is triangular, and on either side lie the Pacchionian bodies.

Inferior longitudinal: along posterior ⅔ of free margin of falx cerebri to straight sinus.

Tentorial or *straight:* is placed at junction of tentorium and falx cerebri, goes to torcular Herophili, ending usually in left lateral sinus; receives inferior longitudinal sinus, venæ Galeni, inferior median cerebral, and superior cerebellar veins.

Lateral (2): from torcular Herophili to foramen lacerum posterius, goes into internal jugular vein, receives superior longitudinal, superior petrosal, straight and occipital sinuses, and mastoid vein. Join inferior petrosal sinus to form internal jugular vein below jugular foramen.

Occipital (2): smallest; from posterior margin of foramen magnum to torcular Herophili.

Cavernous (2): by side of sella Turcica, passes from sphenoidal fissure to apex of petrous part of temporal. Receives ophthalmic veins which connect the angular vein with this sinus; also inferior anterior cerebral veins and sinus alæ parvæ.

Circular: surrounds pituitary body, connects the cavernous sinuses.

Inferior petrosal (2): from termination of cavernous to internal jugular vein above petrooccipital suture.

Transverse: connects the interior petrosal sinuses across basilar process of occipital bone.

Superior petrosal (2): placed on superior border of petrous part of temporal, connecting lateral and cavernous sinuses; receives inferior lateral cerebral, and anterior lateral cerebellar veins.

Sinus alæ parvæ (*sphenoparictal*) receives some meningeal and inferior cerebral veins, and runs inwards along free margin of lesser wing of sphenoid to cavernous sinus."—(*Aids to Anatomy.*)

4. "The *pancreas* consists for the most part of long tubular acini of columnar or polygonal epithelial cells, supported by very loose fibrous tissue. The cells are of the serum-secreting type. Their inner portion shows granules; the outer part is clearer, and sometimes striped. The pancreas has, therefore, a general resemblance to the parotid gland, but differs from it in two respects: (1) The intralobular ducts are lined by flat epithelium, and are inconspicuous; (2) between the acini here and there are islands of epithelial cells without any glandular arrangement. These are the *islets of Langerhans*. In some of the acini, close to the lumen, stellate cells can be seen. These are the *centro-acinar cells of Langerhans*, and are probably continued into the acini from the small ducts. There are spaces between the cells continuous with the lumen of the acini. The larger ducts are lined with columnar epithelium, with a few goblet cells here and there, and the largest ducts have a ring of non-striped muscles in the fibrous wall. Numerous nerve fibers with nerve cells in their course run through the pancreas and end among the cells. Some of them may terminate in Pacinian corpuscles."—(*Aids to Histology.*)

5. The kidneys are situated for the most part in the hypochondriac and epigastric regions of the abdomen behind the peritoneum, extending from the eleventh rib to within an inch of the crista ilii, the right being placed lower than the left, and lying slightly in the right lumbar and umbilical regions.

Relations.—The relations of the two kidneys differ somewhat; each is placed so that its anterior surface looks outward and the posterior inward, the upper end being nearer the mid-line than the lower. Each kidney is covered partly on its anterior surface by peritoneum.

Relations of the right kidney. In front: Right lobe of liver, second part of duodenum, hepatic flexure of colon (of which the last two areas are nonperitoneal). *Behind:* Diaphragm, quadratus lumborum, psoas, fasciæ covering these muscles, anterior lamella of lumbar aponeurosis, iliohypogastric, ilioinguinal nerves, last dorsal; first lumbar artery, pleura, last intercostal space and twelfth rib.

Relations of the left kidney. In front: Fundus of stomach, posterointernal surface of spleen, tail of pancreas, descending colon (of which last two are nonperitoneal. *Behind:* As on right, except that left kidney, lying rather higher, lies over eleventh rib.

Above each kidney is the suprarenal body.

Below each kidney is the iliac crest.—(*Aids to Anatomy.*)

6. *Important structures at the base of the brain:* Corpus callosum, lamina cinerea, optic commissure, tuber cinereum, infundibulum, anterior and posterior perforated spaces, olfactory bulbs, optic tracts, fissure of Sylvius, crura cerebri, pituitary body, corpora albicantia, pons Varolii, medulla, and superficial origins of the cranial nerves.

7. The *aorta* commences at the upper part of the left ventricle and, after ascending for a short distance, arches backward and to the left over the root of the left lung, then descends on the left side of the vertebral column, passes through the aortic opening in the diaphragm, and terminates opposite the lower border of the fourth lumbar vertebra where it bifurcates into the right and left common iliac arteries. *Branches:* Coronary arteries, innominate, left common carotid, left subclavian, bronchial, esophageal, pericardial, posterior mediastinal, intercostal, phrenic, celiac axis, superior mesenteric, suprarenal, renal, spermatic (or ovarian), inferior mesenteric, lumbar, and sacra media.

8. LATISSIMUS DORSI. *Origin:* Spinous processes of lower six dorsal vertebræ and posterior layer of lumbar fascia, from external lip of crest of ilium, from three or four lower ribs. *Insertion:* Bicipital groove of humerus. *Nerve supply:* Long subscapular nerve.

9. The *left lung.* The apex is about one and a half inches above the left clavicle, as it descends it approaches the right lung, till they nearly meet in the median line at the level of the second costal cartilage. From here it goes vertically down to about the level of the fourth costal cartilage. Here it curves outward and downward to reach the seventh rib in the midaxillary line, the ninth rib in the midscapular line, and the eleventh rib at the vertebral column.

The *liver:* "Its upper edge reaches as high as the fourth interspace or fifth rib in the right mammary line, and in the left mammary line to the fifth space or sixth rib. It crosses the sternum at the sternoxiphoid junction. Its lower border on the right side in the mammary line corresponds to the margin of the ribs, about a half inch lower in women. Posteriorly it corresponds to the tenth and eleventh ribs and the lower end of the eleventh dorsal vertebra behind. In the epigastrium it passes from the tip of the ninth costal cartilage on the right side to that of the eighth on the left side. In the median line it is about midway between the sternoxiphoid articulation and the umbilicus."—(Thomas' *Surgical Anatomy.*)

10. THE BROAD LIGAMENTS OF THE UTERUS. "Duplicature of peritoneum, extending transversely from sides of uterus and vagina outward to sides of pelvic wall—the two layers being continuous superiorly at their free border—and diverging laterally and inferiorly to envelop various structures. *Relations.—Superior or free border* (mesosalpinx): summit of duplicature, where it envelops Fallopian tube. Extends from side of uterus toward pelvic wall, to beyond the fimbriated extremity of Fallopian tube. Infundibulo-pelvic ligament—that portion of superior border of broad ligament between fimbriated extremity of Fallopian tube and lower attachment of broad ligament—a concave, rounded border—the ovarian vessels being conveyed in this ligament. *Inferior border:* attached to levator ani muscle and rectovesical fascia. Ureters, vessels, and nerves pass through the subperitoneal areolar tissue between its layers. *Internal border:* attached to lateral walls of uterus and vagina. Uterovaginal vessels and muscular bands pass between the two laminæ. *External border:* In contact with obturator fascia. Transmits uterine vessels and round ligament. *Structures between two layers of broad ligament.* Ovary projects from posterior lamina. Ligament of ovary—from angle of uterus to lower or internal aspect of ovary. Fallopian tube—in upper free margin. Round ligament forms a ridge beneath anterior lamina, on its way to inguinal canal. Parovarium (fetal relic)—between ovary and outer part Fallopian tube. Duct of Gaertner; hydatid of Morgagni; small cysts—all fetal relics. Uterine, ovarian, and funicular vessels; lymphatics; and uterine plexus of nerves. Subperitoneal fatty areolar tissue. Involuntary muscular fibers—from obturator fascia to sides of uterus and vagina."—(Bickham's *Operative Surgery.*)

11. "*The internal semilunar fibrocartilage* (*meniscus medialis*) is nearly semicircular in form, a little elongated from before backward, and broader behind than in front; its anterior extremity, thin and pointed, is attached to a depression on the anterior margin of the head of the tibia, in front of the anterior crucial ligament; its posterior extremity is attached to the depression behind the spine, between the attachments of the external semilunar fibrocartilage and the posterior crucial ligaments."

"*The triangular interarticular fibrocartilage* (*discus articularis*) is triangular in shape, and is placed transversely beneath the head of the ulna, binding the lower end of this bone and the radius firmly together. Its periphery is thicker than its center, which is thin and occasionally perforated. It is attached by its apex to a depression which separates the styloid process of the ulna from the head of that bone, and by its base, which is thin, to the prominent edge of the radius, which separates the sigmoid cavity from the carpal articulating

surface. Its margins are united to the ligaments of the wrist-joint. Its upper surface, smooth and concave, articulates with the head of the ulna, forming an arthrodial joint; its under surface, also concave and smooth, forms part of the wrist-joint and articulates with the cuneiform and inner part of the semilunar bone. Both surfaces are lined by a synovial membrane—the upper surface, by one peculiar to the radioulnar articulation; the under surface by the synovial membrane of the wrist."—(Gray's *Anatomy.*)

12. The chief differences between the male and female pelvis are thus tabulated in Morris' *Anatomy:*

MALE.	FEMALE.
Bones heavier and rougher.	Bones more slender.
Ilia less vertical.	Ilia more vertical.
Iliac fossæ deeper.	Iliac fossæ shallower.
False pelvis relatively wider.	False pelvis relatively narrower.
True pelvis deeper.	True pelvis shallower.
True pelvis narrower.	True pelvis wider.
Inlet more heart-shaped.	Inlet more oval.
Symphysis deeper.	Symphysis shallower.
Tuberosities of ischia inflexed.	Tuberosities of ischia everted.
Pubic arch narrower and more pointed.	Pubic arch wider and more rounded.
Margins of ischiopubic rami more everted.	Margins of ischiopubic rami less everted.
Obturator foramen oval.	Obturator foramen triangular.
Sacrum narrower and more curved.	Sacrum wider and less curved.
Capacity of true pelvis less.	Capacity of true pelvis greater.

PHYSIOLOGY.

1. The *cardiac centers in the medulla.* The *cardio-inhibitory* center is connected with the nucleus of the vagus in the floor of the fourth ventricle, and the fibers from it pass to the heart along the vagus nerve. Its function is to slow the beat of the heart. It is sometimes known as the anabolic center, because it lessens the rate and force of the heart and so allows time for building-up processes (anabolism). If the peripheral end of the cut vagus is stimulated, the heart is slowed and may be entirely stopped. It is a tonically active center, that is, it acts continuously, so that the simple cutting of the vagus takes off the brake and lets the heart run away.

The *cardio-accelerator* center is also in the floor of the fourth ventricle. It acts through the sympathetic fibers which descend in the spinal cord and leave it through the anterior roots of the first and second dorsal nerves, and go thence to the cardiac plexus. This center keeps up the rate of the heart beat.

These centers may be stimulated by apparent impulses, such as *psychic* from the cortex cerebri, or *cutaneous*, or *visceral.* The centers are also affected by the state of the blood; thus excess of carbon dioxide in the blood, as in the beginning of asphyxia, stimulates the cardiac centers and makes the heart beat more strongly and more rapidly. Increased temperature of the blood also increases the rapidity of the heart's action.

2. The *elasticity of muscle* is small in amount but is perfect in quality; it cannot be stretched to any great extent without the fibers being damaged, but it returns completely to its original condition. Skeletal muscle is always in a state of tonus. This condition is kept up by the nervous system, and the impulses start from the muscle tonus centers in the spinal cord. Any interference with the reflex arc destroys the tonus or lessens it (hypotonus). This reflex arc consists of (1) afferent fibers to the spinal ganglia on the posterior roots of spinal nerve; (2) fibers to the cells of the posterior cornu; (3) an intraspinal neuron between the cells of the posterior cornu cells and the cells of the anterior cornu; and (4) an efferent neuron cell in the anterior cornu and axis cylinder to the muscle.

The *effect on contractility* is that the muscle is braced up, always ready for action; there is no "slack" to be taken in; contraction can therefore begin at once, and the latent period is shortened.

3. The unstriped muscle of the small intestine acts in two ways. (1) There are the *peristaltic movements* from the duodenum to the ileum. When food is being passed along the intestine, peristalsis consists in the inhibition of muscle in front of the food, and contraction of the muscle behind it; this process is repeated again and again, and food is forced along by its means. Peristalsis, in normal circumstances, acts in one way only, namely downwards. If a piece of intestine is resected, and turned round and sewed into place so that the top end takes the place formerly occupied by the lower end and *vice versa*, peristalsis in this piece still occurs in the originally normal way, and the food is found congregated at the top end. This proves a neurogenic origin for the movement; it occurs through Auerbach's plexus. The rate of this peristalsis is said to be about one inch per minute. (2) There are also *rhythmic segmental movements.* These are caused by the circular muscular fibers alone, contracting in one place and relaxing in another, and puckering and bulging irregularly, so that the contents of the intestine are mixed together thoroughly. This movement may proceed either upwards or downwards, and is myogenic in origin.

4. *Chemical changes in the blood in respiration.* Venous blood is brought to the lungs for aeration (external respiration); after aeration it is carried to the tissues, where internal respiration occurs.

External respiration. Between the air in the alveoli of the lungs and the blood there exists the endothelium of the capillaries and the epithelium of the walls of the acini. Through these two layers the interchanges between the air and the blood must take place. Inspired air contains 21 per cent. of oxygen; expired air contains 16 per cent. of oxygen; therefore 5 per cent. of oxygen is absorbed. The oxygen tension in venous blood as it reaches the lung is low, and so by diffusion of gases oxygen passes from the air in the alveoli to the blood until an equilibrium of tension is reached. But it is found that the oxygen tension of arterial blood is above that of air, and this extra amount of oxygen is taken into the blood by the selective power of the epithelium lining the acini of the lungs. The oxygen is then combined loosely with the hemoglobin of the blood, forming oxyhemoglobin. The oxygen is combined with the hematin part of the hemoglobin, and the amount absorbed depends on the amount of iron in the hematin (usually about 0.4 per cent.). The oxyhemoglobin is carried by the blood to the tissues. The amount of carbon dioxide in inspired air is 0.04 per cent.; in expired air it is 4.4 per cent.; so that, roughly, about 4 per cent. of carbon dioxide is expired. The carbon dioxide tension in venous blood is high; in alveolar air it is low; and so by diffusion carbon dioxide leaves the blood and passes into the alveolar air until equilibrium is reached and the carbon dioxide is prevented from returning into arterial blood again by the selective action (or biotic activity) of the epithelium lining the acini. The nitrogen of the air is only a diluent, and does not enter into any chemical action. One hundred volumes of blood yield about sixty volumes of gas:

	VOLS. OF OXYGEN	VOLS. OF CARBON DIOXIDE
100 Vols. of arterial blood	20	40
100 Vols. of venous blood	12	48

Internal respiration. Arterial blood leaves the lungs and is carried to the tissues, where the oxygen from the oxyhemoglobin is absorbed by the molecules of proteins, fats and carbohydrates in the tissues; oxidation does not occur immediately, but eventually it does. Some of the oxygen is used to form water, which passes into the blood and is excreted by the kidneys, skin and lungs; but most of the oxygen goes to form carbon dioxide, and this passes back into the venous capillaries. This oxidation is aided by tissue enzymes called oxidases. The carbon dioxide returns to the lungs by the venous blood, in various ways: absorbed to the protein molecules, as Na_2CO_3 and $NaHCO_3$, and a small amount is free in the blood.

5. Ranke's diet calls for:

Proteins .....100 grams
Fats .....100 grams } per diem
Carbohydrates .....250 grams

One gram of protein represents 4.1 calories.
One gram of fat represents 9.3 calories.
One gram of carbohydrate represents 4.1 calories.
The above diet, therefore, yields:

Proteid ..... 410 calories
Fats ..... 930 calories } Total, 2365 calories
Carbohydrates .....1025 calories

6. *Internal Capsule.*—"In the comparatively con-

stricted region of the internal capsule practically all of the motor and sensory projection fibers of the cerebral cortex are closely packed together. The internal capsule is made up of a so-called knee; an anterior, lenticulo-caudate (lenticulo-striate) limb; and a posterior limb, of which the anterior two-thirds is called the lenticulo-optic (lenticulo-thalamic) segment, and the posterior one-third the retrolenticular segment. A lesion of the knee gives rise to disturbances of the motor nerves of the eye, the motor part of the trigeminus, the facial, and the hypoglossal; in consequence; in addition to the obvious paralyses, disorders of articulation ensue, and if the lesion be on the left side aphasia. A lesion just posterior to the knee (the pyramidal tract), implicating in order the neurons for the face, arm, and leg, causes usually hemiplegia of the opposite half of the body; monoplegia is very rare, the lesion scarcely ever being small enough to involve only the neurons innervating one limb. A lesion of the posterior third (the retrolenticular segment) of the posterior limb of the internal capsule (which transmits sensory fibers for the entire body, as well as the optic and auditory neurons) gives rise to hemianesthesia (and related sensory changes) of the opposite half of the body, homonymous hemianopsia, and deafness on the opposite side. In most cases, however, notably in cerebral hemorrhage (of which the internal capsule is the common seat), the results are usually varying combinations of those mentioned."—(Kelly's *Practice of Medicine.*)

7. The active principle of the suprarenal gland is adrenalin or suprarenin. Its function is to keep up the blood pressure by stimulation of the ends of the vasomotor nerves; an exception to this is the vasomotor nerve of the kidneys; its action here is to dilate the kidney arterioles and so produce diuresis. The secretion from the cortical portion of the gland helps to maintain general body strength and nutrition; it also has some influence on the growth and development of the body; it may also help to destroy toxins.

8. "According to the evidence at present in our possession we must believe that the pancreatic secretion, like the gastric secretion, consists of two parts: (1) A nervous secretion caused by the secretory fibers in the vagus and splanchnic; (2) a chemical secretion due to the action of the secretin. These two secretions are said to present quite different characters. The former is thick, opalescent, rich in ferments and proteins, but poor in alkalies. The trypsin contained in it may be secreted in active form, and the secretion is suspended by the action of atropine. Administration of pilocarpine, on the contrary, excites this secretion. The chemical secretion, on the contrary, is thin and watery, contains relatively little ferment or proteins, and is rich in alkali. The trypsin in it is secreted in inactive form, and the secretion is not affected by the administration of atropine."—(*Howell's Physiology.*)

9. The normal body temperature is *regulated* and *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested: (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body, by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air; (3) the excretions—urine and feces.

10. *Function of the Eustachian tube* is: (1) To maintain equilibrium between the atmospheric pressure in the middle ear and the outside air. (2) The ciliæ on the epithelium lining the tube filter the incoming air from the pharynx and so aid in keeping bacteria out of the middle ear. (3) It may act as a drainage tube for the middle ear. (4) It may possibly have some function as a resonating tube, as may be observed when it is closed in catarrhal conditions, when the voice sounds strange both to the patient and to others.

11. When blood is withdrawn from the blood-vessels of the living body it first becomes viscid, then sets, and is converted into a jelly-like mass. This is due to the formation of fibrin. The jelly contracts, forming the clot; and at the same time the serum is squeezed out from the clot. Various circumstances and conditions will hasten or delay the process of coagulation. In man, the blood generally becomes viscid in from two to three minutes; it forms the jelly-like mass in from five to six minutes; a few minutes later the serum begins to appear; and the whole process is completed in from twenty-four to thirty-six hours. The clot then floats in the serum. The process is thus summed up by Halliburton. From the platelets, and to a lesser degree from the leucocytes, a material is shed out called *thrombogen;* from the formed elements of the blood, but also from the tissues over which the escaping blood flows, is shed out an activating agent, called *thrombokinase.* In the presence of *calcium* salts, thrombokinase activates thrombogen in such a way that an active enzyme is produced, which is called *thrombin.* In the blood plasma a protein substance exists, called *fibrinogen.* Thrombin acts on fibrinogen in such a way that it is transformed into the insoluble stringy material which is called *fibrin;* this entangles the corpuscles and forms the clot.

12.

THREE ENZYMES.	SPECIFIC FUNCTION.
Ptyalin.	To convert cooked starch into maltose.
Pepsin.	To split up proteins into proteoses and peptones, in an acid medium.
Trypsin.	To split up proteins into proteoses and peptones and other simpler bodies, in an alkaline medium.

(*To be continued.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION.†
Alabama*	W. H. Sanders, Montgomery	Montgomery...Jan. 12
Arizona*	J. W. Thomas, Phœnix	Phœnix.....Jan. 5
Arkansas	W. S. Stewart, Pine Bluff	Little Rock.....
California	C. B. Pinkham, Sacramento	Los Angeles....
Colorado	David A. Strickler, Empire Building, Denver	Denver.....Jan. 5
Connecticut*	Chas. A. Tuttle, New Haven	New Haven...Mch. 9
Delaware	J. H. Wilson, Dover	Dover.....Jan. 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington...Jan. 12
Florida*	E. W. Warren, Palatka	Jacksonville...June 15
Georgia	C. T. Nolan, Marietta	Atlanta.....June 2
Idaho*	J. F. Schmershall, Jerome	Lewiston.....April 6
Illinois	C. S. Drake, Springfield	Chicago.....Jan.
Indiana	W. T. Gott, Crawfordsville	Indianapolis...Jan. 12
Iowa	G. H. Sumner, Des Moines	Des Moines....Jan. 19
Kansas	H. A. Dykes, Lebanon	Topeka.....Feb. 9
Kentucky	J. N. McCormack, Bowling Green	Louisville.....
Louisiana	E. L. Leckert, New Orleans	New Orleans...June 3
Maine	F. W. Searle, Portland	Portland.....Mch. 9
Maryland	J. McP. Scott, Hagerstown	Baltimore....June 15
Massachusetts*	W. P. Bowers, State House, Boston	Boston.....Mch. 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor.....June 8
Minnesota	T. McDavitt, St. Paul	Minneapolis...Jan. 5
Mississippi	S. H. McLean, Jackson	Jackson.....May 11
Missouri	J. A. B. Adcock, Jefferson City	St. Louis.....Mch. 22
Montana*	Wm. C. Riddell, Helena	Helena.....April 6
Nebraska	H. B. Cummins, Seward	Lincoln.....May
Nevada	S. L. Lee, Carson City	Carson City...May 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord.....
New Jersey	H. G. Norton, Trenton	Trenton.....June 22
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe.....Jan. 11
New York	H. H. Horner, Univ. of New York, Albany	New York..... Albany..... Syracuse..... Buffalo..... Jan. 26
N. Carolina	B. K. Haya, Oxford	Raleigh.....
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks...Jan. 5
Ohio	C. W. Mateer, Columbus	Columbus.....
Oklahoma	J. W. Duke, Guthrie	Oklahoma City.Jan. 12
Oregon	B. E. Miller, Portland	Portland.....Jan. 5
Pennsylvania	N.C. Schaeffer, Harrisburg	Philadelphia.. Pittsburgh.... Harrisburgh.. June
Rhode Island	G. T. Swarts, Providence	Providence....Jan. 5
S. Carolina	H. E. Boozer, Columbia	Columbia.....June 8
S. Dakota	P. B. Jenkins, Waubay	Pierre.....Jan. 12
Tennessee	A. B. DeLoach, Memphis	Memphis.... Nashville.... Knoxville.... May
Texas	W. L. Crosthwaite, Waco	Austin.....June
Utah	R. W. Fisher, Salt Lake City	Salt Lake City..Jan. 4
Vermont	W. Scott Nay, Underhill	Montpelier....Jan. 12
Virginia	J. N. Baroey, Fredericksburg	Richmond.....June 22
Washington*	C. N. Suttner, Walla Walla	Walla Walla...Jan. 5
W. Virginia	S. L. Jepson, Wheeling	Charleston.... April
Wisconsin	J. M. Beffel, Milwaukee	Madison.....Jan. 12
Wyoming	H. E. McCollum, Laramie	.....

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Suprarenal Extract and Infancy.—L. M. Spolverini has not been able to detect the presence of suprarenal extract in the blood of normal infants nor of those affected with a contagious disease. The administration of suprarenal extract to healthy infants gives rise to an increase in the amount of cholesterin in the blood and a diminution in the amount of urea in the cerebrospinal fluid. It also causes a slowing of the pulse and a rise in the blood pressure. These effects are not observed following the use of parathyroid extract.—*Il Policlinico.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 2.
Whole No. 2305.

New York, January 9, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

A UNIQUE CASE OF SYPHILIS OF THE CRANIUM AND SPINE;

WITH REMARKS ON SYPHILITIC BONE DYSTROPHY.

BY G. FRANK LYDSTON, M.D.,

CHICAGO.

FORMERLY PROFESSOR OF GENITOURINARY SURGERY AND SYPHILOLOGY, STATE UNIVERSITY OF ILLINOIS.

THE case herewith presented is the most interesting one of late syphilis that I ever have met with in my experience, and has so many novel and instructive features that I feel confident that it will prove interesting to the profession.

Man, aged fifty-six, American, came under my care August 27, 1913. He had been a farmer all his life until the past few years, since when he has lived in a country town. Married thirty-five years. Temperate. No history of trauma. Family history excellent. Wife and six children in perfect health. Wife, however, a few years since had an operation for uterine fibroids and for gallstones. Nothing in the history suggestive of syphilis in wife, children, or the patient himself could be elicited. Patient claims that he never had had extraconjugal sex relations, nor coitus prior to marriage, and that he was perfectly well until the previous October. Later, however, his wife asserted that he had been subject to spells of melancholy from time to time with moderate insomnia for about a year. There had been, so far as she could determine, no mental derangement nor headache during this time and no physical symptoms save "exhaustion."

In October, 1912, the patient began to suffer from pain in the right arm and shoulder. Later the pain shifted to the right ileocostal region. At the time he came under my observation there was marked pain in both ileocostal regions, most marked on the right side. There also had been severe pains in the lower limbs which, while still present, were no longer severe. The pains throughout the course of the case were described as "shooting" and "neuralgic." As the severity of the pains decreased, a generalized cutaneous hyperesthesia supervened, and there was marked "soreness and tenderness" in the lumbar region. In November, 1912, he began to lose flesh, and by the time he came under my observation he had reduced considerably in weight.

In December a course of six mercurial rubbings was taken at Hot Springs, evidently on general principles, as the patient went to the Springs seeking relief from what he supposed was "rheumatism." He also, at about this time, took a course of vigorous "osteopathic" treatment for his spine, the wisdom of which, in the light of subsequent events, may well be doubted.

Some ten weeks before I first saw the patient, he developed retention of urine. At about this time a small tumor appeared on the cranium, and exophthalmos of the left eye with almost total loss of vision developed. Digestion was impaired and there was marked constipation. The sexual function had remained normal up to the time the patient became considerably disabled.

On examination I found the following conditions: The prostate was moderately enlarged and somewhat tender, the enlargement being chiefly of the left lateral lobe. A small pedunculated polypus was found just within the anal sphincter. There were several hemorrhoids of moderate size. The bladder was distended with urine and regular catheterization had been found necessary. This retention was due to partial paralysis of the bladder and was in no way obstructive in origin. Cystoscopy showed a normal mucosa, vesical outlet and ureteral orifices.

There was considerable tenderness over all the spinal nerve roots. This was especially marked over the lower dorsal and upper lumbar nerves. The intercostal nerves corresponding to the former also were very tender, especially on the left side. Just at the right of the median line, alongside the dorsolumbar junction, was a rather vaguely defined, oblong, semielastic, insensitive tumor, measuring 4 x 6 cm.

In the median line of the cranium at the occipitoparietal junction—the superior occipital angle—was a slightly elastic, circumscribed tumor, the size of an English walnut. This was immovable and evidently was subperiosteal. At its base was a narrow ring of tissue which was bonelike to the touch, and suggestive of the osteophytic deposit that so often is found encircling a cephalhematoma. This previously had not been noticed.

The left eye presented exophthalmos in extreme degree and showed practically complete loss of vision.

There was no headache or mental disturbance—aside from slight hebetude—and no tenderness on pressure upon the cranium or the tumor above described. The reflexes were somewhat exaggerated. There were no evidences of muscular impairment save those presented by the bladder, the bowel, and the general muscular weakness incidental to the patient's exhausted condition. Heart and lungs normal.

A positive Wassermann had been obtained and antisyphilitic treatment instituted some weeks prior to his consulting me. A single intravenous salvarsan treatment had been given. No effect from treatment had been noted.

Temperature on admission was 98° F. Pulse 90.

August 27, 1913, under ether anesthesia, I made an exploratory incision in the cranial tumor. The tissue of the tumor presented the appearance of a typical gumma. The hard ring at its base proved to be due to extravasated blood with incipient osteophytic formation. There were no areas of softening in the tumor tissue proper, its consistency being that of a recently formed gumma. Subsequent microscopical examination of the tissue showed the usual characteristics of granuloma. Beneath the solid tissue of the tumor was an almost circular opening in the skull, at the junction of the parietal and occipital bones—the superior occipital angle—which readily admitted the index finger. The edges of the openings were rough and irregular. There was no pus or other fluid and no neoplasmic tissue between the cranium and the dura beneath the opening. The dura did not present any swelling and was apparently normal. The line of union of the parietal and occipital bones seemed slightly movable, suggesting that the disease of the bone involved the lines of osseous suture. With rongeur forceps I removed the surrounding bone until apparently normal bone was reached, the resulting circular opening being about 2 cm. in diameter. The wound was packed with finely powdered iodoform, two small iodoform gauze drains inserted and the whole covered with an iodoform gauze dressing.

There was no shock and the patient promptly recovered from the effects of the anesthesia.

Mercury was given by inunction in combination with increasing doses of iodide of potassium. Systematic catheterization of the bladder was necessary and while later a little improvement in the vesical condition was noted, the catheter and irrigations could at no time be dispensed with throughout the subsequent course of the case. There was at no time any evidence of renal involvement. The stomach proved rather intolerant and

it was necessary to intermit internal medication from time to time. Throughout the course of the case insomnia was a predominant feature. Considerable pain in the back was complained of. This did not seem to be localized in any particular area.

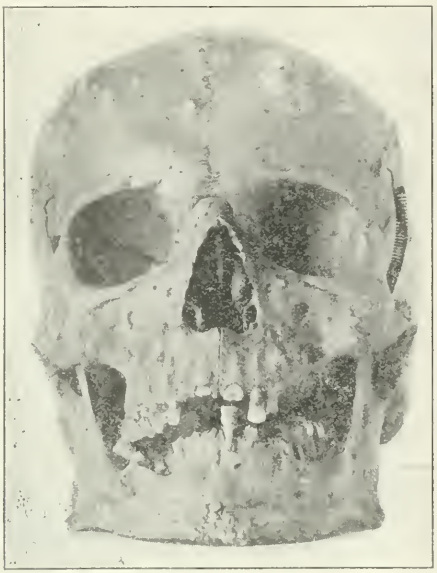


Fig. 1.

The exophthalmos rapidly subsided to a considerable degree immediately following the operation.

Dr. Harry S. Gradle saw the case in consultation on the fifth day after operation. His findings were as follows:

Left eye. About 3 mm. exophthalmos. Slight conjunctivitis. Motion limited slightly in extreme periphery. Cornea and anterior chamber normal. Pupil slightly more dilated than its fellow and slower to direct light reaction. Consensual reaction normal. Lens and vitreous clear. Nerve head slightly swollen (less than ½ mm.). No exudate present. Arteries thin, but nearly straight. Veins dilated and slightly tortuous. Retina around disc somewhat swollen. Fundus otherwise normal. Colors indefinite. No positive scotomata. Tension normal. Vision 2/70. (Papillitis. Remains of choked disc.)

Severe pains in the vesical region were complained of on the sixth day after operation. This pain decreased rapidly, however, and practically had disappeared within three or four days. The wound in the skull healed aseptically and was completely closed by the end of the second week after operation. During the progress of the case the patient was harassed by pain in the thighs, in the left especially.

On the fourteenth day salvarsan, 0.6 gm., was administered intramuscularly. This was repeated four weeks later. The indefinite tumor in the dorsolumbar region subsided rapidly and by the end of the second week was no longer perceptible.

The temperature ranged from 97.6° to normal for the first ten days after the operation. It then ranged from 98° to 100° for three or four days, when it again fell to a slightly subnormal average, and at no time rose above normal until the third day before death, when it was recorded as 100.2° per rectum, but shortly thereafter fell to 99° per rectum. Several hours before death the rectal temperature was 99.6°.

The pulse constantly ranged from 90 to 100 until a few days before death, when it rose rapidly to 120 and thereafter steadily increased until dissolution occurred.

The patient was affected from time to time by hysterical attacks and profound depression, but at no time showed any evidence of mental derangement while under my observation, save during periods of delirium at night. After the third week subsequent to the operation he was able to be dressed and sit in a reclining chair and even to move about the room and hospital halls a little. He expressed himself as feeling better when permitted to be up.

On September 25 the tumor at the dorsolumbar junction reappeared and developed quite rapidly. On October 3 I made an exploratory incision under cocaine. I found that the tumor was a hemocyst of considerable size, bilobed by the pressure of the supraspinous ligament, one lobe of the tumor resting on each side of the spine. The right side of the cyst was larger and extended for a distance of about 7 cm. alongside the spine beneath the deep fascia, which constituted its wall. Incision of the cyst freed probably three or more ounces of dark, perfectly fluid blood. The cavity of the cyst proved to be connected with the spinal canal by a necrotic opening about 15 mm. in diameter. The necrotic process involved a portion of the spinous processes and laminæ of the last dorsal and first lumbar vertebra. I removed with rongeur and curette the diseased bone and lightly packed the wound with iodoform gauze.

There was little venous oozing after the operation, but the postoperative course was favorable and healing was almost complete at the time of the patient's death.

The patient complained for some days of pain in the limbs, more insistently than before the operation. He suffered from pain in the upper limbs which previously had not been a prominent symptom. The pain gradually, however, became more endurable and thereafter remained of moderate severity.

Beginning Oct. 16, the patient became delirious at night. This symptom continued intermittently and with varying prominence until the termination of the case.

The cranial wound having healed perfectly, I had not examined the cranium for some days. Oct. 18 the nurse called my attention to a tumor the size of a hazel nut, in the occipital region just above the occipital protuberance, below the site of the original tumor and similarly situated in the median line. This tumor had been noticed by the patient several days previously, but being apprehensive of the necessity of further surgery, he had said nothing about it.

The tumor was painless, insensitive, tense but elastic, and apparently subperiosteal, as it did not have the feel of a recent gumma, but appeared to contain fluid. Mindful of the conditions present in the previous tumor,

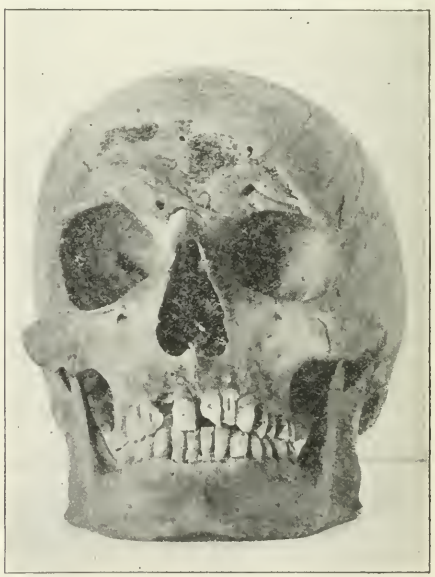


Fig. 2.

I made a tentative diagnosis of hemocyst, probably connecting with the longitudinal sinus, and suggested an exploratory operation. This was consented to Oct. 21. The tumor now measured about 1 cm. in diameter.

Under 2 per cent. cocaine anesthesia, the tumor was

exposed and proved to be, as was surmised, a cyst connecting with the longitudinal sinus. In manipulating this cyst it ruptured, giving exit to a moderate quantity of dark, perfectly fluid blood. This blood had escaped from the sinus through a circular necrotic opening in the skull, about 1 cm. in diameter. The edges of the opening in the bone were rough and eroded, but the disease of the bone apparently did not extend more than three or four mm. from its edge.

The diseased bone was removed and the wound treated as was the previous cranial wound. There was very slight hemorrhage from the longitudinal sinus immediately following the operation. Rather free venous oozing, however, began a few hours later, which was fairly well controlled by light gauze packing. As the delirium improved after the operation, and I was chary of producing any intracranial pressure if it could be avoided, the moderate oozing was not a source of much concern.

Oct. 24 the oozing of blood became so free that the wound was packed a little more firmly with gauze saturated with adrenalin solution. This satisfactorily reduced the hemorrhage but did not check it altogether, a slight amount of venous oozing continuing until the close of the case. The adrenalin dressing was stopped two days later.

The wound remained aseptic throughout and at the time of death was almost closed. The patient grew steadily weaker after the second cranial operation, his stomach became more and more intolerant, insomnia and delirium increased, and he finally died in coma Nov. 6, 1913.

No autopsy. I regret to say that no radiographs were taken.

Remarks.—In many respects the foregoing case is unique and worthy of special comment.

Syphilitic osteomyelitis—both the diffuse and the circumscribed varieties—is very familiar. This consists of : (1) an osteoplasia—ossifying osteitis—resulting in parenchymatous exostosis, which may either become permanent or break down; (2) destruction of bone from (*a*) pressure innutrition, (*b*) secondary mixed infection.

In all these conditions, both the objective and the subjective symptoms—pain, swelling, and tenderness—are marked. The characteristic nocturnal exacerbation of pain—or perhaps nocturnally limited pain—is almost always present, in greater or less degree. As the process is generally subperiosteal, the pain and the destruction of osseous tissue are easily explained by the presence of syphilitic neoplasm confined between unyielding bone on the one side and a dense, relatively unyielding, sensitive tissue—the periosteum—on the other. It will be noted that the subjective phenomena in the case herewith reported were quite different.

Spinal osteomyelitis due to pus organisms—notably to the *Staphylococcus pyogenes aureus*—leading to caries or necrosis, usually is insidious in its early stages, but an abscess eventually forms and betrays the existence of the infective process. Save in the fulminating type of osteomyelitis, acute infections of the bone are not likely to present severe pain or high temperature and other evidences of constitutional disturbance. On the other hand, syphilitic bone disease in general, while not producing temperature or other constitutional symptoms, is generally attended by pain and marked tenderness from the very beginning.

The case herein described certainly also differs from the classic description of rarefying or erosive syphilitic osteitis in which subperiosteal and intracanilicular (Haversian canal) cell infiltration and proliferation destroy the bony tissue proper and make it light, brittle and porous, the marrow eventually replacing the bone. (Interstitial gummy infiltration, diffuse or circumscribed, followed by atrophy.) This process is very slow and as a rule not destructive in the same sense as was that in the case under consideration.

Syphilis of the vertebral column is rare. Fournier in his vast experience has seen but two cases. The lesions thus far described in such cases have been typically gummatous.

As might be expected, any part of the vertebral column may be involved. The lumbar region seems to be the favorite seat of the process. The cell deposit may be either circumscribed or diffuse, involving not only the vertebral bodies but also the spinous hypophyses and the posterior vertebral arches. In one of Fournier's cases, the third and fourth lumbar vertebræ (posterior portion) were infiltrated by gummy deposit. The intervertebral cartilages were destroyed, the posterior longitudinal ligament thickened and softened, and one of the spinous hypophyses involved.

Caseated detritus of bone tissue, and of syphilitic neoplasm especially, has been noted as characteristic of syphilis of the vertebral column. This forms a yellowish, puriform mass, in which respect the process resembles tuberculosis. The slow evolution of syphilis involving the cranium and the spine is in marked contrast to that of the lesions in my case. It is unnecessary to contrast the local conditions. The description already submitted speaks for itself.

Classical syphilis of the cranium has been described as appearing in two forms, viz., (*a*) The "ulcerous"; (*b*) the hyperplastic. To these forms, I believe—for reasons which will hereinafter appear—we may tentatively add (*c*) the dystrophic.

The term "ulcerous" is objectionable, as it is made to cover blanket-wise, two distinct varieties of syphilitic bone disease, viz., (1) the necrotic and (2) the carious.

Fig. 1 shows that the various processes may be combined. The combination of syphilitic bony "upbuilding" and destruction in the same subject, as shown in one of these skulls is striking. In Fig. 2 is shown a syphilitic skull in which the entire structure was light—rarefaction. The area surrounding the frontal caries, while elevated, was thin and porous.

The hyperplastic change precedes the ulcerous, although, it must be admitted, the hyperplasia is not always recognized. The hyperplasia is either supradural, or subperiosteal and destroys the bone by pressure innutrition and erosion from without inward—*i.e.* from periosteum to bone—or from dura to bone. Pain and tenderness are usual. Severe headache is frequent. The condition often is associated with pachymeningitis. The frequent association of meningeal involvement with the gummy process in the bone is an all-sufficient explanation for some errors in diagnosis.

Where complete destruction of the bone occurs in classical cases a sequestrum forms. In caries the process progresses from the bone periphery inward, and is preceded by a softened gumma with subsequent erosion. As is true elsewhere, the process that leads to caries may be either circumscribed or diffuse.

The cases of cranial bone syphilis hitherto recorded showed multiple lesions which must have been perceptible from the surface by palpation before destruction of the bone was noted.

Commenting on the "annular" form of cranial bone syphilis, Fournier spoke of the hyperplastic ring about the base of the perforating lesions. This was noted in my case and, as I have already re-

marked, suggested the conditions found in cephalhematoma of long standing.

A prolonged process of softening and gradual bone destruction—caries or bone death in mass, typical necrosis or both, quite uniformly has been observed in such cases. The lesions generally have been noted at about the center of the bone, *e.g.* of the occipital, parietal, or frontal bones. In an unrecorded case of my own, practically the entire frontal bone was necrosed, the patient dying of septic meningitis.

I have not succeeded in finding a recorded case of bone syphilis simultaneously involving both the cranium and the spine.

It is worthy of comment that the cases of cranial bone syphilis hitherto reported have been institutional cases, in which neglect and bad hygiene have been dominant elements. In this respect the case herewith presented was the direct antithesis of the recorded cases.

In the case herewith recorded the features, which are worthy of special comment, are: (1) Combination of cranial and spinal bone syphilis; (2) Absence of symptoms of coarse brain disease; (3) Slight impairment of the mental faculties; (4) Insidiousness of development of symptoms; (5) Absence of paralysis other than of the bladder; (6) Freedom from cranial pain; (7) Apparent absence of local syphiloneoplastic conditions which could account for the death of bone by pressure-innutrition.

The association of disease of the cranial bones with the spinal bone syphilis requires no consideration save to note its rarity. Relief by the exophthalmos of intracranial pressure probably had much to do with the absence of ordinary brain symptoms and of mental disturbances, but if it served to relieve pressure on the delicate brain tissue it certainly should have lessened pressure of intracranial neoplasm upon the bone sufficiently to prevent necrosis, even had a circumscribed intracranial mass of gumma been present—which was not the case, as proved by two operations upon the skull and coincident intracranial exploration. That the destruction of cranial bone was not due to pressure innutrition or erosion from extracranial gumma was shown (*a*) by the condition of the gummatous tumor removed at the first operation and (*b*) by the fact that the second tumor was a blood cyst which emerged from the interior of the skull after the destruction of bone had occurred.

What has been said of the absence of brain symptoms applies also to the insidiousness of the process of bone destruction, merely because pain itself is characteristically symptomatic of pressure in syphilitic bone lesions. The absence of paralysis is an additional evidence of the absence of intracranial and intraspinous pressure from circumscribed gummy lesions. In the case of the spine, the blood extravasation and cyst formation were enough to account for the bladder involvement.

From time to time for many years I have suggested that some of the typic lesions of syphilis—especially of late syphilis—are due to the trophoneurotic effect of the syphilotoxins upon the sympathetic. The typic roseola and alopecia among the early lesions and certain forms of bone syphilis in the later stages of the disease especially, seem logically explicable respectively by vascular and by nutritive disturbance from syphilotoxemia. I believe that lesions such as those which occurred in the case recorded in this paper may be similarly explained.

The relation of certain syphilitic phenomena to organic or functional disturbances of the nervous system—and particularly of the sympathetic system—certainly is manifested here and there along the whole line of morbid phenomena developed in the course of the disease. The syphilitic fever, so-called, while an inconstant phenomenon, is noted sufficiently often to practically settle the question of the relation of cause and effect. The symptoms which collectively have been termed "syphilitic fever," in common with some other febrile constitutional disturbances, undoubtedly are dependent upon the action of a special toxin upon the sympathetic nervous system. From what we know of the physiology of the sympathetic system, and particularly of those functions of the sympathetic which we call trophic, it has been inferred that the majority of fevers—if not all—are directly dependent upon the action of toxins upon the sympathetic ganglia, with consequent disturbed metabolism and the usual phenomena of fever. Similarly the syphilotoxins may produce so profound an impression upon the sympathetic ganglia that the trophic function of this portion of the nervous system is disturbed, with an attendant perversion of tissue metabolism, excessive heat production, and the accumumlation in the system of the toxic products of perverted physiochemical change. The fact that the so-called syphilitic fever is not a constant phenomenon, but affects only an inconstant portion of individuals affected by syphilis, probably is explicable by varying individual susceptibility, hence the theory that the syphilitic fever is the result of the action of syphilitic toxins upon the sympathetic nervous system obviously does not necessarily imply that the syphilitic fever is a part of the natural course of the disease. We know that different individuals constitutionally are differently affected by organic poisons. If it is fair to infer that, because of special susceptibility, the nervous system of certain individuals may be morbidly impressed by other toxic disturbances to which the majority of individuals are immune, it certainly is fair to assume that in case of an organic poison so powerful as the toxins of syphilis, with which a large number of individuals inevitably are poisoned, certain special and exceptional phenomena may be produced in some persons.

Clinically, it would appear that the syphilitic toxins not only have a peculiar affinity for the sympathetic system, but that this affinity is particularly marked in the case of the upper or cervical portion of the sympathetic. The proportion of lesions about the head, face, and mouth is relatively much larger, even under the best of treatment, than in other portions of the body. The parts supplied by the fifth cranial nerve appear to be particularly susceptible.

The vasomotor disturbance that underlies the development of the roseola is substituted later on for a more or less pronounced trophic disturbance, as manifested by the heaping up of neoplastic material, the development of pus or puruloid material, the occurrence of ulcertations, etc. *Pari passu* with the supervention of this trophic disturbance in the skin, we have a similar condition in the pharynx and mucous membrane of the mouth, as evidenced by the development of mucous patches, ulcers, and macular eruptions, the latter being particularly marked upon the roof of the mouth.

On careful observation of successive crops of lesions in classical syphilis it will be found that the tendency to destruction of tissue and to the involve-

ment of various important functions of the body grows more pronounced as the case evolves. We see, therefore, in watching a case from its inception, the gradual supervention of a trophic upon a vasomotor disturbance and as the case progresses this trophic aberration becomes more and more pronounced until finally, in the period of the so-called tertiary and parasyphilitic phenomena, we have marked destruction of tissue in various situations—a destruction so marked as to have led at one time to the impression that the syphilitic "poison" produced in such instances corrosion of the tissues. In the absence of a marked corrosive property of the syphilitic toxins—and as we know its property of infection decreases in virulency as the case progresses—the logical explanation of many of the serious effects of late syphilis would seem to be the theory of trophoneurotic disturbances.

The apparent trophoneurotic character of the manifestations of syphilis is most pronounced in the late secondary and tertiary lesions. I have long been impressed with the peculiar course of some of the osseous lesions of late syphilis, particularly those affecting the face and head. It has seemed to me that the destructive effects of the disease upon certain bones is greatly disproportionate to the objective and subjective phenomena which precede bone death.

The objective symptoms that precede the necrosis *en masse* of various parts of the palate, superior maxillary and nasal bones seem comparatively slight when we take into consideration the fact that the affected bone is entirely destroyed. The first objective phenomena perceptible in necrosis of the parts mentioned are incidental, not to destruction of the bone, but to an attempt on the part of nature to rid the tissues of offending foreign material. Thus cases occur in which the greater portion or even all of the palatal processes of the superior maxilla is entirely destroyed, yet very little evidence of trouble is apparent until suppuration occurs, with a small point of ulceration of the soft parts covering the bone and the discharge of a quantity of pus so small as to be entirely disproportionate to the extent of the morbid process. On passing a probe into the small sinus thus formed, one who is not thoroughly conversant with the peculiarities of such cases is likely to be surprised to find that large portion, or perhaps, all of the bone is dead and perhaps loose in its bed. In most syphilitic lesions and in processes other than syphilitic, which produce necrosis or caries of bone, there exists prior to the death of the osseous structure, more or less pronounced objective phenomena in the way of pain, swelling, and deformity of the part; these symptoms indicating the existence of proliferated inflammatory material which subsequently cause, by simple pressure, destruction of the vitality of the bone. Syphilis of the bone or periosteum occurring early in the course of the disease is accompanied by relatively more prominent objective phenomena than the late lesions which now are under consideration; yet at the same time they rarely are followed by caries or necrosis. These processes, it seems, are reserved for the late secondary or sequelar period of the disease. It thus will be seen that, although the local process is apparently more severe in early cases, destruction of the vitality of the bone is not so likely to occur. There is a marked difference between the nodes and diffuse subperiosteal swelling of early syphilis, and the condition of the bone and periosteum, which precede necrosis *en masse*, or even caries, in the late stages of the disease.

In addition to the disproportion between the degree of destruction of bone and the objective phenomena preceding such destruction, another point worthy of comment is the fact that syphilis possesses the power of dissecting out definite portions of osseous tissue—apparently by cutting off their nutritive supply—in a manner as cleanly as it could be done with a knife. Cases of late syphilis are common in which the intermaxillary bone, portions of the alveolar process of the axilla, the malar bones and the ossa nasi have become necrosed and loosened and have required removal. These fragments of bone in many instances present a conformation as natural as in their healthy condition.

In late syphilis there seems to be a special predeliction for those parts supplied by the fifth nerve, which further lends color to the suggestion that the portion of the sympathetic system which supplies these parts is particularly sensitive to the syphilitic process.

The tendency to unilateral destruction of osseous tissue in some cases is especially marked. Thus either the palatal process of the superior maxilla or the superior alveolus of the same bone, may necrose without the corresponding portion of bone becoming affected. Indeed, it would seem that in many instances in which necrosis attacks the bones of the face, it is impossible to check the process until the line of demarkation represented by the anatomical outline of the affected bone has been reached.

I have seen numerous cases in which that portion of the superior maxilla corresponding to the intermaxillary bone was dissected out by the syphilitic process with resultant loss of the incisor teeth, the remainder of the jaw remaining intact. There appears to be a peculiar predilection of late syphilis for this portion of the jaw. Cases are frequently met with in which caries occurs in this situation with a consequent loss of one or more perfectly healthy teeth.

In considering the toxemic trophoneurotic character of the late lesions of syphilis, I do not ignore the fact that syphilis may act directly upon the nervous system in several different ways, *e.g.* (1) By the direct effect of syphilitic cell deposit upon the nerve cells or fibers, or upon the membranes of the brain and spinal cord. (2) By toxic nutritional disturbance and cell changes in the membranes of the brain and spinal cord. (3) By cell infiltration in and about the blood vessels, inducing circulatory obstruction. (4) By proliferation and organization of connective tissue, which remains after the syphilitic neoplasm *per se* has resolved.

There probably is a difference in the late and early forms of syphilitic lesions in the manner in which the trophoneurotic element is made manifest. Thus it may be due: (1) to a direct action of syphilitic toxins upon the sympathetic nervous system; (2) to direct pressure of cell infiltration upon the nerve tissue; (3) to a disturbance of function and nutrition of the nerve structures by interference with blood supply.

In considering the possible relation of trophic disturbances to destructive syphilitic processes, it is well to remember the familiar physiological experiment of section of the sympathetic in the neck of the rabbit. The same experiment also is interesting as bearing upon the faucial congestion of early syphilis. The reddening of the ear of the rabbit,

and the inflammation and sloughing of the cornea incidental to section of the sympathetic certainly are suggestive. Carrying the analogy of this physiologic demonstration a little further, we may recall the serious corneal trouble that sometimes results from herpes frontalis and orbicularis.

Conclusions:—1. Serious destruction of the bones of the cranium and spine may be produced by late syphilis without either local symptoms referable to the bone disease or disturbance of brain and nerve function.

2. Such cases are due, not to pressure innutrition of bone or to "corrosion," but to perversion of nutrition—bone dystrophy—induced by trophoneurotic disturbance incidental to syphilotoxemia, affecting especially the sympathetic.

3. This variety of syphilitic bone destruction affects by preference the bones of the face, but may, as shown by my case, affect the cranium or the spine, or both.

4. The process shows a special predilection for parts supplied by the fifth nerve.

5. The process may or may not be associated with gummatous infiltration in other regions.

6. Treatment, while in the main antisyphilitic, is never effective without surgical intervention. The surgery of syphilis is all important.

7. Exophthalmos is a "safety valve" in cases of intracranial pressure, which undoubtedly existed in my case, although it had nothing to do with the destruction of bone.

32 North State Street.

OBSCURE CAUSES OF DISEASE.*

By W. STANTON GLEASON, M.D.

NEWBURGH, N. Y.

The desire to live, and live as long as possible, has always been inherent in the minds of men. To enable every man to foster this fond hope and help him, if possible, attain the biblical three score years and ten is the aim of the medical scientist and the wish of the physician. When Metchnikoff and his coworkers announced to the world that the large intestine was the laboratory from whose reactions senile decay evolved, a new vista of possibilities as to life extension was opened to the investigator. These intestinal causes of disease are as yet somewhat obscure, but we are reasonably certain they are causes from which bacterial toxins gain entrance into the human body through some break in the usually normal line of defense. Apart from intestinal toxemias there are also important poisons which can be generated in the human body from deficient oxidation of food products in the metabolic change, causing an excess of uric acid. The effect of the intestinal poisons and also the byproducts of defective metabolisms is to limit the perfect action of certain cells or to materially retard their development.

Our present-day knowledge of toxic products, their influence on the cell, and the general disturbance of the proper correlation of organs, is due to the effective conjoined work of the clinician and laboratory worker. Through their labors we are shown how the vitality of the cell can be protected from extraneous products, and in this protection normal cell growth advanced. These primary results show the possibility of increasing the length of human life to be more real than imaginary. Carrell has succeeded in growing living tissue outside the human body; the best we can do at the present time in the body is to protect living tissue from degenerative changes.

The understanding of one of the most prominent obscure causes of disease as far as our limitations will permit is based on the knowledge of protein digestion. Through the investigations of Kutscher and Abderhalden, and the epoch-making split protein announcement of Vaughan, much of the mist of the past has faded away as regards the ultimate of protein digestion. A comparison will show our present enlightenment. Sir Michael Foster wrote in 1891: "At all events, the greater part of the proteid material of the food enters the blood as peptone or in some other form, and is carried as proteid material to the tissues." Science today determines that proteins are now broken up in the intestines into amino acids; these acids are absorbed into the blood stream and are carried through the body. Mendel states protein metabolism has at length become a question of the behavior of the amino-acids in the body—their uses and fate. Vaughan, through his brilliant work, shows us "That the body to be in perfect health should have all the cells functionate in harmony. And as these cells are living, growing and multiplying they must have a supply of natural nourishment, and as these cells are made up of protein to a large extent, they must be furnished with protein food. Vaughan divides the digestion of protein substances under two heads: Parenteral, or the digestion of protein outside of the intestines; and enternal, or the digestion of the protein substances in the intestines. Parenteral includes all the proteins taken up in minute quantities by the respiratory tract, also small quantities taken up digested or undigested from the intestinal tract. Proteins are also thrown into the system through the agency of serum and vaccines in varying amounts. In infections living proteins gain entrance to the body, increase and change the body proteins into foreign proteins; the ferments of the body will take care of this great influx of foreign protein up to a certain point. But if the balance is seriously overweighted an active febrile phenomena bursts out. The proteins entering the human system through the intestines are split into amino acids and synthesized into specific proteins. The cells of all the organs take up the same protein food. The force which accomplishes this change from protein to individual cell is called a ferment. The cells of each organ have their own ferments peculiar to the organ, and these ferments act to defend the cells against foreign protein products." In intestinal indigestion the protein element can generate powerful toxins. It is well proven that undigested protein, especially in the large intestine, can generate elements that are most energetic poisons. Mellanby and Eppinger contend that under certain physiological conditions, poisonous amino acids are formed in the colon which exert a powerful influence in the general circulation, as does a gland with an internal secretion.

Eastman shows that toxemia from the colon can come from four causes: colitis, adhesions, colon dilatations with viceroptosis, and stasis. Virchow and Pilcher believe that plastic adhesions may form about the colon as a result of a toxemia having its origin within the large intestine. Bassler, Runneford, and Heyde, isolated various forms of anaerobic bacteria which they judged were factors in the formation of adhesions about the colon and vermiform

*Read before the First District Branch of the Medical Society of the State of New York, October 8, 1914.

appendix. Adami also supports the theory that pericolonic adhesions may produce stasis through the agency of bacteria. Adhesions about the colon nearly always produce local or reflex symptoms in some portion of the abdomen, especially of the stomach. Mayo states that cases of colon stasis with flaccid abdomen can possibly be cured with a vegetable diet, but where there is a firm abdomen and direct evidence of partial obstruction the case becomes surgical. Armstrong holds that within the past one hundred years the flesh intake of man has increased four times; it is distinctly pointed out that the proximal end of the large intestine favors only the digestion of vegetable substances. Therefore, it is only a fair supposition that meat substance would naturally provoke indigestion with toxic products if conditions were not absolutely normal in the colon. Lane believes that the human family are better off without a colon, because it is the seat of so much human misery; the supreme court in surgery however hand down no such radical decision. The general practitioner and the surgeon are alike impressed that a survey of the systemic consequences from infections originating in the large intestine forces on us a new viewpoint in medicine and surgery.

Any defect in the large intestine, be it either mechanical or a fault in its function, results in a varied flora of bacteria within its walls. These microorganisms are of the anaerobic putrefactive type, and acting on protein bodies produce toxic products such as indol, skatol, and paracresol. These poisons, being reabsorbed into the blood, cause serious disturbance in the digestive, circulatory, and nervous systems, and also a general irritation of the harmony of action of all the organs of the body. Experimental studies from the Institut Pasteur, Paris, show premature senile changes induced in animals by the daily feeding with one of the indol, phenol, or paracresol compounds. These changes are strikingly similar to those pathological changes common to the aged, such as the increased formation of connective tissue, consecutive atrophy, and gradual disappearance of the parenchyma of the vital organs.

Focal infection is closely allied to local and general disease, and frequently bears an important influence on the general well-being of the individual, from the difficulty in locating its source of activity. Focal infection is essentially an obscure cause of disease, and the focus of infection may come from any part of the human body. Usually its origin is in the head, in the form of an alveolar abscess, tonsillar abscess, poor teeth, and various chronic sinus conditions. It may also come from chronic appendicitis, salpingitis, prostatitis, etc. Acute rheumatic fever is considered by Rosenow of focal origin, he having proved the presence of the infectious organism in joint fluid. Billings considers focal infection as largely responsible for arthritis, cholecystitis, pancreatitis, etc. Billings also holds that when the defences of the body are down by overwork or exposure the individual is especially susceptible to focal infection. In investigating obscure causes of disease the importance of early recognition of the focus of infection must be prominent in the physician's mind. Any break in the normal in any part of the body is worthy of our attention when the well-being of the patient is in question.

Through the courtesy of Dr. Charles G. Kerley I have had access to his unpublished article, "Disorders in Children Arising from Derangement of Function." In this manuscript Dr. Kerley brings out very clearly an obscure incipient cause of disease in children. He points out that the rapidly growing period of life is the time metabolic changes are most active, and is also the time when we are apt to have metabolic defects in the utilization of complex foods. The faulty deposition of salts probably produces rachitis in children. Protein is rarely a factor in childhood diseases. But in the active child it is the use of energy foods such as milk, butter, and especially sugar, that gives rise to trouble. For it can be well assumed that nearly every healthy child of well-to-do parents receives two or three times as much energy food as the body requires. It has been demonstrated that the end results of normal carbon oxidation include the production of heat. In the defective metabolism of carbon in children, toxic products are probably formed which produce periodic disorders of function such as recurrent noninfectious colds, recurrent noninfectious bronchitis, with or without asthma, recurrent vomiting, recurrent fever, also eczema, so-called bilious attacks, with or without vomiting. Recurrent noninfectious bronchitis occurs in fall and winter, with a history of frequent attacks with or without asthma, and the child is kept within doors. These children bear milk and sugar badly, and the trouble is no doubt due to faulty oxidation of too highly energized nourishment.

Recurrent vomiting can be associated with other forms of disorder, as bronchitis, asthma, and eczema. Acetone may be present in the urine. It is believed that these cases come from faulty oxidation of fat, sugar, etc., given habitually beyond the child's power of oxidation. The treatment for the recurrent types of cold and bronchitis is to cut off sugar largely or entirely, if the case promises to be difficult, cow's milk is absolutely omitted; if the disorder is obstinate skimmed milk is allowed. As Dr. Kerley states, "time and again I have seen children three to six years of age gain from three to six pounds in removing sugar from the diet and giving skimmed milk or none at all." The carbohydrates and fats are found in vegetables, cereals, breadstuffs and meats, and supply all the heat and energy required. As to the lithemic type, individuals belonging to this group are given an internal treatment with soda alone or combined with sodium salicylate. This treatment applies also to recurrent vomiting.

Uric acid: Since Alexander Harg published his memorable work, "Uric Acid in Causation of Disease," much thought and attention has been given this obscure agent in the consideration of obscure causes of disease. Investigators are still far from unanimous as to the origin of uric acid in the system. We are told that the uric acid in the urine is derived from either cellular metabolism or directly from food; then again that uric acid is made in the epithelial cells of the uriniferous tubule. A moderate amount of uric acid is essential to normal health; an overproduction of uric acid is abnormal, and a serious menace to the human body. We find an overproduction of uric acid in those individuals who have abnormally small lungs. In these cases even with a most careful regulation of diet and régime it is difficult to reduce the overproduction of uric acid. The cause of this excess is the inability of the individual to take in sufficient oxygen from the air to oxidize fully the protein substances, and the throw down is uric acid and brick dust

urine. These patients are supposed to remain in reasonably good condition, until through persistent irritation toxins from other sources overwhelm the system. A second class of patients are those who persistently overindulge in foods rich in starches, sugars and fats, and possibly proteins. The carbohydrates being oxidized quickly exhaust the supply of oxygen in taking care of the more easily combustible compounds, and there is not enough oxygen left to oxidize the protein. The consequences are general metabolic disturbances and defective assimilation and nutrition. With this train of symptoms follow digestive limitations and the consequent formation of toxins from the intestines, and a high indicanuria. There is another type of which there is impairment of the liver functions. This faulty action of the liver again limits the oxidation of protein with a resulting overproduction of uric acid.

Uric acid excess from any source is important, and its persistence, if unchecked, cannot help but be an ever-increasing menace to the integrity of the organs and an irritant to the nervous system.

From our present viewpoint, what are the effects of uric acid excess and intestinal toxemia on the human system? The results are in comparison with the degree of irritation and poisoning, and the length of time the toxic elements have been gradually increasing their influence. It has been shown that the constant accumulation of uric acid in the body is primarily irritating to organic structure, and also to the nervous system; then finally unless checked produce permanent pathological changes.

Intestinal toxins are perhaps more rapid in their effects and if unrestricted create a general disturbance of the body functions, with ultimate senile sclerosis in the tissues of organs and blood vessels. The final effects of both uric acid excess and intestinal toxemia seem to be so closely interwoven, from their bearing one upon the other, that they cannot be separated. Then again, as Taylor states, "there are so many contradictions at present on the interactions of internal organs that the student becomes confused and we look forward when a work will be written by an authority on autointoxication on the basis of the functions of the internal organs in the light of metabolism."

It is a reasonable argument, however, to consider that the basic factors in arteriosclerosis and gradually rising blood pressure are due to systemic toxins probably from the colon and also from defective metabolism. Appreciating our limitation, we strive to eliminate these toxins with ofttimes pleasing results, especially when the increased blood pressure is not associated with kidney lesion. Blood pressure is a symptom with a hidden cause; treating the cause, we usually limit the blood pressure and save our patient from possible terminal effects as arteriosclerosis, kidney lesion, or even apoplexy. The treatment of "focal causes of disease," and "metabolic disturbances in children" has been considered under their proper head. We would place excess of uric acid and intestinal poisoning under the same general plan of treatment. Each case should be individualized and diagnosed, and the habits of life carefully investigated. An adult requires about twenty-five hundred calories of food in the twenty-four hours, or over twenty calories to the pound of body weight. The average man needs fifty grams of protein food daily from all sources. Drawing our deductions from our present light of knowledge in the behavior of proteins as being a fertile source of systemic infection, and as L. F. Bishop states, "we must not disregard the teachings of the chemistry of our bodies." Therefore, we must limit our protein intake to absolutely body requirement, or even less, for we know living protein tissue can be built up by both protein and carbohydrate elements. Taylor points out, "that it is immaterial to the body growth whether the seroalbumin protein comes from plant or animal life. The carbohydrates are freely permissible, except limiting the use of sugar and sugar combinations. The department of nutrition makes cheese a safe substitute for the more potent proteins. Fruit acids should be withheld at times but are generally advantageous. The free use of water is often a detriment, for the surplus may pass directly to the colon, causing overdistention; in arteriosclerosis an overabsorption of water will throw an extra burden on the already embarrassed circulation. The best form of nourishment in extreme excess of uric acid are eggs and milk, for as Taylor states, they are purin free and uric acid is derived from purin bases.

A minute and detailed application of dietetic principles is beyond the scope of this paper; individual symptoms require individual attention. These patients should avoid overeating, and should use proteins in great moderation, carbohydrates with judgment, and common sense in everything. But little medicine should be used. A proper equalization of exercise and rest, both mental and physical, is important. Exercise according to individual limitations. Rest sufficient to repair daily waste, be it either in days or weeks, is quite essential, the proper prescribing of rest requires good judgment on the part of the physician.

Crile tells us that animals deprived of their proper rest show great deterioration of their vital forces. The strain and pressure of active modern life without adequate relief paves the way for those toxemias which will undermine the active forces of the most energetic. We have no intestinal antiseptics today except the Bulgarian bacilli, and they are but an adjuvant to the wise application of exercise, fresh air, and diet. Beyond regulating the bowels with some mild laxative as Russian oil, medicine takes an inferior position in the curative process.

In closing this paper I feel a deep sense of obligation to the laboratory worker for the light he throws upon possible obscure causes of disease. The scientist and clinician must labor together, the scientist pointing out the method and the practitioner of medicine applying it for the common welfare of mankind.

BIBLIOGRAPHY.

Taylor, A. E.: Digestion and Metabolism, 1912.

Bishop, Louis Faugeres: Arteriosclerosis, 1914.

Eastman, J. R.: Experimental and Clinical Studies of Colon Stasis, *Journal A. M. A.* August 8, 1914.

Mayo, Wm. J.: Resection of the First Portion of the Large Intestine and Resulting Effect on Its Function, *Journal A. M. A.*, August 1, 1914.

Vaughan, Victor C.: Parenteral Protein Digestion, *Journal A. M. A.*, August 1, 1914, Protein Split Products, 1913.

Billings: Focal Infection, *Journal A. M. A.*, September 12, 1914.

Porter, Wm. H.: Uric Acid Overproduction. MEDICAL RECORD, January 20, 1914.

Atwater: U. S. Dep. Agri. Bul. 109, Washington, 1892.

Barr: *New York Medical Journal*, 1914.

Chittenden: Physiological Economy of Nutrition, 1904.

Haig, Alex.: Uric Acid in Causation of Disease, 1898.

Brunton, Lauder: Disorders of Assimilation and Digestion, 1901.
Stow, Bond: Metchnikoff's Basic Principle. MEDICAL RECORD, August 19, 1914.
Mendel, L. B.: Newer Points of View Regarding the part played by Different Food Substances in Nutrition. *Journal A. M. A.*, September 5, 1914.

113 GRAND STREET

INTESTINAL STASIS.

BY FRANK R. STARKEY, M.D.,

PHILADELPHIA, PA.

IT is not surprising that the subject of intestinal stasis has recently played so conspicuous a part in medical literature, for now that the term is used synonymously with autointoxication the manifestations of this condition are believed to be so wide as to cover almost the entire realm of chronic diseases from neurasthenia to spinal sclerosis, from indefinite muscular pains and lumbago to arthritis deformans, and from the slightest digestive disorders to cancer of the stomach and pancreas (Lane). The entire gamut of diseases has been attributed to intestinal stasis and subsequent autointoxication, due to resorption of putrid intestinal contents which had not been sufficiently catabolized to reduce them to harmless substances. The treatment that has been suggested has been as extremely varied as have been the ideas as to etiology; ranging all the way from dietetics to Lane's extreme surgical methods. The pathology is also in dispute, graduating from the slightest retardation of the passage of the intestinal contents through the ileum and colon with subsequent ordinary constipation, to adhesions, fibrous bands, intestinal kinks, and even intestinal obstruction. The multitude of symptoms which have been and can rationally be attributed to this condition, include neurasthenia, neuralgia, so-called rheumatism, *i.e.* such pains as follow the consumption of goulash and other indigestible conglomerations, to ocular defects and disturbances of hearing and symptoms referable to the male and female organs of generation. This is easy to understand when we realize the great amount of change to which the protein molecule is susceptible. It has been shown that the protein molecule is capable of rearrangement into not less than 20,000,000 combinations. It is also true that the intestinal tract contains sixty different varieties of bacteria, each with its individual chemical predilections, etc., so the variety of poisonous products that can be elaborated within the intestinal canal is almost beyond computation. It is not the retention of uric acid in the system that produces the symptoms of the so-called uric acid diathesis. They are the result of deficient oxidation or interrupted catabolism and the retention of purin or alloxuric bases like xanthin, adanin, guanin, etc. All of which are highly toxic and are normally reduced to harmless substances by further oxidation. The term, intestinal stasis, originated with Sir Arbuthnot Lane, whose definition of intestinal stasis is: "Such an abnormal delay in the passage of the intestinal contents through a portion or portions of the gastrointestinal tract as results in the absorption into the circulation of a greater quantity of toxic or poisonous materials than can be treated effectually by the organs whose function it is to correct them into products as innocuous as possible to the tissues of the body." The line of defense between the intestinal tract and circulating blood is made up as follows: the ferments in the stomach and intestines, including pepsin, trypsin, steopsin, amylopsin and enterokinase, making up the digestive juices, and the friendly bacteria of the intestinal tract; the intestinal mucosa; the mesentery glands; the liver and the glands of internal secretion; the emunctories; the intestines; the kidneys; the skin and respiration. According to Lane, the main cause of intestinal stasis is visceroptosis and formation of kinks. These kinks, according to Bainbridge,[2] obstruct the lumen of the intestine and cause damming back and infection of the contents, and general slowing of the drainage canal. According to Eastman,[3] the subject of colonic toxemia may be studied under four headings: (*a*) colitis, (*b*) adhesions, membranes, and kinks, (*c*) colon dilatations and visceroptosis, and (*d*) stasis. It may be remarked here that in the presence of adhesions or kinks of sufficient magnitude to cause stasis a dilatation would be a necessary consequence. Adami[4] believes that through the action of bacteria, which he has proven pass freely through the intestines to the peritoneal cavity, adhesions are formed. He has also shown that when these bacteria are of mild virulence the inflammation which they cause inhibits their own growth so that the fully formed adhesions are sterile, the bacteria causing them being found only in the mucous membranes of the intestine itself. Bassler[5] has described a bacterium which he believes to be a causative factor in the development of adhesions and has named this bacterium the *Bacillus adhæsioformis*. He has found this bacillus in eleven cases. In dogs adhesions of a strong membranous nature are almost the invariable rule, even when the animals are apparently in perfect health. Colon stasis in the dog seems to be a constant phenomena. The *Bacillus adhæsioformis* of Bassler is anaerobic, is a saprophyte and as stasis favors the growth of the ordinary colon bacillus, and thus the consumption of oxygen from the intestinal contents, it will be seen that growth of this saprophyte is favored indirectly by intestinal stasis. Hewes has shown that spasm or abnormality of peristalsis of portions of the gut, with stasis of contents or gas, may occur in portions far removed from the actual seat of the lesion without the finding of any anatomical variation in the portion where the function is disturbed, for example; disturbances of the stomach with imperfect emptying of the contents, may occur in cases where no distortion of the stomach or duodenum is present and where the only abnormality is adhesions about the cecum and stasis of contents. Wilms' stasis or cecum mobile, can be considered an illustration where downward displacement of the colon acts as a causative agent in intestinal stasis. In this case the column of contents of the loaded ascending colon by its weight and hydraulic pressure dilates and pushes the cecum downward into the pelvis. Colitis is quite a constant accompaniment of stasis, but stasis is not necessarily an accompaniment of colitis, in fact the reverse may be true. Colitis, stasis, adhesions, or ptosis may cause[6] any of the other three conditions. Therefore, the tendency of these conditions to act in a vicious circle, will be seen. In the pathology of this condition the role of the ileocecal valve is commanding considerable attention at present. In 1878, Bull,[6] after a painstaking series of experiments, concluded that in the living body the ileocecal valve is impervious to fluid but when the bowel is overdistended by air the valve is rendered incompetent. Dawson,[7] 1885, was able to confirm these conclusions by experimentation on the cadaver. Most anatomists

and physicians of the present day concur in these findings and Ziemssen[8] and Heschl,[9] after exhaustive studies, found that in the normal individual the ileocecal valve was a competent barrier against return of the contents of the cecum into the ileum.

On the other hand a large number of observers, including Boyd, Hammeter, Church, Gruetzner,[10] and others, by forcing oils and other substances by rectal enemata past the ileocecal valve, have attempted to disprove its competency. Cannon and others, studying peristalsis and antiperistalsis by means of the Roentgen rays, have been able to establish firmly the truth of the efficacy of this natural gate between the ileum and cecum. It must be remembered here, however, that Senn showed that competency of the ileocecal valve is overcome by rectal inflation when a pressure of one and a half to two and a quarter pounds is employed. Senn's experiments have been confirmed by Behrens and others. Holzknecht and Singer[11] speak of the frequency of ileocecal valve incompetency in chronic constipation. Groedel[12] reported a number of cases of ileocecal valve insufficiency which he had demonstrated by means of the Roentgen rays. Many other writers have seen ileocecal valve incompetency in connection with intestinal disturbances. The ileocecal valve is almost always normally competent in all vertebrate animals. Case[13] reports having observed reflux of bismuth in the ileum, which had been ingested. He witnessed this in more than seventy cases after the ileum had become emptied of its contents, in ten or twelve hours after the bismuth meal. The ileum was again found to contain this substance after a lapse of twenty-six hours, though no more bismuth had been taken in the meantime. In a series of two hundred cases reported by the same author, thirty-three, or one in six, showed ileocecal valve incompetency when tested by bismuth enema. Again in 1913 he reports an additional series of fifteen hundred persons who had been tested by use of bismuth and Roentgen rays, in which two hundred and fifty, or one in six, showed ileocecal valve incompetency. Most of these patients suffered from constipation. The same author reported an additional five hundred cases in which the same condition occurs in the same ratio, one to six. It may be observed that the ileocecal valve depends for its competency or efficacy largely upon the oblique direction in which the ileum enters the cecum. This is considered by a great majority of anatomists as a necessity to its imperviousness. According to Arthur Keith[14] there are muscular fibers situated at the ileocecal orifice which are evidently designed to secure that orifice from reflux of intestinal contents from the cecum. In the distal portion of the ileum there is, normally, an excess of muscular fibers causing distinct thickening of the circular muscular coat which seems to be endowed with a sphincter like function. This sphincter relaxes in front of a persistaltic wave allowing the passage of the mass into the colon and contracts behind it, guarding against regurgitation, thus acting somewhat as a bulb syringe. In the author's opinion, based on careful study of a large number of cases, patulency of the ileocecal valve is not necessarily dependent upon adhesions around or malformations of the ileocecal valve but may be due simply to flabbiness of the intestinal walls, causing it to sag open from sheer weakness. Among the etiological factors we may consider heredity; persons inheriting the gastroptotic habitus; congenital malformation, corpulence, in which large masses of intestinal and omental fat retard peristaltic action; inherent lack of muscular and nerve tone; visceroptosis with relaxed abdominal muscles; sagging of colon and relaxation of the distal portion of the ileum and gaping of the ileocecal valve; frequent pregnancies, which tend to lower muscular and nerve tone and predispose to intestinal and peritoneal adhesions; appendicitis with adhesions following it and deficiency in internal secretions which govern nerve and muscular tone. Adhesions are held by many to be invariably responsible for this condition and undoubtedly do play an important part in the causation of certain cases. A case was reported by the author of a young woman, twenty-five years of age, housemaid by occupation, who was in the habit of going eight weeks without having a bowel movement. This individual, who was satisfied with half a dozen bowel movements in a year, showed no signs of adhesions nor gastroptosis, although she had an enormously enlarged colon. The signs of ductless gland disturbance were conspicuous, manifesting themselves by pigmentation of the skin, vasomotor disturbances, etc. Her father, a man sixty years old, was in a similar condition.

The symptoms of intestinal stasis are extremely varied. In the milder forms consisting of constipation, anorexia with mental dullness, mild headache, abdominal distress or pain, later followed, as the case proceeds, by more marked constipation, frequently throbbing or sick headaches, gastric symptoms, more or less constant abdominal distress with paroxysms of violent pain; a variety of reflex nervous disturbances; vasomotor disturbances manifested by pallor of the skin, clammy, cold sensation, profuse perspiration, and low blood pressure or florid complexion and high blood pressure depending upon the particular poison being absorbed; asthenia; melancholia; hypochondriasis and all of the chain of symptoms that we call neurasthenia with disturbances of the special senses; asthenopia; ocular pain; oculomotor imbalance; choroiditis and even optic atrophy; symptoms referable to the organs of generation, amenorrhea, dysmenorrhea, leucorrhea, urethral and vesical irritability, and impotency. Pain in various parts of the body, articular stiffness from the mildest degree to arthritis deformans. In brief, such stiffness of joints and muscles that are usually classified under the ambiguous head of rheumatism. When not in reality referring to true rheumatic fever, these are invariably signs of gastrointestinal autointoxication.

Disturbances of the organs of internal secretion with decrease of their autoprotective power are conspicuous. Lane in his enumeration of the signs of intestinal stasis, has drawn an almost perfect picture of imbalance of the organs of internal secretion. He enumerates them as follows: "Loss of fat." In hypersecretion of the thyroid gland loss of fat is the rule. In dispituitarism again there is a distinct type where loss of flesh is conspicuous. In disturbances of the functions of the genital glands loss of flesh is frequently prominent. Wasting and relaxation of the voluntary and involuntary muscles occurs in pituitary insufficiency, thyroid insufficiency, and insufficiency of the secretions of the sexual glands. "Degeneration of the skin." Changes in the skin are conspicuous symptoms of pituitary and thyroid derangements as seen in acromegaly, Addison's disease, myxedema, cretinism, and other diseases in which the glands of in-

ternal secretion are notably involved. "The temperature of the body is subnormal." This is the rule in pituitary deficiency. Bluish color of the hands, pointed out by Lane, is common in all cases where circulation is depressed as in pituitary deficiency. The mental condition, he states, is one of apathy and stupidity. He could not paint a more perfect picture of the mental state of pituitary or thyroid deficiency. "Patient complains of so-called rheumatic aches and pains in the muscles and joints and even in the skin." These are symptoms in acromegaly. "Wasting of the thyroid gland." This is usual in advanced cases of imbalance of the ductless gland system, no matter what the origin may be. "Blood pressure may be raised or depressed." When the secretion of these glands is deficient blood pressure is subnormal. Where the adrenal, pituitary, or thyroid is over active the blood pressure is raised. "Breasts show very definite degenerative changes." The intimate relation between the mammary, sexual, and other glands of internal secretion is well known. Lane says: "the visceral organs prolapse and alter in shape, partly because of loss of fat, partly because of wasting of muscular fiber." After the time of the menopause, when the glands of internal secretion have lost much of their activity, flabbiness of abdominal muscles with relaxation and consequent ptosis of the viscera, sagging of the intestines, etc. is usual. "The patient becomes breathless on exertion." This is the case when there is a general relaxation of the bodily musculature, for the heart muscle is included. "Most of the degenerative changes that affect the muscle of the heart appear to be due to autointoxication." The internal secretions are important factors in neutralizing the substances which usually produce autointoxication, and a failure on the part of the glands of internal secretion, which permits products which are absorbed from the intestines before they have undergone sufficient retrograde oxidation, to enter the circulation, is a frequent cause of myocardial degeneration and associated with atheromatous changes in both the larger and smaller vessels. The kidneys are liable to derangement by the abnormal strain thrown upon them and degenerative and inflammatory changes result which are roughly grouped under the term, Bright's disease. Kidney degeneration of this particular type is almost constant in disthyroidism. "The hair of the head loses its color early in life and tends to fall out." The author has called attention elsewhere[15] to thinning of the hair in both hypopituitarism and hypothyroidism. "The pancreas becomes affected directly by extension of the stagnant contents of the duodenum. This results in chronic induration, inflammation, and finally cancer of the organ. Pancreatic diabetes also ensues." A close relation between perversion of the pituitary and thyroid function to diabetes is well known to all students of this subject and has been pointed out by the author many times. "Gallstones, cystitis, and cancer may be produced, besides many acute or chronic diseases of the liver." Gallstones and cystitis are especially frequent at the age of the menopause and thereafter when the function of the ductless glands is distinctly lessened. "Those diseases of the eye, which are degenerative in origin, are produced by and vary with the degree of autointoxication." The frequency with which optic atrophy and other optic degenerations are associated with pituitary disease has been shown by numerous observers.

Diagnosis.—We must first consider the history of these cases. We frequently find a history of constipation and indigestion with abdominal cramps. The constipation may alternate with diarrhea, stools are apt to be badly formed, either in small hard masses or in flattened ribbon-like formations, which is characteristic of a spastic condition, or there may be hard masses covered with mucus. When diarrhea obtains the fecal matter is usually curdy, flocculent, foul smelling, and is expelled with great force accompanied by gas. A history of faulty occupational position which favors the formation of adhesions, of acute or chronic appendicitis, abortions, peritonitis, or abdominal operations is common.

Examination.—The patient is frequently pale, sallow, with flabby face and sagging cheeks. The abdominal picture is very characteristic; pot bellied with flattened epigastrium and a distinct line of demarcation between the thorax and abdomen, frequently a deep indentation. General flabbiness and relaxation of the muscles, especially those of the abdomen. Percussion gives us a great deal of information. As a rule we are able to map out a distended ptosed stomach and colon. The *x*-ray examination, by aid of the bismuth meal, confirms percussion, and in addition we can often define signs of adhesions, kinks, dilatations, and malposition of the organs. Blood pressure is frequently increased.

The urinary findings are quite characteristic. The urine is usually scanty in amount, pale in color and low in specific gravity due to deficiency in solids. Indican is increased in proportion to the autointoxication present. The ethereal sulphates are increased. There may be albumin and casts if the kidneys are much embarrassed. The blood does not show anything characteristic.

Treatment may be divided into: Hygiene; exercise and other physical means, diet, medical, and finally surgical measures; fresh air; systematic bathing to improve elimination; exercise, walking and hill climbing, calisthenics and special movements directed toward requirements of individual cases; massage and gymnastic work are frequently valuable aids. Attention given to the diet with the object of (*a*) overcoming constipation, if present; (*b*) increasing the bodily fat and in this connection the Weir-Mitchell rest and forced feeding method is valuable; (*c*) decreasing putrefaction by lessening nitrogenous content, a liberal diet of easily digested foods, rich in cellulose with plenty of water so there will be a large moist residue remaining in the bowels, is desirable. Overloading the stomach, however, must be avoided. The teeth of the patient should be looked after and careful mastication insisted on.

Medical: Disintoxication treatment. I have used this with considerable success. All food is withdrawn for a period of from three to five days, during which time the patient is encouraged to drink water freely and large doses of a saline are administered so the bowels are copiously evacuated each day. If this is followed by the administration of lactic acid bacilli a new flora of the intestines can frequently be established, the saprophytes having been washed out and starved out in enormous quantities by abstinence and purgation, allowing the friendly lactic acid bacilli to propagate. Russian paraffin oil or olive oil, or cold expressed linseed oil are also valuable adjuncts. Where spasticity of the intestines obtains, belladonna is indicated. Where atony exists, nux

vomica and cascara are useful. If there is difficulty in inducing the patient to partake of sufficient coarse food, agar will act as a valuable substitute and assist in providing moist bulk in the intestines. The ductless glands which play such an important part in the tone of the intestinal tract should be stimulated and their function increased.[15] The mild, rapid sinusoidal current administered to the seventh and eighth dorsal vertebræ produces excellent results. I have obtained and have seen others obtain splendid results by this method. The ptosis is markedly diminished and one's treatment can be followed very beautifully by daily fluoroscopic studies of the stomach and intestines. I have seen them raised to a normal position in a remarkably short time, where there are no adhesions to bind them down. The effect of this treatment is lasting. The period required for emptying the ileum is distinctly shortened. The various kinds of abdominal supports are useful in this condition, not so much for the actual replacement of abdominal viscera to their normal position as for the support which they give to the abdominal walls and contents, facilitating the drainage of blood from the splanchnic veins, thus overcoming the splanchnic engorgement which always obtains in these cases. This relief is very prompt and very pronounced. The best of these supports, is, perhaps, strapping the abdomen with adhesive plaster as suggested by Cohnheim, Rose, and others. Next to this come various belts which can be selected according to the individual requirements of the case. The results obtained in this way are at least as good and as permanent as those following surgery, and are absolutely free from danger.

In considering the surgical aspects of this condition I am entirely in accord with the sentiments of Professor John G. Clark as expressed in his valuable article[16] in which he says: "The various ptoses of the viscera are now in the surgical proving ground and all will admit that the devising of effective ways and means of remedying these abnormalties is attended by more difficulties than is usually encountered in other fields of medicine. This difference is due to the fact that the condition is neither a disease nor a disability of a single organ but a manifestation of the general abnormal physical state of congenital or acquired origin, accompanied by more or less profound neurasthenic symptoms. The surgeon can help, at most, but a small percentage of individuals so afflicted, for although advances have been made in the operative treatment, no single measure has yet proved so efficacious as to gain general approval. It can scarcely be expected that the lifting up or even the excision or an anastomosis of offending organs can effect so complete a metabolic revolution in a patient of adult age as to result in even a moderate state of well being after years of distorted growth. That such cures can be effected is contrary to all laws." Numerous operative procedures have been devised by various surgeons, but if surgery is to be resorted to the axiom laid down by Eastman[3] is a safe one, viz, "The surgical procedure to be employed in any given case should be determined not before the operation but after the abdomen has been opened and completely explored." Again quoting this same author: "Little or nothing is to be expected from operations for the removal of pericolonic membranes which are at all extensive. The purpose of the operation should be to not put the colon out of commission but by relief of colitis and pericolitis by drainage, to put the colon back into commission." According to Bassler,[17] anyone can show that at least 18 per cent. of all people have a Lane or ileal kink and in the vast majority of these cases some delay but no toxemia exists. In 167 cases examined by this author by means of the *x*-ray, in which a true Lane kink existed, in only five cases did this kink cause definite delay. He believes that it is decidedly more reasonable to consider these bands as physiological and has many times seen them return in six months after operation.

In the author's experience in the cases which he has submitted to the surgeon for operation and the cases of others which he has studied, the postoperative history has been one of chronic invalidism with repeated operations for the correction of adhesions. An operation of this kind cannot be performed without considerable manipulation and traumatism of the peritoneum both visceral and parietal, all of which favors the formation of adhesions. Contraindication to surgical procedures: In addition to the usual contraindications of surgical intervention, including affections of the heart, kidneys, etc., persons with general visceroptosis and relaxed abdominal muscles cannot expect permanent relief. Those who show a distinct tendency to formation of adhesions should not be operated upon. Where the ductless glands are conspicuously deficient in their function little can be expected from surgery. I believe that surgery is never justified except where there is actual intestinal obstruction and that this fad of short circuiting will go out of style the same as the custom which prevailed a few years ago of promiscuous nephropexies, oophorectomies, appendectomies, and other -pexies and -ectomies.

The question of shock must not be overlooked in connection with this subject. It is well known that in these major operations, where the abdominal cavity is opened and no intestines handled, the amount of shock is by no means inconsiderable. What is this mysterious condition of depression which we call shock? In view of the radical changes that have taken place in our understanding of physics since the advent of the electronic theory, we know that the different physical manifestations of matter are simply differences in the vibration of the component electrons. The difference between the individuality of persons is not merely one of physiognomy or corporeal peculiarities but their personality depends upon the rate of their electronic vibrations. The human body is naught else but an aggregation of cells, each a world within itself, made up of various components which are finally composed of electrons vibrating in perfect unison and the entire organism attuned to vibrate in one harmonious whole. In view of all this, why should it not be reasonable and rational to define shock as a disturbance in the normal vibrations of the electrons of the organism? This would certainly conform to our recent knowledge.

REFERENCES.

1. Lane, W. A.: *Surgery, Gynec. and Obst.*, November, 1910.
2. Bainbridge, W. S.: "A Contribution to the Study of Chronic Intestinal Stasis," MEDICAL RECORD, New York, Sept. 26, 1913.
3. Eastman, J. R.: *Jour. Amer. Med. Asso.*, Aug. 8, 1914.
4. Adami, J. G.: *Brit. Med. Jour.*, Jan. 24, 1914.
5. Bassler, A.: MEDICAL RECORD, New York, 1914, lxxxv, 427.

6. Bull: Virchow's Jahresbericht, 1878, 2-205.
7. Dawson: *Lancet-Clinic*, Feb. 21, 1885.
8. Ziemssen, quoted by N. Senn, "Experimental Surgery," 1889.
9. Heschl: Zur Mechanik diastaltischen Darmperforationen, *Wien. med. Wochenschr.*, 1881, No. 1.
10. Quoted in Sutherland's "System of Diet and Dietetics," 1908, p. 287.
11. Holzknecht and Singer: *München. med. Wochenschrift*, 1911, No. 48.
12. Groedel: Verhandlung d. Deutschen Roentgen Gesellsch., 1912, viii, 56.
13. Case, James T.: *Jour. Amer. Med. Assoc.*, Oct. 3, 1914.
14. Keith, Arthur.: Proc. Roy. Soc. Med., April, 1913.
15. Starkey, Frank R.: "The Glands of Life."
16. Clark, John G.: *Penna. Medical Journal*, April, 1914.
17. Bassler, A.: *Jour. Amer. Med. Assoc.*, Oct. 24, 1914.

2105 Chestnut Street.

THE USE OF PITUITARY EXTRACT IN OBSTETRIC PRACTICE; WITH SOME CRITICAL OBSERVATIONS ON "TWILIGHT SLEEP."

By SAMUEL W. BANDLER, A.B., M.D.

New York.

I DESIRE to discuss the use of pituitary extract in obstetrics, not with an array of statistics nor with a detailed report of individual cases, but simply hoping to convey the very favorable impression that has been made upon me after an extended use of this drug in the various types of cases as they occur in obstetrical practice over a period of years.

My experience with the technique of many physicians and my observations in the cases of colleagues with whom I have been associated in the conduct of such cases has shown me that the sterling value of pituitary extract is not generally recognized. The use of this preparation seems to be looked upon as indicated by special or urgent considerations only. The purpose of these observations is then to call attention to the value of this drug, not alone in cases where no progress is made or in cases where urgent haste is demanded, but in the conduct of the average case as it comes through the hands of the practitioner in his routine work.

No addition to our obstetric aids has been of such potent service as has the use of pituitrin. It has simplified many questions, has shortened the duration of labor in primiparæ, and most particularly in multiparæ, has removed almost entirely the necessity of applying low forceps, except in the very rare cases of emergency. (As to high forceps, indications are complex, opinions differ, and version and cesarean section come into consideration.)

Pituitary extract does not act to the same degree in all patients; a small dose in one case is very effective, whereas numerous repeated doses are necessary in other cases. It increases the pain which the patient feels, but, and this is the purpose for which we are using it, it increases the efficacy of the uterine contractions.

In selecting cases for its use and choosing the proper time, we must be guided, not by the subjective sensation of pain which the patient has experienced, nor by the frequency of the pains alone, but by the progress which is being made. Therefore it may be used in the first stage of labor as well as in the second stage.

Pituitary extract does not act unless labor pains have begun, hence it is of value in determining whether the pains which the individual feels are true labor pains. For instance: Take a case where the membranes have ruptured before any pains have begun. Periods varying from a few hours to two or three days may elapse before progressive labor begins, yet in the meantime there may occur occasional periods when severe pains follow in fairly rapid succession, only to die out shortly after. An injection of pituitrin given at this time may be of no value whatsoever; or it may add force and continuity to the pains, in which event successive injections will cause them to progress into the regular steps of a genuine parturition.

Take another instance: A patient had gone two weeks over the expected period, and had had on two occasions, at night, severe attacks of pains, coming on at ten-minute intervals, for an hour to two hours. The patient's husband, a physician, was loath to call me because he was uncertain as to whether these pains were real or not. I urged him to inform me the next time that this happened. He did so. An injection of pituitary extract was then given, and the patient went on to regular continued pains and was delivered in ten hours.

If regular pains, associated with appreciable dilatation of the cervix have once begun, the use of pituitrin increases their power and causes extremely rapid dilatation of the cervix. There is no reason why the first stage of labor should be allowed to prolong itself beyond a reasonable number of hours, with a head engaged and moulded in the brim. It occurs of itself so quickly in many cases that we may be reassured in our belief that a rapid dilatation is not injurious. For us to let nature direct this process sluggishly and indolently, fortified by the thought that no harm is done to the fetus so long as the membranes are intact, is to add hours of pain and discomfort to the patient.

While I was attending one patient in confinement another patient had been in labor with pains occurring every ten minutes, occasionally every five minutes, for over 12 hours. When I reached this patient the cervix had disappeared, and only the edge remained, but dilatation was present only to the extent of one finger. Three minutes after the first injection of pituitrin there was a marked show, and in less than two hours the cervix was completely dilated, after which the membranes were ruptured and labor was completed in one and a half additional hours.

In those cases where the Barnes bag is used, it is occasionally necessary to introduce a second or even a third bag, because, after the expulsion of the first, labor pains do not occur or recur. If, during the action of the Barnes bag an injection of pituitary extract be tried, and perhaps a second injection be given, it not rarely happens that the labor pains go on at once rhythmically and regularly, so that the introduction of the second bag is not needed.

There is no certainty about the action of the preparation in such cases, but it occurs often enough to be worth a trial in all instances, and can be productive of no harm or annoyance.

In the second stage of labor, with the head firmly fixed and moulded through the brim of the pelvis, and in those cases where, in *multiparæ*, there is no doubt as to proper relationship between the fetal head and the pelvic brim, pituitary extract is used to increase the actual propulsive powers of the uterine muscle, and to hasten the progress of labor. The further down in the pelvis is the fetal head, the safer is the indication for the use of pituitrin, if progress be slow.

The term "atony" does not mean that the uterine

muscle may not do its work. We select a period, to be sure, when it does not, and call it uterine atony. All of us have been prompted, at times, to give morphine or other drug, let the patient have a restoring sleep, and then await, sometimes with success, sometimes not, the recurrence of forceful pains. In many other instances we have applied forceps without delay and so aided delivery. Such a uterine muscle can be made to work successfully if proper stimulation be given it. Hours of annoying pain are saved, and the use of forceps almost entirely obviated. In fact I have been using pituitary preparation in more than three-fourths of my cases, and I find the use of forceps indicated once where formerly I was compelled to use it four or five times. The use of the drug toward the end of an indolent second stage, plus the careful administration of chloroform, constitutes as advantageous and practical a form of "twilight sleep" as one could possibly wish for.

Only the other evening I was asked to come and apply forceps in a case where the head had been visible for a long time, but progress had ceased in spite of continued pains. I advised the administration of one-half ampule of pituitrin, and progress became evident almost immediately; shortly after chloroform was administered, and, with the aid of a second half ampule, delivery was successfully terminated, and a twelve-pound baby was born without the patient being aware that any change had taken place. My observations so far have been confined mainly to primiparæ. It is, however, in multiparæ that pituitrin gives the most astonishing results. Since using this drug I have not been compelled to spend more than two hours at the bedside of any multipara in labor.

Once labor pains begin, whether the head is engaged in the brim, or whether, as so often happens, the head is well above the brim, the use of this drug produces astounding results. Cases in which there is scarcely any dilatation of the cervix and no fixation of the head in the pelvic brim, deliver themselves in anywhere from fifteen minutes to two hours. Not that this happens always, but it almost constitutes the rule.

When once a hypodermic of pituitary extract has been given, it is a risky thing to leave the patient's bedside. This naturally holds true to a far, far greater degree in multiparæ, and is decidedly applicable to multiparæ in the second stage.

The method which I follow in the application of this remedy is to inject half an ampule, and observe its effect, and thereafter to inject, at intervals of half an hour and up, half an ampule of pituitrin as often as may be indicated. We judge of progress by the fewest possible examinations. The visibly contracted uterus, the character of the patient's outcry, the sensation of pressure on the rectum, the feeling as if the "bowels want to move," all give us additional information.

I can imagine no injurious effects from this procedure, and I believe that the drug has no harmful influence. I have often given six to eight injections at intervals of half an hour, each consisting of half an ampule. The effect of each of these hypodermics is generally temporary and evanescent.

It may be said, then, that in any case where the position is one that does not demand correction, where there is no malrelation in dimension between the fetal head and the bony pelvis, where the progress of labor is slow, or where it is desirable to accelerate it, or where, because of any condition in the mother or the child haste is necessary, pituitary extract is indicated as a safe and valuable aid in primiparæ or multiparæ, in normal labor or in dry labor.

In the third stage previous hypodermics have a splendid effect, leading to the ready expulsion of the placenta, and causing firm contraction of the uterus. I have used ergotole at the end of the second stage for years, and continue to use it, no matter how much pituitrin has been injected, as I find its action prompt, effectual and extremely reliable.

In the post-partum stages I occasionally use pituitary extract to aid in the involution of the uterus, but its use should not be continued for too many days, as it might well cause a marked atrophy.

So far as my experience goes, there is no contraindication, of a general nature, to the use of this remedy. It may be used in eclampsia and in those cases where the kidney is involved. Aside from its application to the stages of labor, it is of value in overcoming the atony of the bladder so frequently present on the first or second-day post-partum.

In the various stages of inevitable abortion it is of value. It is especially indicated after curettage for this condition. When repeated daily or every other day, for a long period of time, it aids in contracting the subinvoluted uterus, the fibrotic uterus, or the uterus which bleeds without definitely ascertained pathological cause, but a cause which exists in the uterine wall itself.

I use it in cesarean section, the moment the operation is begun. Just as soon as the abdominal incision is made a hypodermic of pituitary extract is given. Contraction of the uterus is already apparent after incising the uterine wall, as delivery of the fetus through the incision is somewhat difficult. After removing the placenta and membranes the uterus contracts mightily, and the uterine wound seems very small indeed. Bleeding is remarkably slight. I administer it for a week or ten days after a cesarean section.

A few words as to the "twilight sleep" of which so much is heard. I have gained the impression from the experience which I have had in the administration of morphine, narcophin, hyoscine, and scopolamine, that they inhibit and nullify the activity of pituitary extract. If this be so then the strongest criticism which can be made lies against this method of "twilight sleep." For anything which prolongs labor and interferes with a drug as valuable as pituitrin, a drug which shortens labor to such a marvellous degree, loses most of the advantages which can be claimed for it. I have yet to recall a patient who has refused to have a second or third child because the labor pains in the previous experience were too severe.

And, especially from the standpoint of the physician who takes personal care of his patient in labor, and who prefers to spend more than an occasional few minutes at the patient's bedside, the advantages of the pituitrin method, as compared with the narcophin-scopolamine procedure are certainly evident. Unless it can be absolutely proven that the use of narcophin-scopolamine does not interfere with the action of pituitrin, the use of the former implies a decided disadvantage. Were it possible to combine scopolamine and narcophin with pituitrin, and make the labor less painful—produce amnesia—and shorten its duration decidedly, then the combination would be ideal.

In closing I simply wish to state that we have in pituitary what I consider the greatest aid intro-

duced into the field of obstetrics since I have studied medicine; that its use can be highly recommended in the vast majority of cases, those cases constituting the ones in which birth per vaginam is possible without corrective procedure.

134 West Eighty-seventh Street.

THE SIGNIFICANCE OF THE VON PIRQUET TEST.*

By THOMPSON FRAZER, M.D.,

ASHEVILLE, N. C.

Ever since 1907, when von Pirquet announced his discovery of the reaction which bears his name, this test has been charged with a great variety of interpretations and implications. Indeed, the technique of the test has so many variants and the literature on the subject has reached such amazing proportions that one is baffled by the conflicting results that have been obtained, and is tempted to discredit the importance of a procedure which is apparently so complicated and whose significance seems so obscure. It is not surprising, therefore, that the test is so infrequently applied by the profession generally. I believe, however, despite the discrepancies which exist between the results of different observers, that the von Pirquet test has a wider field of usefulness than it has been accorded.

Von Pirquet, it will be remembered, found that the reaction occurred in but a small proportion of infants, but that with advancing years it became more and more frequent, so that at the age of ten about 70 per cent of the children tested gave a positive reaction.[1] Almost no adults gave a negative reaction. The large percentage of reactions in older children without symptoms was in striking contrast to the infrequency of reactions in the first year of life, in which nearly all infants who reacted presented definite symptoms of tuberculosis. The occurrence of the reaction not only in those suffering with clinical tuberculosis, but in those apparently enjoying good health as well, at once raised the question as to the value of the test: what significance has it if the tuberculous and the well alike give a positive reaction? The significance[2] of a positive reaction is of course *not* that we are dealing with a case of tuberculosis in the usual sense; it indicates only a previous infection with tubercle bacilli. More properly it is a test for tuberculosis antibodies only, for infection might be present and the reaction negative owing to the absence of tuberculosis antibodies.

As infection with tubercle bacilli is uncommon in early life and as infection so regularly develops into clinical disease during this period it was concluded as the result of the experiments of von Pirquet that a positive reaction to the cutaneous test is of the greatest diagnostic significance during the first two years. It was believed, however, as the percentage of reacting children increased so steadily with succeeding years, that a positive reaction in the later years of childhood was an evidence of "latent" disease only. It received scant recognition, therefore, and after the age of two a negative reaction was alone considered of definite value, this being looked upon as strong presumptive evidence of freedom from tuberculosis.[3]

One does not question the figures of von Pirquet and other observers have gotten similar results. Jacob found the test positive in 30-40 per cent of village children. Since the test first came into vogue, however, our ideas as to its frequency and its meaning have suffered some changes, and as a result of more recent experiments it seems not improbable that the scope of the test may be so enlarged that not only will it be diagnostic in infancy, but it may be made to play a part in the prevention of tuberculosis; that is, of clinical tuberculosis.

The more recent figures are of interest in that the percentage of reacting children is smaller than in the series of von Pirquet. Thus Shaw and Laird[4], performing the cutaneous test on 330 children in orphan asylums found the average of positive reactions to be 28 per cent., increasing from 2½ per cent. under two years of age to 45 per cent. between 6 and 14. While Sachs,[5] experimenting on children of tuberculous parents, obtained a positive reaction in 49 per cent. between the ages of 7 and 14, reaching 60 per cent. between 15 and 20, and 73 per cent. above the age of 20. More striking are the figures recently published by Wachenheim,[6] who made the test on 100 children of the East Side of New York, the greater number of whom were of Jewish extraction. Twenty children clinically tuberculous all gave a positive reaction. The remaining 80 were all suspected of tuberculosis because of chronic cough, impairment of general nutrition, or some other suggestive sign. Although the reactions increased with age the percentage in this series is much lower than one would expect. Thus, 24 children under six gave no positive reactions, in 36 cases between 6 and 9 there was a percentage of 5.6, while 20 children of 10 years and over had only 15 per cent. reactions. While admitting the racial feature as a possible explanation for the low figures obtained, Wachenheim concludes that on the East Side at least, "most children that look tuberculous are free from the disease; their condition is due to other and less serious causes."

My own figures, because of the small number tested, have but little weight. I was surprised, however, at the infrequency of positive reactions. Thus, of 36 children tested, 8 were under 7 and were all negative. Twenty-eight between 7 and 14 gave eight reactions, or a percentage of 28.

The disparate results obtained by various observers are not easily explained, although von Pirquet admitted that his figures were probably higher than those of other cities on account of the tests having been all made on children of the poorer classes, these children being infected at an early age because of the prevalence of tuberculosis among the parents. At any rate, the frequency of infection would naturally be greater among institutional children, in hospitals, and among the poorer classes generally, especially in tuberculous families, and before we can arrive at a general estimate of infection we need data which will include all classes.

Some discrepancies must be attributed to differences in technique[7] and to lack of agreement as to what constitutes a reaction. It is unfortunate that as yet there has been no uniformity in the application of the test, or rather there have been proposed so many modifications of the original procedure, that it is not always permissible to compare the results of one observer with those of another. How far the different methods of scarifying, the depth of the abrasion, the concentration of the tuberculin used—how far these affect the results have not been definitely determined. For this reason the test should be standardized; the undiluted tuberculin should be used, and a uniform method of scarifying,

*Read at a Symposium on Tuberculosis of the Southern Medical Association in Richmond, Va., November 10, 1914.

preferably with the von Pirquet scarifier, should be employed. The skin of the forearm, after being sponged with ether, is scarified through a drop of tuberculin just sufficiently to obtain a moist pink hole without drawing blood. A drop of glycerin is used for the control. The typical reaction which begins after a variable latent period of from a few hours to several days is easily recognized, and consists of a papule usually reaching 10 millimeters (2/5 inch) in diameter, and attaining its maximum size in 48 hours, after which it decreases in size. In an intense reaction the inflammatory area may be 20 millimeters (4/5 inch) or 30 millimeters (1 1/5 inch) in diameter. In order to avoid overlooking a reaction the patient should be seen 24 and 48 hours after the test has been performed, for at times there is seen the "early" or "premature" reaction with a latent period under 24 hours, at other times a delayed or "sluggish" reaction, beginning after the lapse of 24 hours. The normal traumatic reaction shows itself only as a slight redness at the end of 24 hours, but in order to be on the safe side von Pirquet has advised that all reactions below 5 millimeters (1/5 inch) diameter be considered doubtful, and the test repeated. Petrushky regards a doubtful test as positive if on the second trial the reaction is more marked, and while some claim that a negative reaction may become positive on some subsequent repetition most authors regard a second test as final. Rivière thinks that a negative result after two attempts is a valuable proof of the absence of tuberculosis.

We are still in the dark both as to the conditions responsible for varying degrees of reaction, and as to the proper interpretation of these reactions, although it is evident that there are two factors concerned in the production of sensitiveness, "a sufficient call on the defensive mechanism, and the power of active response."[8] Thus, it has been noted by some that the more latent the tuberculosis, the more concentrated must be the tuberculin to cause a positive reaction. As the result of the employment of dilutions of tuberculin, however, it has not yet been possible to differentiate active and latent disease except to a limited degree, although it does not seem impossible that in the near future we may be able better to interpret the varying degrees of sensitiveness met with.

The power of response is a variable factor: some areas of the skin are more sensitive than others, the back more so than the arm. Again, it has been noted that during an attack of measles the reaction is negative, although tuberculosis is present, also that response to the test is absent in cases of advanced tuberculosis and when the patient is moribund. Von Pirquet says that sluggish reactions are more often encountered in older children, especially clinically unsuspected cases, and that they are seldom met with in those manifestly tuberculous. The explanation that has been offered is that an active lesion causes the specific antibodies to circulate in large quantities in the blood, combining quickly with the tuberculin, while in a latent lesion the antibodies are fewer in number and it takes longer for a sufficient number to be produced and to combine with the tuberculin introduced.[9]

We are unable, at present, to account for the differences in the character of the reactions, nor are we able to reconcile the various estimates as to the frequency of positive reactions. On one point, however, all are agreed, viz., that tuberculous infection increases with years. Stoll,[10] as a result of tests performed on a hundred odd children in orphan asylums, noted that those who gave a positive reaction were, on the average, eleven months older when admitted than those who did not react—in other words, the extra year spent in their homes increased the chance of infection. He also found that when several children from a family in which tuberculosis was known to be present were admitted, "it was almost invariably the youngest, or the one earliest removed from the home that escaped infection."

With the recognition of this increasing infection and also of the relation which exists between infection in childhood and clinical tuberculosis in later years, it follows that if we detect the presence of infection and treat the child accordingly we shall have made a great stride in the prevention of clinical tuberculosis or disease. Here then is the applicability of the cutaneous test: to detect the presence of infection at the earliest possible moment; and to this end the employment of the test annually, as advocated by von Pirquet, would contribute in no small degree.

The value of the test will vary of course at different ages. It is evident that in the very young infection can not have existed long and that as the child grows older there will be a greater number of latent infections—infections which never have caused trouble, and the majority of which, perhaps, will not be productive of symptoms in the future. Stoll thinks that "a reaction in a delicate child is a sign of grave import and means 'watch out'," while Miller and Woodruff[11] have said that although "every case reacting to the local tuberculin test does not require the same treatment as a case of tuberculosis, it should be kept under careful observation." At exactly what age the reaction ceases to have a definite value can not be said positively. Baldwin[12] thinks it of diagnostic importance up to the age of ten. "It is likely that the child should be treated, or at least watched," he says. "If no symptoms have appeared before the test is made and the test is positive, it may be said without doubt the child has not had tuberculosis long. . . . The tuberculin reaction in children, therefore, is of great value, and must not be ignored."

Wachenheim's reliance on the test is unqualified. He thinks that there is no reason to assume that in reacting cases the tuberculous infection is obsolete or even arrested and is of the opinion that "a positive reaction should be regarded as an important danger signal, as evidence that a tuberculous process is either still active, or likely to become active at any time, and never to be carelessly dismissed as a mere relic of a past and gone infection."

Such are, in brief, the views of the more recent writers. They leave little doubt in my mind as to the significance of the von Pirquet test, and while I realize that in this short paper I have only scratched the surface of the subject I believe that as an embodiment of the different points I have tried to bring out, the following conclusions are justifiable: (1) That a positive cutaneous reaction is less frequent in children than it was once thought to be, the high percentage of reactions obtained being due to the application of the test chiefly to infected children of the poorer classes and (2) that therefore a positive reaction is of greater significance than it is commonly supposed to be. (3) That while there is an increasing percentage of reactions with years, and a corresponding decrease in the value of the reaction, the view usually held

that the reaction has significance only during the first two or three years of life is not borne out by recent figures, and that we should be suspicious of a reaction occurring up to the age of ten. (4) That annual tests be instituted in the effort to detect early infection, and that, bearing in mind the fact that many if not most cases of clinical tuberculosis in later years are due to renewed activity of old foci, we should seek by proper means to prevent the development of "infection" into "disease." (5) That a negative reaction, negative on repetition of the test, is valuable evidence of the absence of tuberculosis unless the child be suffering with advanced or acute disease, especially measles. (6) That further study of the test is necessary before we can fully interpret the reactions, and that, in the future, it is possible that refinements of technique may enable us to determine with greater accuracy the recency of the infection.

REFERENCES.

1. von Pirquet: The Frequency of Tuberculosis in Childhood, Tr. Internat. Con. Tub., 1908.
2. Powell and Hartley: Diseases of the Lung and Pleuræ, p. 501.
3. Hamman and Wolman: Tuberculin in Diagnosis and Treatment, p. 126.
4. Shaw and Laird: The Diagnosis of Tuberculosis in Young Children, Tr. Nat. Ass. Prev. Trt. Tub., 1909.
5. Sachs: Children of the Tuberculous, Tr. Internat. Con. Tub., 1908.
6. Wachenheim: The Diagnostic Value of the v. Pirquet Test, *Am. Journ. Dis. Chil.*, June, 1913.
7. Sachs: The Diagnostic Value of Local Tuberculin Reactions, Tr. Nat. Ass. Prev. Trt. Tub., 1910.
8. Riviere: The Early Diagnosis of Tubercle, p. 111.
9. Pottenger: Tuberculin in Diagnosis and Treatment.
10. Stoll: The School Child and Tuberculosis, Tr. Nat. Ass., 1910.
11. Miller and Woodruff: The Occurrence of Pulmonary Tuberculosis in the Children of Tuberculous Parents, Tr. Internat. Con. Tub., 1908.
12. Baldwin: The Diagnostic Use of Tuberculin, Tr. Nat. Ass., 1912.

THE GENERAL USE OF DISTILLED WATER,

THEREBY SECURING THE ELIMINATION OF TOXINS LEADING TO ARTERIAL CHANGES, AND THE ELIMINATION OF WATER-BORNE DISEASE.

By L. L. VON WEDEKIND,

MEDICAL INSPECTOR, U. S. NAVY, COMMANDING U. S. S. "SOLACE," HOSPITAL SHIP.

In presenting a theory to men of science, facts relative to results obtained in support of that theory are worth all the argument possible to place on paper; are convincing, interesting, and provocative of reasoning on the part of the reader, leading more rapidly to self experiment than any other means of inciting interest, and I will therefore, before discussing the subject, present facts. We have, as a class, practically accepted as an axiom, "A man is as old as his arteries," and after twenty-five years' association with the men who demonstrate this assertion to be an axiom, I have concluded to offer to you my solution of the riddle, "Why is arteriosclerosis so markedly absent among officers and men of the U. S. Navy?" and strive to convince you that this solution is axiomatic. The strength of the Navy and Marine Corps is between 65,000 and 70,000 men. The report of the surgeon-general for 1913 tabulates one death from apoplexy, and places arthritis as the least common of all diseases. Preventable diseases, typhoid, smallpox, and many others, have been eliminated, and the principal duties of a medical officer on a battleship are to sustain efficiency by commending always what leads to perfect health. That the constant use of distilled water, not only for drinking, but also for cooking purposes, absolutely eradicates the possibility of infection from water-borne disease, is a fact, and needs no argument. That the navy is typhoid proof by prophylaxis should be of extreme interest, and we are immunized for the reason that we may visit all ports in the world and on shore in infected ports, are liable, of course, to that particular infection, for really we do drink water even on shore.

In a series of observations of blood pressure on navy men aged from 40 to 60, I have yet to note anything over 142 millimeters, the average being 136, and these were taken haphazard—not selected. This, in connection with the note quoted above, is of importance and encouraging. Men new to the navy will for a period from six to nine days, and sometimes longer, discharge solids in solution in urinary excretions far in excess of what is considered normal—and thereafter the excretion will equal that of men not on distilled water—but remember that distilled water ingested with no salts in solution is discharged (as is any potable water), having in solution as much solid as has a charged water. The difference before drinking either type of water would be found after evaporation, and this is self evident. Distilled water, hungry for soluble ingredients—the natural condition of all except rain water—has its appetite satisfied in coursing through the body and removes excess, up to its capacity, until excess ceases to exist, and is ever ready to meet an emergency. In this day of ours when everyone discusses blood pressure, sclerosis, exercise, athletics, and hygiene, I think it well to touch on facts relative to blood pressure, and in non-technical terms, so that those who run may read, and to show that hope remains even when he of 40 demonstrates 155 millimeters instead of 136, as he should. Increased blood pressure (and to the man who has it, visions of hardening of the arteries, apoplexy, and paralysis) by general vasoconstriction, the result of circulating toxins due especially to defective metabolism of meats, produced by gouty and uremic conditions, and this constriction controlled entirely by the medulla (starvation or toxin irritation), is a condition so far as diagnostic importance is involved, not to be mistaken for mental or sensory nerve stimulation, both of which are temporary and unimportant. Remember that this high pressure is the forerunner of sclerosis, the cause and not the effect of the arterial degeneration, as is so plainly demonstrated by its selective location for damage, the aorta, kidneys, and liver, where the toxins not eliminated rapidly enough tire out the latter two organs and the inadequately excreted poison accumulates in the blood, and as a consequence, what more natural than that the vascular system suffers an aortitis on account of the pounding not only of impure toxic blood, but increased cardiac action due to peripheral contraction; and these conditions which have brought about this high blood pressure, if they are permitted to persist, will cause the development of changes in the vessel walls and turn a functional contraction into a structural one, diminish the arterial lumen, set up an arterial degeneration. In fact, a sclerosis is the effect rather than the cause of high pressure. So much for facts. These I consider indisputable, and

the reader may take them for what he considers them to be worth.

It has been, and is claimed, that the excess of chlorides is a cause of temporary high pressure, and now admitting this, we have the deposition of soluble salts in degenerating arterial walls, and a structural change permanent and pathological. Chlorides are interdicted in some conditions, and if to this we add copious drinking of distilled water, taken as a vehicle hungry for soluble matter, the excess is carried off—toxins are diluted and rapidly excreted, constriction of the peripheral circulation is released by feeding and reducing the medulla irritation, and equilibrium is established by removing the exciting cause of the disturbance, and is continued by continually offering the opportunity for such elimination.

A foul sewer may be rectified by flushing, by disinfection, or by both methods. A poisoned human system is treated by disinfecting it internally. Why not add a thorough flushing, and when sweetened, continue for all time to flush it—prevent repoisoning by a constant stream? I have treated gouty patients in this way, not with brilliant success, but with results satisfactory to the patient and me. The all-important point to remember is, discover high pressure when it is functional, before it becomes the result of organic disease, and I firmly believe that this may not supervene, if what I suggest is carried out, for I have had many years of opportunity to observe, and results speak for themselves.

In my extensive travels about the world I have always been impressed by the fact that the illiterate inhabitants of the tropics, even the savages, treat their sick by water ingestion. Naturally many cases receive a large overplus of the exciting cause of their illness, but the object to be obtained—"sweating"—in fevers is attained, and by the skin and kidneys the poison is simply poured out.

Accept any one theory of the etiology of rheumatic or gouty arthritis, or accept all of them; consider it an infection, a metabolic flare-up, an acid excess and deposition; or that a hormone and enzeme had a falling out—or whatever you will; the object to be obtained first, foremost, and always, is the elimination of the poison. Deluge the system with an inordinately thirsty vehicle, a liquid normally carrying solids in solution; deluge the system with a liquid as dry as a sponge, so far as the presence of soluble ingredients is concerned, and you have an ideal elimination, irrespective of the theory you may have espoused.

Blood depletion in high pressure, up to 30 ounces, is often resorted to for two reasons; the first is obvious, while the second, very frequently overlooked, reduces by just so much the toxemia—in other words, it dilutes the poison. Ingestion of large quantities of distilled water in such conditions reduces permanently a high blood pressure, simply by diluting a concentrated poison, excreting it rapidly, feeding the medulla, permitting unimpeded peripheral circulation, and affording a rest to kidney and liver, by delivering weakened solutions for smelting purposes.

Understand, I am not offering this as a treatment for a disease condition. I am urging strongly that the rest of the world lives as do we, some 70,000 strong, using distilled water for cooking and drinking, and live on and on, youths at 65. We do not develop arterial degeneration, gout, and rheumatism, though not surrounded by home comforts, regular seasons, regular amusements, and home life. Our men wash their own clothes, they wash their home each morning, instead of sweeping it; they are wet some portion of each day, and frequently a good portion of the day; are in tropic heat and liable to have midwinter within a week; work strenuously, hard, and constantly.

Overfeeding is a habit, nothing more. Overdrinking of water may become one; agreeable, constant, and productive of such visible results as to be compellingly convincing.

Efficiency, efficiency, is the cry of the times. The duties of a U. S. naval officer are all centered in obtaining the highest efficiency value of his men, and the medical officer advises always with this one object in view. Preventable disease no longer exists in the service, and though we do not claim to have introduced distilled water—that was necessary with the growth and advancement of the navy—we do claim, as naval surgeons, to know more of its benefits, effects, and possibilities than any other men in the world, for we only of the naval profession live, move, and have our being with distilled water—and, *nota bene*, and that is all we get.

To those whose homes have been devastated by water-borne disease, boiling water is now routine; to such I suggest distill it, and prevent other troubles. To those who have not experienced the harrowing anguish of a "stroke" in "Dad," hurry up and pump him full of distilled water, and you'll never know what harrowing anguish means, and he'll really live to call you blessed. Form a habit of drinking distilled water. It is pleasant, invigorating, rejuvenating. Make it a point to take three glasses a day in excess of your desire, and you will very soon appreciate the reason why life insurance companies assert that, "Eliminate the hazards of a naval officer, and he is the best risk in the world." The real function of a physician today is the prevention of disease; he can fulfil his destiny only by keeping his eyes open, investigating cause, recognizing effect, and casting his bread upon the waters. Incidentally, may I venture to say when you read of deaths from heart disease, kidney trouble, acute indigestion, aneurysm, and allied affections, that all of them could have and would have been prevented had the unfortunate been lucky enough to have been in the navy, unknowingly preventing the development of the trouble which killed him, and also, to say that in time, disease will be entirely eradicated, without being accused of inferring that disease is not material? I had amebic dysentery for seven years—that is the answer.

To convince the laity is as impossible as it is to forecast the settlement of the Mexican question. Anticipating the assertion of the well-meaning clergy that if God wanted us to drink distilled water He would have made water without soluble salts, I'll answer, we take too much condiment; now I'll have to qualify that by saying very much too much. To the antivaccinationist, the Christian Scientist, and all the other "ists," material or non-material, that we have 70,000 men, hale, hearty, robust youths who at sixty-two equal the "ists" at thirty-five, and that is the answer. To the suffragette—who seeks votes and youth eternal—well she knows; you don't have to argue! In any home—in fact, in all homes—the inventive genius in the person of "Dad" or any of the boys, given a tea kettle, a copper coil, a piece of rubber tubing, a bucket of cold water, and a glass preserve jar, or ordinary water pitcher, and in half an hour you'll have a still big enough

to furnish water for drinking purposes. But for goodness sake don't put the ice man's ice into the water, and don't in your suddenly awakened enthusiasm buy distilled water from your druggist. He has a well-labeled bottle, but that's all. Let George do it, at home, until you can buy one that will produce about 20 gallons a day—save life, suffering, loss of time, money, and last but not least, that harrowing anguish which newspapers speak of, and which I mentioned. Stills can surely be constructed to burn wood, coal, oil, gas, garbage, dust and dirt—anything containing thermal units. The cost? Compare it with that of doctors, nurses, medicines, and then think.

De Leon's "Spring of Eternal Youth" lies not hidden in Florida, but it bubbles always from the aseptic nozzle of the chilled scuttle-butt of an American battleship.

REASONS FOR DISCREPANCIES IN REPORTS ON THE WASSERMANN REACTION, FROM A TECHNICIAN'S SIDE.

By M. F. SCHLESINGER, A.B., Ph.G.,
NEW YORK.

THERE frequently appear in the medical journals articles referring to the difference in reports of the various technicians as to the results of the Wassermann test. Because of these differences, clinicians lose confidence in this important test which aids so materially in the diagnosis and treatment of syphilis.

These conflicting results can be attributed to several sources which I shall try to point out, and also show the way they can be avoided. One road to error is the desire on the part of the serologist to improve on established and proven methods—another is indifference and carelessness in entrusting to subordinates important minor details necessary to the proper conducting of the test.

It is unfortunately too true that many laboratories want to improve on the Wassermann test as given out by Wassermann, Bruck, and those who have otherwise succeeded in making the test fairly reliable. In this, as in so many other problems, the pupil deludes himself with the idea that he can successfully elaborate on the teachings of the master.

The Wassermann reaction is based upon the observation that syphilitic blood serum in the presence of certain lipoids will bind complement to such an extent that upon the subsequent addition of hemolytic amboceptor and corresponding corpuscles hemolysis will be prevented to a greater or less extent. In non-syphilitic blood, hemolysis is complete. In spite of numerous investigations, the exact interpretation of its physiologico-chemical significance is as yet an open question.

The phenomena might be explained upon the basis of the physical absorption of complement by the reaction product of the lipoid substance present in the organ extracts—preferably the heart and the liver—and as yet unknown component of syphilitic blood serum.

The technique of Wassermann and Bruck, if properly and conscientiously conducted, can be depended upon to show positive results as follows: Primary syphilis, 84 per cent.; secondary syphilis, 91 per cent.; tertiary syphilis, 81 per cent.; hereditary syphilis, 100 per cent. These are my figures based on histories given to me after reports were rendered, and not before. I am indebted to Dr. Victor C. Pedersen for many of the cases and histories.

In order to improve on the accepted scientific method laid down for us, some technicians adopt "modifications." These are generally labeled "my modifications," and resolve themselves into nothing else as a rule than time savers and trouble savers—quick results in less time with less trouble—and are not for the purpose of serving the clinician, but to simplify the test for themselves. These time and trouble savers suggest the use of manufactured stock preparations, and the material used for making the Wassermann test, which should be prepared under the personal supervision of the technician, is bought in the form of bibulous papers saturated with amboceptor, etc. Others again, who take particular pride in showing a greater percentage of positives, adopt modifications in antigen, suggesting the addition of cholesterin and chemicals. These are "short cuts," but they lead to nought else than error and failure.

The laboratory worker is certainly justified in adopting ways and means to arrive at best results in the shortest period of time, but not when accuracy must be sacrificed. In working the Wassermann test, time saving and labor saving devices must have no part. In order to make a careful and conscientious test, at least six hours of work must be devoted to every series.

Carelessness in the preparation necessary before the test is another prolific source of error. As a rule these preparations are left to the diener and subordinates, the technician putting in the final touches only, using the so called "personal equation" in interpreting results. It is true personal equation must enter into the work, but this from the very starting of the test by close attention to the minor, but important details of preparation and testing of materials, etc., and not, as is frequently the case, simply the reading of the tubes and a comparison of the history of the case as given by the physician and trying to make the findings conform to this.

The laboratory is not to be furnished with a history of the case—that is of no concern to the technician; he is to make the test with the material at hand, and if he has sufficient ability to make the test right, to report his own findings.

The technician, if he is to be biased either way, is to protect the non-luetic individual from a wrong diagnosis and useless treatment. Surely less harm can result from a negative report in actual syphilis than that a positive result be saddled on a non-syphilitic patient with its trying treatment and mental distress.

As mentioned above another source of erroneous reports is indifference to the many little details which require the personal attention of the technician himself, such as titrating the hemolytic amboceptor and the complementary value of the guinea-pig serum.

One text book mentions that barometric changes have an influence on the hemolytic amboceptor, and that the test should be made only on dry, crisp days in preference to humid weather. Where the work must be done every day regardless of atmospheric conditions, this is not practical—furthermore, it is unimportant. I have found that it is the complement that varies, and not so much the amboceptor. Accordingly, even though the hemolytic amboceptor is titrated and a definite strength is ascertained at the time the amboceptor is made,

it is nevertheless necessary before beginning the test to titrate the amboceptor out against the complement each time. The complement varies on warm days, changing so rapidly that it may become inert on the working table and between tests. Hence, the necessity of keeping the complement in the ice chest when not in actual use—furthermore, it should not be used after it is twelve hours old. In fact, all materials employed should be kept in the ice chest.

The complementary value of the guinea-pig serum also calls for attention—hence, the feeding of the animal is a detail that must be looked after. In guinea pigs fed exclusively on cabbage leaves, the serum has little or no complementary value—when oats are fed, the complementary value is raised materially, sometimes to the extent of four or five times. From this it is clear that the animal must be fed on a mixture of cabbage, carrots, oats, grain, etc.

I am convinced that because of the inactivity of complement, a great number of negative cases are reported as positive, and thus many non-syphilitic patients are being treated for syphilis. If controls are employed and material titrated this can be avoided.

Occasionally cases are met with that show a decided fixation of complement one day and no fixation the next. Sera of this kind are spoken of as "paradox sera," and are fortunately rare. This is explained by the assumption that such sera contain minimal quantities of antibodies which may be sufficiently large to give a reaction at times, and then drop in content to such a degree as not to be detected by the reaction.

In reporting results of the reaction, most serologists employ plus signs thus (+) (++) (+++) (++++) to indicate the degrees of inhibition of hemolysis, and this is preferable to merely positive or negative.

Treatment has a material effect on the reaction and it is of some encouragement to the luetic patient to note the decrease in the plus signs as treatment progresses until it becomes negative.

I have found that in order to get accurate results, the following must be strictly adhered to:

Patient's Serum.—In order to exclude the positive results obtained in certain cases of cancer, nephritis, scarlet fever, leprosy, sleeping sickness and tuberculosis, the patient's serum must be heated for half an hour at 56° C. (inactivation) the syphilitic antibody alone being thermostable. The thermostability of the serum of inherited syphilis is the highest.

The Antigen.—The opalescent (lipoid emulsion) working antigen should be made up fresh on the day of preparing the test. That prepared from the organ is far more reliable than that prepared from bile salts and cholestrinized extracts. Antigen should be titrated at least every five days.

Complement.—The complement should be obtained from guinea pigs carefully fed. The animal must be killed the same day that the test is to be made and to be kept on the ice. It must be carefully titrated and adjusted to the hemolytic amboceptor to be used.

Hemolytic Amboceptor.—The titer of the amboceptor should be at least such that 0,5 c.c. of a 1:2000 dilution will completely hemolyze 0.5 c.c. of a 5 per cent. suspension of washed sheep's cells in the presence of 0.5 c.c. of a 1 to 10 dilution of guinea pig complement within thirty minutes at 37° C.

The Washed Corpuscles.—Sheep cells should be as fresh as possible and should not be used if there be any discoloration from standing. It is a practice to add formalin for preserving, where the laboratory is remote from a slaughter house. Formalized sheep cells may prevent hemolysis and prove a cause of error.

THIRD AVENUE AND TENTH STREET.

ENORMOUS TUMOR OF THE UTERUS.

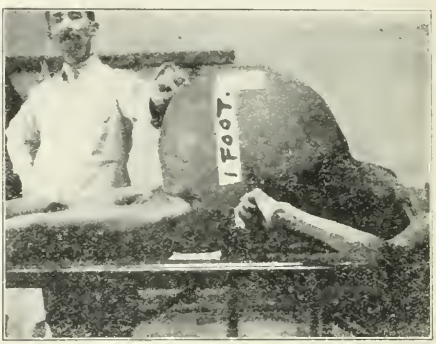
BY ORLANDO H. PETTY, M.D.,

AND

ROBERT L. PITFIELD, M.D.

GERMANTOWN HOSPITAL, PHILADELPHIA.

AN ignorant negress, R. B., widow, aged 54 years, was admitted to the wards of the Germantown Hospital suffering from a large abdominal tumor. She could give very little history of herself and was indeed so weak and ill from an iliocolitis which she had had for two months that the meagre data which she was able to give was of little value. The only manifestation of fecundity was a pregnancy which terminated in an early abortion. For seventeen years her abdomen had been enlarging and at one time an attempt had been made to relieve her of this abnormality, but the wound was closed and the tumor remained behind.



Physical examination showed a weak, frail, exhausted woman. She was emaciated and bedfast and she said that she had been so for two months. The tumor was a huge globular mass, measuring forty-eight inches around in the plane parallel to the long axis of the body and fifty-two inches around the umbilicus. The tumor fluctuated freely and the skin showed an old scar and enlarged veins coursing over it. So great was the mass of the tumor that the patient was unable to lie on her back without having it supported by a nurse. Until two months ago she was able to get about her house.

She became rapidly exhausted and the tumor grew very cold to the touch. To maintain the body heat in such a liquid mass devoid of blood vessels no doubt was too great a task for her circulation, and death appeared to be due to exhaustion.

With at least some palliative surgical measures for relief within a mile of her home it is a marvel that such a pathological condition should exist in a medical center for so long.

Pathological Examination.—Chest thirty-three inches in circumference; below chest is an enormous tumor, which, including the torso, is fifty-three inches in diameter. Body not edematous. Left leg markedly edematous. Left lung completely collapsed and airless chest cavity being filled with clear liquid. Right lung adherent and seat of fibrous phthisis. Aorta normal and elastic, although heart shows advanced fibrous myocarditis, no valve lesions. Left kidney large pelvic abscess; right kidney riddled with small abscesses. The enormous tumor of the uterus, which weighed ninety-two pounds and contained seven and one-half gallons of grayish-brown turbid fluid, was adherent to the ovaries and bladder.

Microscopic Diagnosis of Tumor.—Fibromyoma with central cystic degeneration.

PEMPHIGUS FOLIACEUS NEONATORUM.

By A. L. HENKIN, M.D.,

BROOKLYN, N. Y.

THE following case, on account of its rarity and the great extent of the lesions, seems worthy of permanent record:

The child was delivered by me on October 2; female; normal birth, except for the prolonged second stage, due to diastasis recti, which required one dose of pituitrin. The child weighed six pounds and two ounces. On the sixth day the umbilical stump separated.

The next day my attention was called to a "blister" on the abdomen near the umbilicus. My examination revealed one bulla on the abdomen half an inch to the left of the umbilicus, the size of a finger nail. The bulla was flaccid, with opaque fluid contents, the fluid changing its position with the position of the child, seeking the most dependent part. There were no signs of inflammation. The temperature was 98.6°. The next day this bulla had increased in size to an area of about 2 inches long and 1 inch wide. I prescribed Unna's paste of zinc oxide, chalk, lime-water, and linseed oil. The child was very restless that night.

The following day this patch had extended to the right and to the left, involving an area covering almost the entire abdomen. On attempting to remove the dead cutis the entire skin came off with it as a single cast. It also came off from the perineum, extending to the vagina and rectum. One could easily have removed the epidermis of the entire body. There was no serum or redness underneath, except over that portion of abdomen around the umbilicus, where the surface was red and weeping, looking like eczema rubrum. Similar condition was found around the mouth, involving the lips, nose, and cheeks. Temperature was 98.6°. The mucous membrane of the mouth looked pale and somewhat raised from the underlying structure.

At 6 P. M. the temperature was 103.6°. The entire body presented a horrible picture. It looked like a raw, red, weeping surface covered with serum. The general condition of the child was very poor, showing signs of failing circulation and septic absorption. The area around the umbilicus was gangrenous.

There was no history of syphilis or tuberculosis in the family, or any similar condition. One child in the family had an eruption on the face and hands which it contracted from another child and which appeared to be an impetigo contagiosa.

355 STOCKTON STREET.

Medicolegal Notes.

Malpractice—Emergency Cases—Questions for Jury.—Action was brought for malpractice while treating a patient for a gunshot wound in the calf of the right leg. The negligence with which the doctor was charged was: First, a failure to ligate the severed and injured arteries, whereby the patient bled to death; second, in failing to visit and attend to the patient as often and as much as he should have done. The defense made to these charges was that the treatment was proper under the circumstances; that the patient was suffering from shock and loss of blood, and that had a thorough examination been made as to the condition of the arteries the patient would have died while the examination was being made. It was insisted in the defendant's behalf that in any event the case came within the class of cases known as emergency cases, wherein if a physician exercises his best judgment as to the treatment he is not liable for negligence for an error of judgment in following one treatment rather than another.

The difficulty the court had in applying this rule to the case in hand was the claim of the plaintiff that the doctor failed to make such investigation as was necessary to determine what ought to be done. This exception to the ordinary rule of negligence is based upon the assumption that the physician has informed himself of the existing conditions. Without a knowledge of these he has not proper basis upon which he can exercise his discretion. One of the complaints, and the one most strenuously insisted upon by the physician, was the failure of the doctor to inform himself as to whether the arteries were cut off or punctured. The doctor admitted that he did not ascertain these things, and it was shown by expert witnesses that he should have done so; that he should have found the bleeding point and stopped it. After he determined what course to pursue without this information he was in no position, as a matter of law, to invoke the protection of the rule in emergency cases. It was argued that this information could not have been obtained without endangering the life of the patient. That question was in dispute and was one of the points on which there was a conflict of expert testimony. It was therefore properly submitted to the jury to determine whether he did what was necessary to bring his treatment within the rule in emergency cases as well as whether he gave the patient the attention and care which the case demanded. It was held that the testimony on both questions was such that the jury would have been justified in finding either way, and therefore their verdict for the plaintiff was not disturbed.—Dailey vs. Shaffer, Michigan Supreme Court, 146 N. W. 192.

Malpractice—Potts' Fracture—Burden of Proof.—Action was brought for malpractice in the treatment of a severe Potts' fracture of the left foot. Owing to the swelling of the joint and an abrasion of the skin, the defendant did not invert the foot for fear of gangrene. The swelled condition, under the treatment given, continued from the date of the accident, January 23, till February 13 before beginning to abate, and the joint healed without an inversion of the foot. The trial court ordered a nonsuit on the ground that the plaintiff failed to show that the treatment given him was not proper as applied to the kind and degree of fracture he was suffering from and the conditions that developed. The evidence showed that the fracture was a very severe one, in which the fibula was splintered and the ligaments of the ankle joint ruptured; that the foot was very much swelled and discolored, and the skin partly abraded in places at the time of the first treatment. The plaintiff's counsel claimed that since the evidence showed that the conditions testified to by the defendant do not usually obtain in ordinary Potts' fractures for so long a time, the jury had a right to find that they did not in the instant case. Hence, since it was shown that in cases of ordinary Potts' fractures the danger of gangrene was usually passed in from seven to ten days, and since bony union does not take place until the third week, the jury might find malpractice from failure to invert the foot after danger of gangrene had passed and before bony union took place. All agreed that there should be no inversion of the foot until danger of gangrene had passed. It was held that the plaintiff's fracture not being an ordinary Potts' fracture, but a severe and complicated one, there was nothing inherently or obviously incredible about the defendant's testimony as to the conditions found the first day he examined the foot, or as to their continuance for the length of time shown. The trial court, therefore, properly held that such conditions must be accepted as verities, since there was no evidence to the contrary. Another claim made was that the evidence of the defendant showed that he was ignorant of the practice of inverting the foot in cases of Potts' fracture, and therefore did not do it in this case. It was held that, conceding that this was true, still, if the treatment he gave was the proper one under the conditions existing, his ignorance became immaterial. The plaintiff failed to show that a condition warranting inversion existed at any time, owing to the fact that the evidence showed that danger from gangrene continued till bony union took place, and that thereafter it was not good practice to invert. Judgment for the defendant was affirmed.—Marchand v. Bellin, Wisconsin Supreme Court, 147 N. W. 1033.

Declarations of Injured Person to Physician.—Where the amount which the plaintiff is entitled to recover depends to a large extent upon the testimony of medical experts, the Illinois Appellate Court holds that it is important that rules of evidence respecting such testimony be observed. A physician who made an examination of an injured person solely for the purpose of testifying as an expert at the trial, is not permitted to testify to statements made to him by the injured person, or in his presence during such examination, nor can he base an opinion upon such statements. Where the defendant claimed that the ailments complained of by the plaintiff were due to other causes than the accident, error in admitting declarations of the person injured to a physician who is making an examination the results of which shall form the basis of testimony at the trial and not for the purpose of treatment, is not harmless.—Kendall v. Chicago Railway Co., 185 Ill. App. 145.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 9, 1915.

THE CAMPAIGN OF EDUCATION.

AT the recent meeting of the American Public Health Association in Jacksonville a discussion took place as to whether or not cancer is greatly on the increase. Mr. Hoffman, statistician of the Prudential Insurance Company, who is the leader in this country of those who believe cancer is on the increase, rehearsed the arguments previously presented in support of his views and defended the accuracy of American mortality statistics upon which he largely bases his belief. Professor Willcox of Cornell University, on the other hand, held that probably most and possibly all of the increase in the death rate from cancer is not a real increase at all but only an apparent one. As we said in a former discussion of this subject (MEDICAL RECORD, August 15, 1914), the statistical evidence is too imperfect as yet to warrant the drawing of any definite conclusions. American statistics are notoriously incomplete and even in the registration districts we have little guarantee of their accuracy. In New York City, where the certification of marriages, births, and deaths is supposed to be perfect, the Health Department is even yet discovering delinquents and bringing them to court for punishment. If this can happen in a city under the eyes of vigilant health officials, one who would deny its possibility in other places, where physicians have not been trained to see the value of statistics and where they are under but slight compulsion to report their cases, must be an incurable optimist or rash of statement. In other countries, where more or less accurate statistics are available, students of this subject do not find an enormous increase in cancer; they admit some increase, but not much more than could be explained by the fact that more people now live to reach the cancer age.

This discussion would be more or less academic and of little importance to the world at large or even to the medical world, were it not that the advocates of the so-called campaign of education of the laity base their arguments for its necessity upon the alleged alarming increase in the prevalence of cancer. It is very right and proper that the general public should be warned of danger when it exists and should be instructed to detect the peril in its incipiency, but this does not mean that we should make a hypochondriac of every woman over 35. Every pimple on the breast or every stitch of pain in or under the gland does not mean cancer, nor does every slight discharge in a woman at or just past the menopause, nor again does a spell of heartburn in a man of 50. It is well that the physician should be consulted in the case of any unusual swelling or discharge or pain or other abnormal and persistent symptom, but it is ill that the man or woman should suffer an agony of apprehension whenever such symptom presents itself, for the chances are that it is insignificant and will pass away, as countless others have done in the course of the person's life without evil consequences. It is questionable whether the agony of mind which the fear of cancer aroused by such a campaign causes can be compensated for by the longer lease of life which is occasionally secured by a very early operation. The campaign, to be effective of the greatest good to the greatest number, should be along the line of rational argument as to the fitness of consulting the physician when anything seems to be wrong, and not by scaring the patient into doing the proper thing when it is by no means proven that cancer is enormously on the increase or that every growth or abnormality of function is "precancerous."

The campaign is, we believe, started in the wrong direction; it is the physician and not the layman or laywoman who should first be instructed. As Bainbridge says, in his excellent work on "The Cancer Problem,"* recently published, "The campaign of education concerning cancer, to be rational and safe, must be made to apply first to the general body of the medical profession, and, through the profession, to the public at large. It must have for one of its objects the maintenance, upon the part of the physician, of a standard of ethics which insures the best interest of the patient, regardless of operative and mortality statistics; and the development, upon the part of the patient, of a spirit of confidence in and cooperation with the physician. It should be aimed at health rather than disease; at physiology rather than at pathology. It must be directed toward the prevention of cancer by the maintenance of the general health, as well as toward the eradication of the various factors, within and without the body, which are thought to exercise a predisposing influence in the initiation of malignant disease."

REPORT OF THE SURGEON GENERAL OF THE UNITED STATES ARMY.

THE annual report of the Surgeon General of the U. S. Army for the calendar year 1913 is a satisfactory document. The admission rate was the lowest on record, showing a reduction over the previous year of more than 18 per cent. As is pointed out in the report the constantly noneffective rate is the true index of the loss of efficiency of the army from disease and injury. The rate indicates the average number of men in each 1,000 incapacitated for duty each day during the year. For the American army in 1913 the rate was 23.97, the lowest rate recorded. Comparing the non-effective rate for disease only for troops

*"The Cancer Problem," by William Seaman Bainbridge, M.D. New York: The Macmillan Company, 1914.

in the United States, 13.61, with the best previous rate of the army, which was 25.23 in 1896, it is observed that there was a reduction of over 2.6 per cent. The death rate was slightly higher than for the previous year, the increase being due to the accident to the coast artillery companies, wrecked while traveling at Burrow's Creek, Miss., Oct. 19, 1913, with 17 deaths.

Perhaps the most encouraging part of the report is that which refers to typhoid fever. Only three cases of this disease occurred during the year under review in the army stationed in the United States. In the army in 1912 there were 18 cases with 3 deaths; in 1911, 44 cases with 6 deaths; in 1910, 142 cases with 10 deaths; and in 1909, when the typhoid prophylaxis was first begun voluntarily, 173 cases with 16 deaths. With regard to antityphoid inoculation the report points out the remarkable decrease in admission and death rates of the enlisted men of the army in the United States as a result of the use of the typhoid prophylactic. The report goes on to say that it is to be especially emphasized that there has been no lessening of the efforts of the army to prevent, by improved sanitary measures, the occurrence of typhoid infection. Advances in the other sanitary measures have gone on, hand in hand, with the extension of the typhoid prophylaxis. It is believed that the typhoid prophylaxis is as potent a preventive against typhoid as vaccination is against smallpox. But though vaccination is a reliable measure for the prevention of smallpox, few would advocate the abolition of other needful sanitary measures. With respect to the duration of the immunity conferred by antityphoid inoculation, it is stated that while such duration is unknown, it is improbable that it is as long as that conferred by vaccine against smallpox, and therefore reimmunization at the beginning of each enlistment is believed to be appropriate, as it is also very convenient from an administration point.

The admission rate for tuberculosis was low. Venereal diseases have largely decreased among the soldiers, a result partly due to the campaign of education relative to venereal disease which has been carried on in the army for several years and which has been greatly assisted by the Act of Congress stopping the pay of those incapacitated by the disease. The rate for alcoholism was the lowest ever recorded. The rates for malarial fever were the lowest since the year 1898, at which time United States troops were first permanently stationed in the tropics.

Regarding the urgent needs of the Department, the surgeon general draws attention to the fact that the reorganization of the hospital corps is essential, if its efficiency is to be preserved. He further calls notice to the shortage of mobile sanitary units and says that in view of the great battle losses to be expected in modern wars, it is a serious responsibility to rely upon improvised units that must serve at the front. Lastly it is pointed out that the medical corps is the only portion of the army not included in the plan of education of the army instituted when Senator Root was Secretary of War.

CLINICAL SIGNS OF FRACTURE INTO OR NEAR JOINTS.

Fractures around joints are sometimes especially difficult to diagnose and this is particularly true if the fragment is small and the patient is not seen until some hours after the receipt of the injury. The diagnosis usually rests between sprain and fracture, and when the patient is first seen most or all of the so-called classical signs of fracture may be absent. In this connection a paper by W. G. Stern, read before the Section on Orthopedic Surgery in June and entitled: "The three cardinal clinical signs of fracture into or near joints" (*Jour. A.M.A.*, Dec. 12, 1914) deserves comment for several reasons.

First, we desire to emphasize one of the early points made in this paper, namely, that roentgenologists have found that at least 90 per cent. of the cases sent to them with the diagnosis of sprain are really fractures; but we take issue with the author when he implies that the blame for this state of affairs rests with the general surgeon. This is implied in the following quotation: "While the general surgeons, through whose teaching the practitioners have learned to depend solely on the presence of crepitus, preternatural mobility, and loss of function for their ability to make a diagnosis of fracture" etc. His impeachment of the surgeons would be just if that were really all they knew, but they rely on many other points including the three cardinal clinical signs of fracture into or near joints, which are now grouped as a diagnostic triad by Stern. The surgeon can hardly be blamed, however, if his teachings have not been accepted by a certain percentage of general practitioners.

What are these three signs that surgeons are charged with neglecting and which Stern presents as something new? He says the following symptoms are always present in the traumatic fractures of healthy bones and offers them as sufficient for a diagnosis, even when present alone, without any or all of the usual classical signs: (1) Localized bone tenderness over the fracture point or "pencil" tenderness. (2) Swelling, beginning at and spreading from the seat of fracture. (3) Bloody discoloration, or ecchymosis, spreading from this vicinity. We do not recognize here anything original with the author quoted but rather points which have been referred to time and again in text-books on surgery. Ecchymosis is mentioned in this connection in treatises on surgery dating back more than forty years, while localized bone tenderness and swelling were recognized as among the symptoms long before Sir Astley Cooper wrote his first book on fractures.

But while it is a fact that all these symptoms have long been recognized, the author does well to call attention again to their value, especially in connection with injuries near the joints. In vertical fissure fractures of the shaft of the tibia these same symptoms are invariably present, but it is usually of comparatively little moment, so far as ultimate cure is concerned, whether the leg be splinted, massaged, or let alone altogether. In wrist fractures, however, such as that of the sca-

phoid, the general practitioner's mistakes may bring about a disastrous result. Here the lack of proper treatment often results in severe impairment of function, for there is sometimes a wicked, persistent pain and marked limitation of extension, a very serious matter for those the following of whose usual occupation requires a supple wrist.

Swelling is of very limited value as a differential diagnostic symptom unless distinctly localized and at a sufficient distance from a joint, for effusion takes place rapidly in cases of simple sprains which are proven to be such by stereoscopic *x*-ray plates as well as by their clinical course. Point or line tenderness and late appearing ecchymosis, however, are symptoms of practically pathognomonic significance, and Stern's estimate of their value is sound.

Finally, there are several of his concluding comments with which we are in full accord and which we believe cannot be too strongly emphasized. These are: "Granted that crepitus is not essential in making the diagnosis of fracture, violent attempts to elicit the same are unjustifiable as well as brutal." "Every suspected fracture should be roentgenographed." "The old adage 'a sprain is worse than a break' is based on faulty diagnosis and subsequent lack of proper treatment."

POVERTY AND TUBERCULOSIS.

The successful treatment of tuberculosis in any circumstances is difficult, and when the disease goes hand in hand with poverty the difficulties are greatly enhanced. Can pulmonary tuberculosis be treated at home, so that the sufferer therefrom will benefit, and at the same time he will not be a menace to the immediate community? The New York Association for Improving the Condition of the Poor, during the past two years has been making an experiment in this direction and has published recently a report setting forth the results of its work. The plan of procedure thought out and put into execution by the association was to provide apartments for the sufferer from tuberculosis and his family in a building occupied solely by those in a like condition. For example, the Association Home Hospital, situated in a healthy locality, occupies two entire sections of the East River Homes. Two open staircases lead to the forty-eight apartments, consisting of from two to four rooms each, including one or more bedrooms with open air sleeping balconies. No expense has been spared to provide a maximum amount of sunlight and ventilation for each room and to render the conditions as healthy as possible.

In selecting families to participate in this experiment, preference has been given: (1) To families in which poverty and tuberculosis are more or less incipient; (2) to families believed to possess sufficient intelligence to cooperate in the experiment; (3) to families in which dependency is due to tuberculosis of the wage earner, and (4) to families in which the mother is tuberculous—in general, to poor families of any nationality and religion made or kept dependent by tuberculosis and in which there is a reasonable hope of restoring the patient to health and to at least partial earning capacity.

The report calls attention particularly to the fact that treatment is provided in this way for children too young to be admitted to preventoria, for patients unwilling or unable to leave their families, and especially for the largest, and because of its irresponsibility most dangerous class of sufferers, namely, the more or less chronic second stage but able-to-get-about cases, almost entirely unprovided for by other institutions. The supervision is so careful that although the family is permitted and helped to live a normal home life, every precaution is taken to prevent infection of the healthy members of the household.

The advantages claimed for this method are: (1) The directness of its attack upon the home conditions as a crucial, underlying cause of tuberculosis and of consequent poverty; (2) the readiness with which unsuspected, incipient cases may be detected and checked; (3) the exceptional opportunity it affords for adequate control of disease in the family; (4) its avoidance of the opposition, deterrent influence, worry, and other hardships inevitably occasioned by the separation of the sick from the well members of the family; (5) its preservation of the integrity of the home; (6) its care of classes of patients who either could not or would not go to institutions; (7) its fostering an increase of the earning capacity of the wage earner and a gradual return to normal conditions; (8) its provision against a return of either the patient or family to the inimical environment in which the disease was contracted and is likely to recur, and (9) in its care not only for the physical but for the economic and social ills, not merely of the patient but of the entire family.

It remains to be said that a perusal of the report justifies the expression of opinion that the experiment has been so far successful. Any measures whereby the lot of the poor consumptive can be ameliorated are worthy of trial, and the home hospital mode of treatment would appear to be beneficial to the sufferer, to the family, and the community at large.

Scarlatina and Salvarsan.

Scarlatina is a most treacherous affection, and even in sporadic form may make short work of the patient, even when the latter is an adult and moreover one who has been exposed to it with impunity for years. To meet the indications in such cases we have never had any remedy of value. Lenzmann was the first or one of the first to use salvarsan for this purpose and his example has been followed by numerous clinicians. At a meeting of the Rheinischwestfalische Gesellschaft für innere Medizin und Nervenherlkunde (*Muenchener medizinische Wochenschrift, October* 27), he gives the status of the subject to date. To qualify for salvarsan a patient should have a temperature of 40° C. (104° F.) and upwards, a fiery rash, severest angina, and great prostration. This syndrome represents the mildest eligible cases. Over and above these belong the cases admitted with sopor, those with cardiogenous cyanosis, those with hemorrhage, etc. The author has treated 47 cases of this severity and has lost but two. One patient died of

scarlatina fulminans. When admitted he was comatose, with the highest type of heart failure. His rash was cyanotic. Such a patient could have been influenced favorably by no plan of treatment. The other patient, aged 5, died of streptococcus sepsis which followed necrotic angina and a great plaque of hard cervical lymph nodes. The 45 recovered cases developed no complications save two with otitis media. This immunity in connection with the severe type of the disease causes one to share the belief of the author that salvarsan exerted a marked prophylactic influence. Salvarsan in these cases seems to aid as a causal remedy, which antagonizes the fever, restlessness, and angina. The temperature increases at first, then diminishes rapidly. The author believes that by antagonizing the angina, salvarsan becomes able to decrease the severity of all symptoms which are due to angina, and these make up the majority of all the symptoms.

News of the Week.

For Relief of Belgian Physicians.—The treasurer of the Committee of American Physicians for the Relief of the Belgian Profession reports the following contributions received during the two weeks ending January 2:

Union Trust Company, Sterrett & Acheson, Attorneys.		Banking Facilities Professional Services	
F. O.	$25,00	M. C. S.	$5.00
E. H. M.	100,00	H. F. W.	25,00
F. F. S.	100,00	B. C.	2.50
S. P.	25,00	D. W. C.	25,00
G. C. S.	5,00	V. P. G.	25.00
S. A.	20,00	Mrs. J. B. M.	100,00
E. W.	25,00	E. F. B.	5.00
B. L.	10.00	C. W. N.	25,00
T. E. S.	20,00	In Memory H. H. C.	10.00
T. L. S.	25,00	S. J. M.	15,00
R. S. E.	10,00	D. B.	25,00
M. W. R.	10,00		
W. A. P.	25.00	Total	$662,50

Death of Professor van Gehuchten.—On December 9 Professor van Gehuchten of the medical faculty of the University of Louvain died at Cambridge, England, where he had been welcomed after the ruin of his university and his home and the loss of his library and collection of neuro-anatomical and neuro-pathological specimens. The death of this great neurologist adds one more to the tragedies of the war.

New York's Lowest Death Rate and Highest Birth Rate.—According to the Health Department figures, the year 1914 marked the lowest death rate ever attained in the City of New York, and definitely placed this city among the most healthful of the large cities of the world. The number of deaths reported during the year was 74,803, with a rate of 13.40 per 1,000 of the population as against 73,902 deaths and a rate of 13.76 for the year 1913. Thus there has been a decrease in the death rate of .36 of a point, which is equivalent to saying that if the death rate of 1913 had prevailed during the past year 2,010 more deaths would have been recorded than actually took place. The most noteworthy feature of the decreased mortality was the splendid record in infant mortality, only 95 infants dying out of every 1,000 born. This is the lowest infant death rate attained in the city of New York, the infant death rate in 1913 having been 102 per 1,000 births.

The year 1914 also witnessed the greatest number of births that ever occurred in the history of the city of New York, there having been 149,647 children born during last year, an increase of 5,513 births over 1913.

More American Surgeons for Europe.—A number of surgeons sailed on December 30 for hospital work in France. Among them were Drs. George W. Crile, W. T. Crozier, Samuel L. Ledbetter, Tiger, Stone, Strong, and Hoffman. With them went an anesthetist from the Lakeside Hospital, Cleveland and a number of nurses. Two more Red Cross surgeons Drs. W. J. Crookson of Pittsburgh and Harry T. Lay of Montgomery, Ala., sailed last week for Genoa whence they will go to join the staff at Budapest. Dr. William J. White has announced that the University of Pennsylvania will soon send several surgeons to join the staff of the American Ambulance Hospital at Neuilly, Paris.

A Floating Hospital for Deep-Sea Fishermen.—The revenue cutter *Androscoggin* sailed recently for the coast of Nova Scotia where she will be put in service as a hospital ship for the American fishermen. She is fitted with a large sick bay and is stocked with medical supplies under the charge of a surgeon of the Public Health Service.

Losses in the German Medical Corps.—According to a report from Basel, an official statement gives the German losses among army doctors during the first five months of the war as 342, of whom 112 are slightly wounded, 40 seriously, 1 ill, 65 dead (including those who died of disease), 75 missing, and 46 captured—in all, nearly 3 per cent. of the total number of doctors in the German Army.

Cost of the Antituberculosis Campaign.—In the annual statement of the National Association for the Study and Prevention of Tuberculosis, published on New Year's Day, it is shown that more than $20,500,000 was spent last year in the campaign against tuberculosis in this country. Sixty-six per cent. of the money was derived from public funds, either Federal, State, county, or municipal, and the remainder was contributed by private individuals.

Study of the Material Basis of Intellect.—At the meeting of the American Association for the Advancement of Science, held in Philadelphia last week, several speakers urged that all exceptionally brilliant men, leaders in science, art, literature, politics, and mercantile pursuits, should will their brains to science. There is already in existence an association the members of which have agreed to do this, and doubtless there are many more who think that science would gain were they themselves to join this select company.

No Speeding for Doctors.—The mayor of St. Louis has vetoed a bill passed by the municipal assembly granting physicians the right of way in the city streets. He fears advantage will be taken of this permission to indulge in needless speeding, and suggests as a substitute that physicians' motor cars carry a distinguishing mark so that the police may let them pass through processions and ride at a moderately rapid pace while on the way to urgent cases.

A State Child Hygiene Bureau.—The Governor of Kansas has promised the women of the State that he will ask the Legislature to provide for a bureau of child hygiene in connection with the State Board of Health. Practically all the women's clubs and many other organizations have asked the legislature to establish such a bureau.

Vesalius Evening at the Academy of Medicine.—The Vesalius quadricentennial was celebrated at the New York Academy of Medicine on Thursday

of this week. The following was the program of the exercises: "Vesalius and the Spirit of His Time," by Professor William H. Welch of Johns Hopkins University; "Anatomical Illustration Before and After Vesalius,' by Dr. Fielding H. Garrison, editor of the *Index Medicus;* Portraits of Vesalius (lantern slides), by Professor Harvey Cushing of Harvard Medical School. There was also an exhibition of early editions of the works and plates of Vesalius and of the anatomists and surgeons of his time, open to the public, January 5 to 9, inclusive.

Harvey Society Lectures.—The sixth lecture of the present Harvey Society course will be delivered by Dr. Edward R. Baldwin of the Adirondack Cottage Sanitarium in the hall of the New York Academy of Medicine on January 16 at 8.30 P.M. The subject of the lecture will be "Immunity in Tuberculosis, with Special Reference to Racial and Clinical Manifestations."

Examination for Physician in the Indian Service.—The United States Civil Service Commission announces an open competitive examination for physician, for men only, on February 3, 1915. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Indian Service at the Hayward School, Wisconsin, at $1,100 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. For the position at the Hayward School, Wisconsin, unmarried eligibles without dependents are desired. Applicants must be graduates of or senior students in recognized medical schools, and citizens of the United States. The names of senior students will not, however, be entered on the eligible register, in the event they pass the examination, until they have furnished proof of actual graduation. Applicants must have reached their twenty-first but not their fortieth birthday on the date of the examination. Persons who desire this examination should apply to the United States Civil Service Commission, Washington, D. C.

Charitable Bequests.—In the distribution of the estate of the late Townsend S. Lamborn, of Bradford Township, Pa., the sum of $71,376.85 was recently awarded to the Chester County Hospital.

Under the will of the late Mrs. Emilie Huber of Brooklyn the German Hospital and St. Catherine's Hospital receive $25,000 each.

Personal.—Dr. Charles W. Burr has been appointed by the Director of Public Health and Charities Consulting Neurologist to the Philadelphia Municipal Hospital for Contagious Diseases.

At a meeting, on Dec. 22, of the Medical Board of the Bronx Hospital and Dispensary, Dr. William J. Robinson was reelected president and Dr. Martin Rehling, secretary.

Qualified Anesthetists.—The following resolution was recently passed by the New York Society of Anesthetists: *Resolved*, that it is the sense of the New York Society of Anesthetists that the administration of a general anesthetic by anyone other than a regularly qualified practitioner of medicine be not allowed; and that the County and State Societies be asked to press legislation to this end and, further, that this action by the New York Society of Anesthetists be published in all the medical journals of the State.

Public Health Lectures.—The first of the course of public lectures under the direction of the Public Health Education Committee of the Medical Society of the County of New York was given at the Academy of Medicine on Tuesday evening of this week. The lectures will be given on alternate Tuesday evenings and Thursday afternoons from January 5 to February 25. On each of these days a special subject will be discussed by two or three lecturers. The subjects are: "Influence of Street Conditions on Public Health," "Rheumatism," "Certain Methods for the Prevention of Contagious Diseases," "Some Avenues of Entrance for Our Germ Enemies," "Conservation of Useful Lives," "Common Parental Blunders in Child Training," "Facts About Foods and Drugs in General Use," "Woman's Health in Relation to Mental and Physical Efficiency." The chairman of the committee is Dr. Esther L. Jefferis; the secretary, Dr. Wilhelmina A. Ragland.

Medical Society Elections.—THE SOUTHERN SURGICAL ASSOCIATION, at twenty-seventh annual meeting, held in Asheville, N. C., December 15-17, elected the following officers: *President*, Dr. Bacon Saunders of Ft. Worth; *First Vice-President*, Dr. Thomas S. Cullen of Baltimore; *Second Vice-President*, Dr. S. M. D. Clark of New Orleans; *Secretary*, Dr. W. D. Haggard of Nashville; *Treasurer*, Dr. Legrand Guerry of Columbia. Cincinnati was selected as the next place of meeting and Dr. C. A. L. Reed was named chairman of the committee of arrangements. Drs. Joseph Tabor Johnson of Washington, and N. Shilling of Cedar Bayou, Tex., were elected honorary fellows.

THE NUECES COUNTY (TEX.) MEDICAL SOCIETY, at a regular meeting held at Corpus Christi on December 19, elected the following officers: *President*, Dr. S. T. Dodge; *Vice-President*, Dr. L. Kaffie; *Secretary-Treasurer*, Dr. A. W. Davisson.

THE NORTH TEXAS MEDICAL ASSOCIATION held its seventieth semi-annual meeting in Dallas on December 8 and 9, electing the following officers: *President*, Dr. R. W. Baird of Dallas; *Vice-President*, Dr. M. M. Morrison of Denison; *Secretary*, Dr. H. Leslie Moore of Dallas; *Treasurer*, Dr. C. R. Johnson of Gainesville; *Councillors*, Drs. C. R. Johnson of Dallas and L. H. Reeves of Decatur.

THE TRAVIS COUNTY (TEX.) MEDICAL SOCIETY, meeting at Austin on December 11, elected the following officers: *President*, Dr. J. R. Nichols of Austin; *Vice-President*, Dr. G. C. Smart of Manor; *Secretary-Treasurer*, Dr. J. C. A. Eckhardt of Austin; *Censor*, Dr. S. E. Hudson; *Delegate to the State Society*, Dr. Joseph Gilbert.

Obituary Notes.—Dr. JAMES S. SHAW, examining physician for the Actors' Fund of America and a brother of Dr. Anna Howard Shaw, president of the National Woman Suffrage Association, died in Boston on New Year's Day. He was born in Newcastle, England, in 1838, and was graduated from the Boston University School of Medicine in 1876.

Dr. ELLA AVERILL PATTERSON, formerly of Philadelphia, died at Butler, Pa., on December 17 at the age of 36 years. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1901. She had been a resident physician in the Philadelphia General Hospital.

Dr. JOHN D. DICKERSON of Stockton, Md., died at Wilmington, Del., December 25 as a result of heart disease at the age of 47 years. He was graduated from the Baltimore Medical College in the class of 1892. He was a member of the Worcester County Medical Society and of the Maryland State Medical

Society, and a Fellow of the American Medical Association.

Dr. JAMES S. EVES died at New London, Pa., on December 20 at the age of 67 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1872 and he was a member of the Chester County Medical Society and of the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Dr. ROBERT WALTER RAMSEY died at Chambersburg, Pa., on December 26 at the age of 64 years. He was graduated from Jefferson Medical College in the class of 1874. He was for ten years a member of the Pennsylvania State Board of Medical Examiners. He was a member of the Franklin County Medical Society and of the Medical Society of the State of Pennsylvania, and a Fellow of the American Medical Association.

Dr. PATRICK W. MURPHY of Canton, Mass., died as the result of an automobile accident on December 18, at the age of 38 years. He was a graduate of Harvard Medical School in 1902.

Dr. GEORGE G. HITCHCOCK of South Hadley Falls, Mass., died on December 20 after a short illness. He was born in Unionville, Conn., in 1849 and was graduated in medicine in 1870. He had practised in South Hadley Falls since 1872.

Dr. JAMES E. TALBOTT of Linton, Ind., died on December 17 after a long illness, at the age of 66 years. He was born in Putnam County, Ind., and was graduated from the Cincinnati Medical College in 1875. He practised for a number of years in Marco and removed to Linton in 1894.

Dr. ROBERT B. TRAVIS of Camden, Tenn., died on December 19, aged 84 years. He had practised in Camden for nearly half a century until his retirement some years ago. He was one of the pioneers in the prohibition movement in Tennessee.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE HOSPITAL FUNDS—DEBATE ON TETANUS, PROPHYLAXIS AND TREATMENT.

LONDON, December 19, 1914.

THE governors and council of King Edward's hospital fund met on Wednesday and awarded grants to the hospitals and sanatoria for the present year. The speaker presided and read a message from the King expressing satisfaction that in this abnormal year £140,000 could be distributed and that the services of the staffs of hospitals have been of so great value to the sick and wounded at the seat of war as well as to those who have been brought home. The awards vary with varying circumstances in each institution, but it is stated that a diminution or even an omission of an award is not an expression of dissatisfaction. Two amalgamations have been successfully arranged. It is advised that building schemes be postponed during the war and every care taken to strengthen control over the cost of working. The cooperation of the Sunday and Saturday funds is fully appreciated, and the new edition of the Revised Uniform System of Hospital Accounts is cordially welcomed.

Tetanus, Its Prophylaxis and Treatment was the subject of the session's second fixed discussion at the Medical Society of London last week. The rarity of the disease, its fatality and the fact that a number of cases have occurred among the wounded in the present war sufficed to attract a full meeting, the more so as it was said that several of the few men with special experience of the disease were expected to take part in the discussion.

Capt. D. Embleton, who has observed a series of cases at Netley and the Third London General Hospital, opened the discussion by impressing the necessity of keeping in mind (1) the spore, (2) that the bacillus is a strict anaerobe. As to the spore, it was very hard to kill, would withstand a dull red heat, while carbolic acid, 1 in 20, took 15 hours to kill it. Inoculation with a clean spore (*i. e.* one washed free from its toxin) would not produce the disease, as it was rapidly dealt with, but would do so if lactic acid or another organism was introduced with it, as trauma with lowered vitality of the tissues was thereby caused. In artificial culture the organism would only develop in the absence of oxygen, but in the body it was questionable if oxygen must be absolutely excluded. A clean spore would set up the disease when the tissues were damaged, and this is more important than absence of oxygen. It was practically certain that the bacilli migrated rapidly by the lymphatic to the thoracic duct and so into the blood. No doubt most of them were destroyed, but others might liberate toxin at a distance. It had been said swabbing the wound with pure carbolic acid would destroy the toxin. But 1 in 20 was just as efficient a germicide as pure acid, but it took 15 hours to kill spores; pure phenol, however, damaged the tissues and so prevented the blood reaching the organism and dealing with it as it can if it can gain access to it. This suggested that in cleansing the wound nothing to injure the tissues should be used but free access of blood encouraged (fomentations, hot baths, etc.). It has been proved that antitetanic serum is prophylactic, and on animals it has been shown valuable in the established disease, *i.e.*, given very soon after the first symptoms. The intravenous route might be best but might be dangerous or fatal in a person hypersensitive to horse serum or who had been previously inoculated with some antiserum (horse prepared). The *subcutaneous route* was safe, rapid enough, and could be used for large quantities. The object was (1) to destroy the circulating toxins, (2) promote phagocytosis of the bacilli, (3) destroy the toxin causing symptoms to the central nervous system. On the first symptoms 10,000 units should be injected, then 3,000 every 2 hours. But not beyond the third day, by which time the horse serum would act. Hypnotics are best withheld until severity of spasms or exhaustion of patient compel their use. When given, the dose should be such as to produce marked effect.

Professor Andrewes asserted that the bacillus did not inhabit the soil as such, but the manure of horses and cattle with which cultivated soil is contaminated. The risk of tetanus therefore depended on the presence of such contamination in any deep wound and might be estimated on either clinical or bacteriological grounds. The test on which he was disposed to rely chiefly was the presence of anaerobic bacilli in the discharge. As a prophylactic a good indication was the presence of large gram-positive bacilli resembling *B. aerogenes capsulatus* —500 U. S. A. units being an adequate dose, since that sufficed to protect a horse. In a very severe or foul wound or when considerable time had passed since infliction perhaps 1,000 units would be safer. He thought it right to give serum for a suspicious case even after 2 or 3 weeks. In the declared disease he rather favored amputation or free excision when

possible. He considered the intrathecal route the best. Statistics showed a large dose of antitoxin should be given and repeated as required. Moreover, large quantities should be given subcutaneously to keep up the high concentration in the central nervous system. After all, antitoxin could only turn the scale in a doubtful case. As to anodynes, it should not be forgotten that death was often through the respiratory system.

Dr. John Eyre agreed with Professor Andrewes as to finding gram-positive organisms, though they could not be found in several of his cases. Inoculation of a mouse caused tetanus in 2 or 3 days; so a decision as to treatment must be made on the surgical condition. Severe lacerated, contused or deep wounds were those for prophylaxis. The site of production of the toxin should get attention at the earliest possible moment. The spore did not produce the toxin, the bacillus did and was susceptible to carbolic acid. As to serum, 500 units might do if given immediately, but the danger increased so rapidly that a day's delay meant a need of 20 to 30 times as much. The serum conferred immunity for about a week, when a second dose was required. Intracerebral injection could only be justified as a last resort, though it has sometimes seemed to turn the scale. Intrathecal was the best route, his cases so treated mostly recovered, but those subcutaneously were mostly fatal. The cerebrospinal fluid ran away freely, so a considerable dose of serum could be given. Intravenous injection acted quickly, subcutaneous slowly but persistently. He recommended the simultaneous use of all three routes.

Lieutenant-Colonel Blair, R. A. M. C., had treated 17 cases in the Herbert Hospital, of which 9 recovered, 2 were still under treatment, and 6 had died. The wounds were all severe and all very dirty—generally gun-shot, not shrapnel. In 4 serum had been given before coming to the hospital—perhaps in too small doses, or not early enough. Unless seen within 2 days 4000 units should be given intravenously. At the hospital he used intrathecal injections of 4000 units daily in established cases. The cerebrospinal fluid is under pressure, so is let to run until it drops slowly and then the serum is injected—a volume rather less than that removed. Morphine, chloral, and bromide had been used. Chloretone (40 grains in 2 oz. of olive oil 2 or 3 times a day, per rectum) relieved spasms for hours when retained, but often it was rejected. Stimulants if exhaustion set in. The total quantity of serum given varied greatly, 62,000 units was the most he had used.

Dr. C. H. Browning said clearly the amount of serum needed increased enormously with the lapse of time, so the symptoms should be watched for. The danger of anaphylaxis might probably be met by injecting previously a dilute solution of antitoxin, so as to set up an anti-anaphylaxis. The blood pressure would serve to indicate the quantity of serum to be injected intrathecally—a fall of 40 mm. Hg. showed the limit of dosage was reached.

Cholesterinemia and Globular Resistance in Anemia.—G. Antonelli reports that in anemia there is no relationship between the degree of this condition and the amount of cholesterin in the blood serum or in the red corpuscles. There is likewise no relationship between the globular resistance, *i.e.* the resistance of the erythrocytes to hemolytic agents, and the amount of cholesterin either in the serum or in the red blood cells.—*Il Policlinico.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 24, 1914.

1. Forlanini's Artificial Pneumothorax. (A Study.) Parts III and IV. G. M. Balboni.
2. The Heart Action of Pituitrin Upon Acute Heart Failure and Incompensate Heart Lesions. E. Zueblin.
3. Mastitis in Pregnancy, with Report of a Case. B. R. Whitcher.

1. Artificial Pneumothorax.—G. M. Balboni discusses the avoidable accidents and complications and the results of pneumothorax treatment. The accidents are: (1) Hemorrhage due to puncture of the lung. (2) Subcutaneous emphysema the predominating causes of which are a large wound, the injection of nitrogen at a high pressure, the lack of tensity of the tissues, the excessive thinness of the subject, and a paroxysm of coughing following an injection. Pneumothorax from puncture and rupture of the lung is a serious accident. Deep or mediastinal emphysema is produced when the nitrogen is injected in large amounts into the lung. The pleural reflex described by French and Italian writers and consisting of eclamptic attacks, loss of consciousness, and sudden death, may in all probability be avoided if a preliminary injection of morphine is given. The author believes that the cases of so-called pleural shock are in reality instances of air embolism or of spreading thrombosis from the pulmonary veins. Two possible complications of artificial pneumothorax are shock from increased toxemia and acute dilatation of the heart. Gas embolism ought to be absolutely avoided. No gas should ever be introduced unless the characteristic respiratory pleural oscillations are obtained. Infection of the pleura from without may occur from the instruments used, the local anesthetic, the nitrogen or air used, the breaking of the needle, the skin, and the hands of the operator. Serous pleural effusion may develop any time after the induction of the pneumothorax when the lung is wholly or only partially collapsed. These effusions are unfavorable complications inasmuch as the presence of a large number of tubercle bacilli in the pleural cavity increases the absorption of toxins; nevertheless they must be interfered with as little as possible unless they become too large or show continued unfavorable symptoms, such as continued pyrexia, marked distress and disturbance to the adjacent organs, or its character changes from serous to purulent. The danger of infection becomes greater at secondary injections, as the fluid is an excellent culture medium. A serous effusion may be transformed into a purulent one. Pain may result from separation of the pleural surfaces and the stretching of adhesions. In the beginning most of the patients lose weight.

2. Pituitary Extract and Heart Failure.—E. Zueblin reports a series of cases representing a clinical study of this subject. He finds that a too extensive dose of pituitary extract in advanced age may result in a sudden harmful rise of pressure. The sudden change may be undesirable for the vessels of the brain and may be complicated with hemorrhage and apoplexy. In a weakened and tired-out myocardium the distended organ may be rapidly reduced to a more normal size. In cases with but little reserve strength left, there remains a possibility that pituitary extract may help the immediate needs and that after the diminution of dilatation has become noticeable, the patient, before intolerant to the ordinary cardiac stimulation, may again be able to stand a careful test with these routine remedies. In doubtful cases, in which there may be sclerotic changes, especially sclerosis of the coronary vessels and stenocardia, pituitary extract may hasten a fatal result.

3. Mastitis in Pregnancy.—B. R. Whitcher concludes that organisms are present on the nipples in 100 per cent. and in the milk ducts in 86 per cent. of all pregnant women. When the tissues have been injured by trauma and their resistance lowered, or the breasts have become more engorged, or the organisms are of unusual virulence, they attack the tissues and produce inflammation. The prophylaxis of breast abscess in pregnancy consists in absolute cleanliness of the nipples, and avoidance of injury to the breasts; and prompt treatment of mastitis by bandaging, ice packs, cold astringent compresses, and saline catharsis is also necessary by way of prevention.

New York Medical Journal.

December 26, 1914.

1. Hysterical Astasia-Abasia Occurring in Acute Multiple Neuritis. C. W. Burr.
2. Physical Defects a Factor in the Cause of Crime. E. W. Lee.
3. Physical Defects and Crime. J. H. Brandth.
4. Intracapsular Extraction. C. B. Meding.
5. Radium and Röntgen Therapy Facilitated by Double Coated Adhesive Plaster. S. Tousey.
6. Gonococcus Infection in Women. J. J. France.
7. Syphilis in the Role of Malignant Neoplasms. J. C. O'Day.
8. Wounds of Arteries. S. Erdman.
9. Industrial Sanitary Standards. G. M. Price.
10. Tuberculosis of the Tongue. J. Weinstein.

1. Astasia-Abasia in Multiple Neuritis.—C. W. Burr reports a case presenting this association in a male, aged 45 years, in whom an hysterical element was prominent. It was difficult to decide whether there was anything more than an accidental relationship between the neuritis and the ataxia. The neuritis itself, if a cause, could act only by autosuggestion. The author believes that in this case the hysteria as well as the neuritis was alcoholic with a wretched heredity as a predisposing cause.

2. Physical Defects and Crime.—By E. W. Lee. (See MEDICAL RECORD, Vol. 86, page 1080.)

8. Wounds of Arteries.—S. Erdman states that the partial division or "nicking" of a medium sized artery is more liable to give rise to secondary hemorrhage than is its complete divison. Successful temporary hemostasis may be attained by ligatures applied at random in the depths of the wound and by closure of the wound; but if the lumen of the artery is not obliterated. even after three weeks of absolute hemostasis, severe secondary hemorrhage may occur. In the two cases reported by the author, the pulse could be felt distal to the site of injury, and during the secondary hemorrhages there was no spurting character to the flow, owing to the very indirect channel from the artery to the skin; hence the arterial origin of the bleeding was not suspected by the physicians first in attendance. Hemostasis in all cases of profuse bleeding from wounds in the vicinity of arteries should be accomplished by ligatures accurately placed under direct inspection by the operator, and whenever necessary the wound must be sufficiently enlarged.

10. Tuberculosis of the Tongue.—J. Weinstein reports a case of this condition in a male patient aged fifty-five years in whom it was difficult to determine whether the infection was primary or secondary. The difficulty of diagnosis in this condition has been referred to by W. B. Trimble, who has noted the impossibility in most cases of demonstrating the bacilli in the ulcer. He has also concluded that although lues and cancer furnish the majority of ulcerations of the tongue and mouth, they are by no means the only causes. In any case of tongue ulceration, tuberculosis must be reckoned with as a factor. The histopathological examination alone is practically useless as a means of diagnosis between syphilis and tuberculosis, but it is a great aid in excluding cancer.

Journal of the American Medical Association.

December 26, 1914

1. Orthopedic Surgery: Its Scope and Its Future. R. W. Ely.
2. A Plea for a More Extensive Operation in Cancer of the Bladder. A. L. Chute.
3. Subtotal Cystectomy. J. Bentley Squier.
4. Certain Minute Cysts of the Metacarpal Bones Following Trauma, and Their Clinical Recognition. P. G. Skillern, Jr.
5. Suprapubic Prostatectomy. C. E. Barnett.
6. The Ultimate Results of Genital Tuberculosis in the Male. J. D. Barney.
7. Observations of the Results of Seven Months' Experience in the Treatment of Syphilis. K. Nelson and F. Haines.
8. Factors Governing Vascular Dilatation and Slowing of the Blood-Stream in Inflammation. P. G. Woolley.
9. An Unusual Form of Birth Palsy. A. Gordon.
10. Early Recognition of Pulmonary Tuberculosis by Study of Lymphocytic Picture and Albumin Contents of Sputum. J. Ritter.
11. Myiasis of the Urinary Passages. E. F. King.
12. Adrenal Precocity. Precocious Development of the External Genitals Due to Hypernephroma of the Adrenal Cortex. J. F. Baldwin.
13. A Simplified Method for the Intrameningeal Injection of Neosalvarsan in Syphilis of the Nervous System. L. M. Warfield.
14. A Case of Ulcerative Pneumococcus Enteritis with Peritonitis Following Lobar Pneumonia. C. M. Davis.
15. An Unusual Case of Screw-Worms in the Nose and Nasal Accessory Sinuses. G. C. Huber and F. L. Black.
16. Oidiomycosis in Porto Rico. E. R. Hildreth and A. C. Sutton.

3. Subtotal Cystectomy.—J. Bentley Squier states that the operative treatment of tumors of the bladder has been inadequate in preventing local recurrence and implantation metastases. In a case of malignant tumor, the tumor *per se* should not be handled and the excision must be through all the coats of the bladder and the peritoneum adjacent to the bladder wall if found to be infiltrated. The wide denudation can be made with the patient in a high Trendelenburg position, either intraperitoneally or extraperitoneally. The vas deferens in the male offers the most reliable and quickest way of reaching the terminal ureter. The blunt dissection along the lateral walls of the pelvis allows for the exploration about the ileac vessel for metastatic glands. In the female the relation to the uterine artery allows for an accurate localization of the terminal ureter. Any cystectomy for vesical tumor should be radical. In substance there is no difference between intraperitoneal and extraperitoneal surgery for this class of work. Leakage, if it does occur, does not take place into the peritoneal cavity when the peritoneum has been sutured carefully with a serous approximation of surfaces. If after opening the bladder a malignant neoplasm is excavated or sessile, cauterization of the base or surface of the tumor is a procedure of undoubted palliative value. After excision, searing the cut edges before suturing is a very wise precaution. The use of 50 per cent. resorcin or 1:5,000 mercuric chloride swabbed about the bladder, is useful in destroying any detached tumor particles.

4. Cysts of the Metacarpal Bones.—P. G. Skillern, Jr., reports two cases presenting minute cysts of the metacarpal bones and concludes as follows: Cysts of bone should be detected in their incipient stages before extensive destruction of the medulla has taken place. Early operation results in prompt cure, and prevents deformities and extensive bone plastics. A localized trauma followed by persistent but not severe pain, and localized but not true "wincing" tenderness—symptoms and signs of an untreated "chipping" fracture—should arouse clinical suspicion of a minute, early bone cyst, the corroboration of which may be afforded by close scrutiny of a roentgenogram at the site corresponding to that of the localized tenderness.

10. Lymphocytic Picture and Albumin Content of Sputum.—J. Ritter concludes that sputum lymphocytosis showing under the microscope 50 per cent. or more of the small mononuclear leucocytes (lymphocytes) with a moderate amount of albumin by chemical

test speaks very strongly for the presence of a pulmonary tuberculosis. In preincipient or incipient cases of pulmonary tuberculosis a lymphocytic sputum is usually present with a greater or lesser albumin content; in this the tubercle bacillus may be entirely absent or only an occasional bacillus found. The presence of the mononuclear lymphocyte in sputum in preponderant amounts and a positive albumin test, is simply the forerunner or near the beginning of positive findings, for the tubercle bacillus if not already present in the expectorations will soon be found. In a sputum giving a lymphocytic picture in the absence of tubercle bacilli, a positive albumin content has been demonstrated; this is confirmatory evidence that the sputum is that from a person suffering from pulmonary tuberculosis, and hence a careful microscopic study of every sample of sputum under examination should first be made for either the presence or absence of the tubercle bacillus; if this is negative and with a preponderance of the small mononuclear leucocytes in every field with a positive albumin finding by chemical test, in moderate amount, one is justified in assuming that the source of this expectoration is that found in a positively tuberculous individual.

The Lancet.

December 19, 1914

1. Modern Aspects of Certain Problems in the Pathology of Mental Disorders. E. Goodall.
2. A Method of Treating the Sac in the Radical Cure of Femoral Hernia. J. P. Buckley.
3. A Treatment for Prolapsus Ani in Young Children. W. Gemmill.
4. A Case of Delayed Chloroform Poisoning. H. P. Fairlie.
5. A Case of Acromegaly 200 Years Ago. L. Mark.
6. Trigger Finger, Its Cause and Mechanism. A. B. Judson.
7. The Treatment of Wounds in War. Sir Anthony A. Bowlby.
8. Our Army's Teeth. F. Newland-Pedley.

1. Pathology of Mental Disorders.—E. Goodall finds that the observations of many workers upon the leucocyte count in the psychoses point to the conclusion that a leucocytosis with a neutrophile increase would favor the diagnosis of a toxemia, though not a grave one. There is also evidence of a lymphocytic reaction in paresis, with a neutrophilic predominance and exacerbations. The modern work in the ferments and antiferments in psychiatry suggests the hope that one may be able to distinguish between functional and organic disease. The author calls attention to the frequency with which intercurrent disease brings about an amelioration or cure of mental maladies. He next discusses the newer methods of treatment with nucleinate of sodium and leucocyte extract.

3. A Treatment for Prolapsus Ani in Young Children.—W. Gemmill points out that while the accessory forces consisting in the flexion of the thighs on the abdomen and the contraction of the abdominal muscles are of great advantage in defecation in normal health, they are of decided disadvantage in the treatment of prolapse, and especially is this the case when the prolapse is complete, in which type the accessory forces are doubtless the chief expelling factors. The principle then in treatment is to remove these forces as far as possible, and to bring about a condition in which the abdominal capacity responds passively to the decrease in contents brought about by the evacuating contractions of the large bowel, and is not actively decreased by the strength of the accessory forces. This is attained simply by preventing the flexion of the thighs and spine. A straight wooden splint, well padded and covered with rubber tissue, is applied to the back of the child of a length to reach from the neck to the heels, and the child is fixed to the splint by two bandages, one round the thorax and the other round the lower limbs. More recently the author has been using a similar splint with a hiatus in the region of the anus bridged by a circle of iron, as shown in the diagram. This allows defecation without soiling the splint, and also easy access for such local treatment as cold douching, etc. The result obtained is that the extended position of the child prevents the action of the accessory forces in great part, for the abdominal muscles are placed at a disadvantage for contracting. This position also prevents the decrease in abdominal capacity from flexion. Hence evacuation takes place almost entirely from the muscular action of the great bowel. The removal also of the natural support which the soft parts give to the anal canal and sphincters is prevented, and the splint itself gives additional local support by pressing on the soft parts of the buttocks, from which it follows that the hiatus must not be too large, a condition in which this local pressure would be lost. The relief which this method gives is immediate, the bowel remaining in the abdomen after reduction from the beginning and no prolapse occurring even during defecation, for which the splint must not be removed. The advantages are efficiency, simplicity, and a minimum amount of trouble in the management of the child, who soon becomes quite comfortable and happy. The splint may be retained as long as is necessary for the child to regain health, for the sphincters to retain tone, and for a normal condition of the parts to return.

4. Delayed Chloroform Poisoning.—H. P. Fairlie reports a case of this condition in which the definite symptoms did not develop for considerably more than 48 hours after the administration. Buxton gives the usual time of onset as from 12 to 42 hours, and Hewitt from 10 to 48 hours after anesthesia. After the onset of symptoms the case ran a very rapid course, persistent vomiting commencing only 16 hours before the end. Owing to the employment of the Vernon-Harcourt inhaler the amount of chloroform administered was small relative to the length of anesthesia, the importance of which Buxton emphasizes.

British Medical Journal.

December 19, 1914.

1. The Work of the "Clearing Hospitals" During the Past Six Weeks. Sir Anthony Bowlby.
2. Permanganates in Sloughing and Tetanus-Infected Wounds. Sir Leonard Rogers.
3. Iodine as an Antiseptic in Joint Injuries. A. Gascoigne Wildey.
4. A Simple Form of Portable Dressing Sterilizer. C. W. Cathcart.

1. Work of the "Clearing Hospitals."—Sir Anthony Bowlby records his experiences as consulting surgeon to the British expeditionary forces in the Ypres district. The magnitude of the work confronting the surgeons at the clearing hospitals may be realized when it is stated that on many days from 500 to 1,000 or more wounded have arrived at a single clearing hospital in twenty-four hours. Many of the wounded arrive in a dying condition, especially if there is a wound of the brain. Chest wounds are tolerably common. The abdomen is to a great extent protected in the trenches, and abdominal wounds are not as relatively common as they were in South Africa. Injuries of blood vessels have in many cases caused gangrene without causing serious bleeding. Tetanus is not as common as on the Aisne owing to the different nature of the ground and the preventing inoculation. While true "hospital gangrene" has not been observed in any hospital in France, "spreading gas gangrene" has attacked 0.5 per cent. of all the recent wounds of all the armies. True pyemia has not been seen or heard of by the author.

2. Permanganates in Sloughing and Tetanus-Infected Wounds.—Sir Leonard Rogers believes that the use of strong permanganate solutions, not less than 1 in 500,

for irrigating all dust- and earth-infected wounds is worthy of trial in the field. The crystals are so easily carried and the solutions so harmless that this simple plan could be easily carried out at the dressing stations in the case of all wounds in which any sloughing or suppuration has already commenced, or into which dust or earth is likely to have penetrated, with good hope of lessening the number of cases of tetanus, septic and anaerobic bacillary infections.

Berliner klinische Wochenschrift.

November 16, 1914.

Wounds Caused by Indirect Projectiles; Dangers of the Wrist Watch.—By "indirect projectile" Melchior means anything not directly aimed or anything not intended as a projectile. In plainer language any object of stone, woodwork and the like detached by actual projectiles or exploded in any fashion which can and often does inflict a wound. In sea warfare this is seen especially in splintering of the woodwork on battleships. The author, however, deals in this paper with hand fighting. As the velocity of these secondary projectiles is not necessarily high, there is chance for some protection in the direction of padded wearing apparel, etc. But the helmets, buttons, solid objects carried in the pockets, while they at times serve as protection, often themselves contribute to injuries and habiliments of this class ought when possible, to be eliminated. In this connection we learn that many German officers and soldiers carry the wrist watch worn on the left side; and the fact that exposed parts like the face and hands are more often injured than the unexposed surfaces would appear to make the custom of wearing a wrist watch at the front of doubtful advisability. In the present as well as the Balkan wars, the frequency of injuries to the left hand from infantry bullets has often been the subject of comment. Thus a German officer in the Poland campaign was struck by a shrapnell bullet directly upon his wrist watch, the latter being smashed to atoms. After first dressings the patient was sent to Breslau, where he arrived three days later, his dressings saturated with foul pus. The forearm was found to be gangrenous. The *x*-ray showed a comminution of the wrist bones and radius and the presence of embedded metal splinters from the watch. The hand may be saved but the functional result will be bad. This type of accident is not unique for the author knows of another case. The wearing of wrist watches invites these severe injuries and the author warns against the custom.

Treatment of Neuralgia and Neuritis with Bacterial Toxins.—Dölken begins a dissertation on this subject. The neuralgias and neuretes have never been known to be favorably acted on by suppuration anywhere in the body. Nevertheless by the use of bacteriotoxins rapid cures of these maladies have been effected. The author commenced this study in connection with the pains of tabes dorsalis. The patient who had developed incidental furunculosis was under treatment for the latter with staphylococcus and streptococcus vaccines. No benefit being observed, various other vaccines were tested. The most efficacious among these was the Shiga-Kruse dystentery culture and the next best the hyoscyamus. Both vaccines, however, caused a remarkably strong local reaction. Bacterial extracts showed no advantages nor did autolytic vaccines. The author then turned his attention to the bacteriotoxins. While staphylovaccine had appeared to be inert staphylotoxin at once caused prompt therapeutic effects, when tested in case of trifacial neuralgia. The latter is therefore neurotropic. The author now mixed autolysates of the bacillus prodigiosus and the staphylococcus with the intention of increasing the powers of the latter. A long account follows of the local and general reactions and the therapeutic effects, but as the preparation will be marketed under a proprietary name with withholding of some of the data of preparation, it will have to win us some way before general recognition is accorded it.

Limits of Organotherapy.—Münzer states that in organotherapy a dead, alien and undosed substance is incorporated into an organized being nourished by living warm blood and regulated by the most delicate nervous mechanism. If such passed through the stomach it may be rendered inert by the action of the digestive juices. At the other extreme we see thyroid substance cure a condition which *prima facie* would seem to be irremediable by any plan of treatment. How can we reconcile such opposites? Abderhalden has done much in the borderland between these extremes. The substances, dead and foreign though they be, are able to provoke the formation of native defensive antibodies. This blood foreign matter, moreover, was formed within the body, and evidently through functional insufficiency of one or more of the glands of internal secretion. Hypersecretion of a gland doubtless is best considered as a reaction against diminished secretion of other endocrinic glands. In hyperfunction which leads to some disease, the latter may sometimes be cured by feeding with the antagonists. The great importance of the thyroid is due to the fact that it possesses functions which are absent in several other glands, and can take over their work when they become insufficient.

Münchener medizinische Wochenschrift.

November 24, 1914.

Successful Treatment of Tic Convulsif with Calcium Chloride.—Emmerich and Loew report cases of this sequence. One patient was 49 years old and 20 years before had been attached by cloni in the trapesius, splenicus and other neck muscles on the right side, also the flexors of the right forearm and of the fingers of the right hand. His head was drawn to the right side a number of times a minute. Many years later when seen by one of the authors the patient was a physical wreck. The number of tics per minute had increased visibly until they now numbered 45. There was some muscular hypertrophy on the affected side with slight atrophy on the opposite side. The tics had become more violent and at times the head was literally snapped to the right. It was found that patient had always been a great meat eater. Vegetables and fruits he seldom touched, nor did he drink milk. The amounts of lime and magnesium consumed were found to be very low, despite the fact that he took plenty of nutriment. As is known, lime deficiency is responsible at times for weakness of the muscles and clonic convulsions. The amount of magnesia taken was large enough to disturb the lime metabolism. Patient was placed on vegetables rich in lime and a 20 per cent. solution of chemically pure calcium chloride. The tic frequency gradually came down to 7 per minute and finally ceased while muscular strength and energy returned. Another favorable result was also secured in the same manner. Oppenheim has stated that these tics of the neck and shoulder are among the most refractory of all diseases. One of the authors (Loew) had made the discovery that the affection is due to calcium deficiency in the cell nuclei. However, the mineral must be given for months at a time to obtain positive results. The authors believe it worth a trial to administer this treatment to myoclonic subjects.

Complement Fixation in Variola.—Klein concludes after his research on this subject as follows: It is certain that in the serum of variolous subjects antibodies are demonstrable by the aid of the complement fixation reaction. This reaction in variola differs from the seroreaction in syphilis. In contrast to the latter it is specific, *i. e.* there is a genuine antigen-antibody reaction. In all probability the exciter of variola itself represents the antigen. As antigen, material from variola pustules alone seems to suffice. All other antigens are untrustworthy and should therefore be rejected. The greatest constancy is seen when variola scabs are employed.

Surgical Experiences at the Front.—Danielsen, attached to the army of the Crown Prince has treated 4500 wounded at the front. The Sanitäts-kompagne to which he is attached treats all wounded infantry during and after the fighting—in other words give first aid dressings. The wounded are brought by orderlies on stretchers to the nearest dressing station, where nine surgeons are detailed to attend them. All life-saving operations which are indicated are at once performed (hemostasis, tracheotomy, etc.). The site of a dressing station is determined in advance by a division surgeon and is often difficult to find. It should be on a main road and in a solidly constructed structure, either a building or something extemporized. There should be easy access, for a narrow portal, as in a private house, causes constant blocking. The rooms must all give upon corridors. Nothing answers the purpose as well as a barn with its wide entrance and space for supplies of all kinds. Several barns which lie close together make a good dressing station. Churches and school houses also do very well. "Space and transportability" are the two watchwords. The signals are a red cross flag on a pole and at night a red lantern. The author always operated with clean rubber gloves. Wound areas were disinfected with iodine tincture (personally the author has no faith in the efficacy of this procedure). Very disagreeable is the lack of pledget material. A general prognosis of gunshot wounds is impracticable. The author has been very conservative about amputations. In the first 4000 wounded he did two amputations, at the arm and forearm respectively. There were 83 skull wounds, in which as a rule the brain was involved. The 89 thoracic wounds were benign as a whole. Of 63 abdominal injuries the vast majority proved fatal. A few patients who survived were sent to the field hospitals. The author's experience directly opposes the view that these cases pull through in large numbers under conservative management. The number of fractures was very great —109 of the thigh alone, 71 of the upper arm, etc.

Deutsche medizinische Wochenschrift.

November 26, 1914.

Gas Phlegmons.—Tietsche and Korbsch refer to the warm, dry weather at the outbreak of the war, which in part favored the clean healing of the wounds. Later the weather became wet and shell wounds increased in frequency as a result of day-long cannonading, which at the same time prevented prompt dressing of wounds. Along with ordinary infection and tetanus, gas phlegmons began to appear. In all cases a bacteriological examination was made and in several a new gas bacillus was isolated in pure culture. It then became practicable to trace the disease type from its inception to its occasionally fatal ending. Thus a soldier was struck on the right buttock by a fragment of shell. The wound was round, the size of a penny, with shredded edges and secreted a thin fluid. It was seated at the upper and central portion of the buttock which was markedly swollen and sensitive to pressure. There was no fever and the local wound reaction was not marked; so that a mere occlusive dressing was applied (24 hours after the injury). The same night a temperature of 40° C. developed and the buttock having steadily increased in size the wound tract was incised. The contents of the latter, which consisted of coagula, having been removed, the muscles were seen to be swollen succulent, friable, their blood vessels thrombosed. There was, however, no odor of gangrene or discolored pus. The bacillus in question was found in smears. Simple incision and drainage caused conditions to rapidly become normal. In another patient with a similar wound on the anterior surface of the thigh, the exposed muscle tissue seemed quite normal, with no pus in the course of formation. Blackish areas at the wound margin appeared to be due to dirt. There was no local reaction, so that a simple dressing was applied. The characteristic bacillus was found in smears. Within two days the wound began to swell, but without crepitus or gangrenous discoloration. The discharge, however, became dark, contained gas bubbles, and gave off an intense gangrenous odor. The wound cavity was at once exposed and hydrogen peroxide applied, prompt improvement following. Both these cases were aborted yet without resort to any special form of wound treatment. In cases unfavorable for drainage the condition naturally progresses. The authors cite the case of a wound of the face from a small shell fragment, in which the nasal and orbital cavities were both involved. There was a broad opening of exit over the opposite temple. The left orbit was exenterated and the wound tract laid open and treated with peroxide. Further history of the case is not given. While superficially the wound tract seemed in a fair condition the pit of the wound funnel was gangrenous. A very different type of wound is that which becomes gangrenous at its inmost portion, the process extending rapidly to the surface. It is this type in which pent up gas collects and percussion will sometimes bring out a hollow note like that from percussing a cardboard box, even while the surface is not much affected. Naturally an entire limb may be quickly affected and upon removing dressings applied three days before for shell wounds of the arm, the entire limb may be found ripe for amputation. The authors have thus far seen 12 cases of gas phlegmon in a material of 300 wounded. Two deaths occurred. The lower extremities constitute by far the most frequent site of gas phlegmon.

Removal of a Large Pharyngeal Pouch under Local Anesthesia.—W. H. Kelson reports the case of a man aged 70 who was admitted into the London Throat Hospital in November, 1913, with the diagnosis of stricture of the esophagus. He was stated to have had increasing difficulty in swallowing for four years, and to be getting steadily thinner and weaker. After careful examination the author's suspicions were aroused as to the correctness of the above-mentioned diagnosis, and at his request an *x*-ray examination was made, and clearly demonstrated the presence of a pouch dipping down to the aortic arch and lying behind and a little to the left of the esophagus. As the patient appeared to be going down hill somewhat rapidly it was decided to operate, and to avoid all risk of postanesthetic vomiting the author decided to use local anesthesia. Operation was performed December 3, after the injection of a solution of cocaine and morphine along the line of the proposed incision. Hemorrhage was trifling. It was found necessary to divide the omohyoid muscle.—*Proceedings of the Royal Society of Medicine.*

Insurance Medicine.

Overweights.—One of the most important factors in medical selection for life insurance is the applicant's build. Dr. H. A. Baker, Medical Director Pittsburgh Life and Trust Company, states that it was formerly supposed that the average build represented the best mortality at all ages and medical selection has been based upon this theory, but the recent work of the Medico-Actuarial Investigation has shown that the best mortality is not found among those of average build at all ages, but in those at the younger ages who are slightly overweight, and at the older ages among those who are distinctly underweight. This committee compiled a table called the M. A. table—a standard table of mortality which could be used for testing the degree to which the mortality of the various classes differs from the average combined experience of all the companies. Overweight has long been regarded as a serious impairment to a life insurance risk. In judging overweights found in insurance work, one can be reasonably certain that in the majority of cases it was stated that "No excess adipose tissue was present," also that "The overweight was due to muscular development." Such, however, is not the case and the law of general average cannot be escaped. According to the arrangement of the M. A. table slight corrections must be made in the case of very short or very tall men, as the given departure from the standard is a greater percentage in the case of a short man than of a tall man. Therefore in the overweights we should make the percentage mortality slightly higher for very short men and slightly lower for very tall men. Men from twenty to twenty-four years of age can be accepted fifty to sixty pounds over the normal showing a mortality of only 110. Ages twenty-five to twenty-nine with the same overweight show a mortality of 116, and sixty-five to eighty, overweight the same, show a mortality of 132. At the ages thirty to thirty-four we begin to reach a high mortality at thirty-five to forty-five pounds over the standard. In the next group, ages thirty-five to thirty-nine, the mortality becomes excessive when thirty-five pounds over the standard is reached, and for all ages over forty this table shows that applicants who are more than thirty pounds overweight must be considered sub-standard risks. At age forty, height five feet, eight inches, thirty pounds over the standard represents 19 per cent. overweight. There are some factors which make an overweight a much more desirable risk than the average overweight, while there are other factors which make him a much poorer risk. Among these factors are occupation, habits, family history, personal history, abdominal measurement, blood pressure and the personal equation. Occupation.—Dr. Baker considers that in the most favorable occupations, such as lawyer, clergyman, teacher, etc., a deduction of ten to twenty points can be made from the table, while in the case of a hotel keeper, a rating for overweight should be added to the rating for occupation. Habits.—In the case of abstainers from alcohol it may be considered safe to deduct twenty points from the overweight table, and ten points in the case of those who now abstain, but who in the past have used alcohol in moderation. This will bring many overweight abstainers within the standard class. However, the slightest use of alcohol in an overweight must be viewed with grave suspicion. Alcohol and overweight go hand in hand to an early mortality. Deductions should not be cumulative. If you have deducted twenty points because an applicant is a clergyman you should not deduct twenty points more because he has always been a total abstainer. Family History.—It is safe to conclude that a maximum deduction of twenty points can be made from the M. A. table in the case of applicants whose family history shows the highest degree of longevity, and a deduction of ten points in the case of applicants where the family history is undoubtedly better than the average family history represented in this table. Personal history.—Nothing can be deducted from the table for a fine personal history. Suffice it to say that any impairments, such as gout, rheumatism, syphilis, and all other diseases which constitute an impairment, must in each case be added to the rating for the overweight, making a sub-standard risk. Abdominal measurement.—A certain percentage must be added in each case where the abdomen is larger than the chest. It will be reasonably safe to add to the M. A. table ten points for each inch that the abdominal measurement exceeds the maximum chest measurement. Blood pressure.—There are no published figures on blood pressure as applied to overweight. Dr. Baker considers it would be fair to deduct ten points from the table for an exceptionally good blood pressure associated with pliable arteries. The slightest indication of high blood pressure in an overweight is sufficient to sub-standardize the risk to a point where rejection becomes a necessity. Personal equation.—After all is done and our overweight has been rated in strict accordance with scientific principles, there still remains that intangible element of personal opinion. Let us, therefore, make our exceptions few and far between, particularly with regard to overweights, and if one ever has to be made let it be because the moral and financial elements of the case are exceptionally perfect and not because there is a "hunch" that the risk will pull through in spite of his overweight.—Medical Section, American Life Convention.

The Sphygmomanometer in Life Insurance.—J. W. Fisher states that his prediction made in 1911 that the sphygmomanometer would become indispensable in life insurance examinations has now been fulfilled. Its use demonstrates in many cases, as nothing else can, the existence in apparently normal persons of an abnormally high blood pressure which seriously affects them as life-insurance risks. The author gives the experience of the Northwestern Mutual Life Insurance Company since the year 1906. At first the blood-pressure test was required at ages only from 40 to 60 by examiners in the large cities, but since November, 1911, it has been required at all ages irrespective of amount of insurance. Tables are given showing the company's experience and the higher mortality over the general average of the company in cases with high blood-pressure. The author is firmly of the opinion that a persistent blood-pressure of 15 mm. Hg above the average for the age of the applicants should excite suspicion and call for further examination. The blood-pressure should be taken with the person in a sitting posture, with the arm resting on a table or other rest, before and after the physical examination is taken.—*Journal of the American Medical Association*, November 14, 1914.

Book Reviews.

THE FECES OF CHILDREN AND ADULTS. By P. J. CAMMIDGE. Price, $5. New York: Wm. Wood & Co., 1914.

THE author has written a very complete book on the examination of feces. He has this to say as to the amount of time for the passage of food: "The clinical importance of an accurate determination of the time spent in the alimentary tract by the food lies in the information it affords as to the particular position that is concerned in the production of a diarrhea or constipation. By means of a bismuth meal and the fluorescent screen the actual progress of a test meal can be watched and its course compared with that of the healthy individual. The radiographic method is not, however, always available an dmuch may then be learned by the administration of carmine or charcoal capsules. If in a case of diarrhea it is found that the time of passage is approximately normal, it will suggest that peristalsis in the small intestine is not increased, and that the disturbance is in the lower part of the large intestine. A too rapid appearance of the coloring matter in the stools would, on the other hand, point to the seat of the trouble being in the small intestine or ascending colon. In a patient who has a daily motion, a failure of the distinctive color to appear in the next day's motion when it has been given at breakfast, points to there being latent constipation. If the bowel is then washed out and colored feces are brought away there is retention in the lower bowel; but if the feces are uncolored, there is delay in the cecum or ascending or transverse colon. The recovery of colored feces by lavage of the bowel on the morning following the administration of a cachet in a patient who does not have a daily motion, would show that atony or dilatation of the lower bowel was an important factor in the production of the constipation. The appearance of colored feces for several days after the administration of a cachet points to atony of the bowel and latent constipation."

Cammidge in describing the gross appearance and the color of various stools describes concisely the character of bilious stools. "Bilious stools are bright golden yellow in typical cases, but may have a greenish tint, or even be dark green. The presence of unaltered or but slightly altered, bile pigment in the feces of adults is always pathological, unless it is due to calomel, and indicates the hurried passage of the intestinal contents through the bowel."

After giving detailed descriptions and numerous good illustrations of the normal and abnormal elements found on microscopical examination of the stool, the author proceeds to the chemical examination of feces, for which he gives precise and very clear directions.

Cammidge's work is very practical and contains valuable points with regard to the management and treatment of intestinal disturbances. It can be highly recommended as a useful book.

MODERN MEDICINE. Its Theory and Practice in Original Contributions by American and Foreign Authors. Edited by Sir WILLIAM OSLER, Bart., M.D., F.R.S. Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in the Johns Hopkins University, Baltimore; Formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and of the Institute of Medicine in McGill University, Montreal, Canada; and THOMAS MCCRAE, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia. Volume III, Diseases of the Digestive System—Diseases of the Urinary System—Second Edition, Thoroughly Revised. Price, $6.00. Philadelphia and New York: Lea and Febeiger, 1914.

WHEN Osler's "Modern Medicine" first appeared, it was recognized not only that there was room for such a work, but that in many respects it supplied a want. It was concise, well written, and authoritative. This the second edition comprises all the merits of the first, and has been brought thoroughly up to date. The articles contributed by those who are now dead have been revised by men distinguished in the subjects of which they treat and the entire volume may be regarded as a reliable book of reference. The diseases of the digestive system are the most important of those which affect man, and especially civilized man, and it is therefore essential from the medical standpoint that they should be discussed wisely and that practical measures for treatment should be suggested. Among the most valuable contributions to the present volume are the introductory chapter on diseases of the digestive system by Charles G. Stockton of Buffalo, functional diseases of the stomach by Julius Friedenwald, organic diseases of the stomach by Charles F. Martin, diseases of the pancreas by Eugene L. Opie, diseases of the peritoneum by Humphrey Davy Rolleston. Dr. McCrae writes an excellent introduction to diseases of the kidney and also discusses malformations of the kidney and circulatory disturbances of the kidney. Anomalies of urinary excretion are dealt with by a master of the subject, A. E. Garrod, while Thomas R. Brown, in one of several articles he contributes, gives a particularly lucid description of tuberculosis of the kidney. The volume as a whole may be termed a pleasingly clear and sufficiently comprehensive consideration of the diseases of the digestive and urinary systems.

THE DOCTOR'S VIEWPOINT. By JOHN BESSNER HUBER, A.M., M.D. Editor, "The Dietetic and Hygienic Gazette"; author, "Consumption and Civilization"; member of the New York Academy of Medicine. Price, $1.00. New York: Gazette Publishing Company, 1914.

IN his preface the author states that "Much of the interest of life lies in how we appreciate one another's way of looking at it—the way of the counsellor, the sky-pilot, the painter, the farmer, the man in the street, the woman in the wrapper." The volume is a series of short essays in which the writer endeavors to color with the doctor's way of thinking almost every subject under the sun from the killing of fleas to the philosophy of prayer, touching in his course the achievements of preventive medicine, the problems of tuberculosis and cancer, eugenics and euthanasia, medical and psychical research. These essays will perhaps be more interesting to the laity than to the profession, but contain withal considerable truth presented with more humor than one would suspect the subjects capable of being treated with. The author's style is easy and his book is interesting.

A TEXT-BOOK OF THE DISEASES OF THE NOSE AND THROAT. By JONATHAN WRIGHT, M.D., Director of the Department of the Laboratories, New York Post-Graduate Medical School and Hospital, and HARMON SMITH, M.D., Surgeon to Throat Department of the Manhattan Eye, Ear, Nose and Throat Hospital; Clinical Professor of Laryngology and Rhinology, Cornell University Medical School. Octavo, 683 pages, with 313 engravings and 14 plates. Price, $5.00. Philadelphia and New York: Lea & Febiger, 1914.

THIS new text-book of laryngology is a notable addition to the subject. While essentially, by reason of its clarity of statement, logical plan, and unusual literary style, all that a text-book shoud be, it is, moreover, a most comprehensive general treatise on its subject. Both text and illustration give abundant evidence of painstaking effort in the accumulation of material and its preparation for presentation. The feature that at once distinguishes this book is the emphasis laid upon the etiology and pathology of disease. Recognizing this as essential to logical and scientific procedure, the authors advance in their discussion of nasal, laryngeal, and pharyngeal morbid processes from an etiological and pathological basis. While it has been their aim to give causes and consequences the consideration due their importance, this has not been accomplished at the expense of other aspects. The consideration of symptomatology and diagnosis and the topical and operative treatment of diseases of the upper air passages follow in natural and logical sequence and in no less comprehensive detail. Much of the work in etiology and pathology rests on original investigation in the laboratory and clinic extending over many years. While the authors' familiarity with the extensive literature of this subject is evident, reference and historical allusion are studiously subordinated to the presentment of original research and conclusion. An easy literary style carries the attention of the reader, while the illustrations are so complete, detailed, and extensive, as to be remarkably illuminative. While planning a text-book, the authors have succeeded also in recognizing and emphasizing exactly what is required by their fellow practitioners. In its nearly 700 pages is comprised practically the sum total of present-day knowledge in laryngology, so logically arranged, with such a wealth of illustration, with all procedures so clearly set forth, that it should be of the utmost value to every general practitioner who treats the nose and throat, as well as to the specialist in this field.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held November 6, 1914.

DR. C. A. MCWILLIAMS IN THE CHAIR.

Infected Hydronephrosis Due to Renal Calculi. — Dr. H. D. FURNISS presented a patient who was 39 years of age, had had five children and gave a history of infection after the birth of the first, the nature and location of which was not obtainable from the history. For three and one-half years she had suffered from pain in the left lower part of the abdomen which radiated to the back and down the leg, the pain coming on three or four times a day and lasting ten minutes. In October, 1913, the patient had had an interposition operation for prolapsus. When first seen by the speaker she complained of pain in the left lumbar region and marked pyuria. Examination of the bladder showed, after indigo-carmine injection, normal elimination from the right side and none from the left. Radiograms showed several shadows in the region of the right kidney. The left kidney was removed and on section showed a large hydronephrotic kidney with several stones in the calices and one in the pelvis. The patient made an uneventful recovery.

Calculus Pyonephrosis.—Dr. H. D. FURNISS presented this patient who was 35 years of age and gave a negative history until four months ago when she began to lose in weight, had slight pain and enlargement on the right side of the abdomen, amenorrhea, for four months, pyuria for two, chilly sensations, and night sweats. Examination showed a large mass extending from the free border of the ribs downward to an inch and a half below the spine of the ilium and extending inward almost to the mid-line. Cystoscopy showed a mild cystitis with only slight redness around the right ureteral orifice. Intravenous injection of indigo-carmine showed no elimination from the right ureter. Radiographs showed small and large shadows. The kidney was removed through an oblique incision without rupture. On section it was found that there was practically no cortex left and that the kidney consisted of communicating pockets filled with pus. In the pelvis was a large stone and in the lower calices two smaller ones. It was noteworthy that this kidney went on to complete functional destruction with very little local evidence of its presence. The patient made a smooth and uneventful recovery.

Fatty Degeneration of Kidney Due to Calculus.—Dr. FURNISS presented this patient, a woman, 67 years of age who gave but little history. She had had pain in the region of the left kidney of a dull aching character and frequent urination for seven years. She had had hematuria for a short time. Cystoscopy showed some redness around the left ureter, pus coming from it and there was no elimination of indigo-carmine from this side. Radiographs showed the presence of a shadow in the region of the left kidney. This kidney was removed and was most densely adherent. Upon section it was found that the kidney had been converted into a hard, tough fatty mass, and that there was only a small portion of kidney substance remaining at the lower pole. The patient made a good recovery, though there was still a small amount of pus coming from the left ureter, for which treatment would have to be directed to the ureter itself.

Atrophy from Ureteral Calculus.—Dr. FURNISS also presented a patient who had a nephropexy in 1909, which had failed to give her relief. From October 1 to November 15, 1913, she had had port wine hematuria, which the cystoscope showed coming from both kidneys. In November she had a decapsulation of the left kidney. In 1912 the kidney wound opened and discharged urine for two months. Since that time the patient had had much pain in the region of the left kidney and at times some swelling. In April, 1914, cystoscopy showed marked redness around the left ureter. A solution of indigo-carmine injected intravenously came from the right ureter in three minutes and a half, but none was observed coming from the left. Radiographs showed an arrow-shaped calculus in the lower end of the left ureter. The calculus was removed by extraperitoneal operation. As the patient was not relieved of her symptoms and as the ureteral catheter could not be made to enter the ureter more than one and one-half inches, the left kidney was removed. It was most densely adherent and only one-fourth the natural size. The pathological and microscopical examinations showed chronic pyelonephritis with atrophy of the kidney. In the presence of an infected kidney that had completely lost its function, the operation that should have been done in the first place was a nephrectomy with excision of the ureter to a point below the calculus.

Sarcoma of the Metacarpal Bone: Extirpation and Replacement with Tibial Bone-Graft.—Dr. GEORGE H. SEMKEN presented patient, aged 19 years, a clerk by occupation, who came under observation on September 3, 1914. Seven months previously, he began to have pressure sensitiveness in the right hand. This remained the only symptom for five months; then a swelling appeared on the dorsum of the right hand about the distal half of the middle metacarpal bone. There had been a progressive increase in size of the mass. Pressure sensitiveness continued and he had occasional lancinating pain in the forearm. The history otherwise, was negative. Physical examination established the following: The dorsum of the right hand was the seat of a rounded, flattened swelling, about 3.0 to 3.5 cm. in diameter, beginning behind the articular surface of the head of the third metacarpal bone and extending proximally to about the middle of the bone. Laterally, the mass impinged upon the adjacent metacarpals. The overlying skin was raised by the flat convexity of the dorsum of the swelling but retained its normal color and free movability. Examination of the palm of the hand was negative. *X*-ray examination showed that the distal half of the third right metacarpal bone had been replaced by a rounded, cyst-like mass having a thin, bony shell and showing occasional bony septa. The line of the articular surface seemed well defined and intact. The distal end of the proximal half of the bone projected into the mass like two miniature church spires, and was united to the mass by a thickened periosteum. Operation was performed on September 7, 1914, under general anesthesia. Through a curved incision on the dorsum of the right hand, the affected bone was exposed. The tumor and the shaft were removed, but the carpal base was retained to act as an osteogenetic contact site for the intended bone transplant. The transplant was taken from the antero-internal surface of the tibia, and included periosteum, cortical and medullary bone substance. It was wedge-shaped in section. A secondary wedge made its basal end fit tightly into the retained base of the metacarpal bone; and the phalangeal end was rounded (cylindrically) to allow for the movement over it of the phalanx. This tibial bone-graft was placed in position, in a muscle bed formed by suturing the divided adductor pollicis to the interosseous muscle stump attached to the ring finger metacarpal; a few catgut sutures were placed over the graft to hold it in place. Finally, a small, free fat transplant was placed between the distal end of the bonegraft and the phalanx, to form a new joint. Healing was uneventful. An *x*-ray examination made seven weeks after operation, showed that the graft was in place, that it had retained its distinctive bone-markings and that a vigorous regeneration was taking place at the site of bony contact at the base. The free fat transplant, however, seemed to have been absorbed. The examination of the tumor showed it to be a giant-celled fibrosarcoma.

Epithelioma of Lips and Cheek: Radical Operation and Repair.—Dr. SEMKEN presented this patient, aged 57 years, a gardener by occupation, who had a small lesion on the upper lip seven years ago, which refused to heal and had to be excised surgically. Four years ago, in Montreal, a cautery operation was done to destroy a recurrence, but the growth soon reappeared, and it had continued to advance, though not rapidly, to its present extent. The appearance presented on July 7, 1914, when the patient came under observation, was as follows: Beginning at the right angle of the mouth, on the upper lip, an ulcerated, cauliflower growth extended in a widening area over the upper lip, reaching almost to the left ala nasi, then spread over the left cheek as it wound around the left corner of the mouth, and ended on the lower lip, about 2.0 cm. from the left angle. The mucous surface was involved to a slightly less extent than the external skin. The submaxillary lymph glands on both sides were moderately enlarged. On July 11, 1914, the submaxillary lymphatic and glandular structures of both sides were removed, and the left carotid packet of glands also. These wounds healed by first intention. It was interesting to note

that, in consequence of the ligation of the facial arteries of the two sides, evident starvation of the neoplasm occurred. There was a definite reduction in its size, and the discharge diminished. On July 18, 1914, the mass was excised under local anesthesia. The right angle of the mouth was incised, and from this starting point, the line of section proceeded widely from the margin of the growth. The cut mucous membrane was at once sutured to the cut skin margin, the purpose of this being to favor early closure of the wound surfaces, a minimum of scar tissue and an early restoration of relatively normal conditions in the surrounding tissues. Prompt healing occurred. The patient was then discharged from the hospital with instructions to return in about eight weeks for the plastic operation. The entire upper lip, the left half of the lower lip and a large part of the left cheek had been removed. The reparative procedures were begun on September 9, 1914. It was planned to take a large flap from the remaining skin and subcutaneous tissue of the left cheek and neck, properly shaped and with its pedicle above, and to swing this flap into the left cheek and lower lip defect. Part of this flap would necessarily present a raw surface to the mouth cavity; so the first procedure was to elevate that portion of the projected flap and to line it with a Thiersch skin graft. The raw surface left by its elevation was also covered with Thiersch grafts. The Thiersch-lined flap was then placed back to its old site, a small dressing of silver foil and gauze being interposed. These grafts healed well, and the major procedure could be undertaken ten days later. On September 19, 1914, under local anesthesia, the entire flap was raised; and after preparation of the edges of the defect, the flap was placed in its new site. The raw surface left by this maneuver was covered with Thiersch grafts. The reconstruction of the upper lip was done at the safe time, by the cutting of a long tongue-shaped flap from the right cheek and chin, with the pedicle above; by the undercutting and pushing back of the upper lip tissue at the extreme right; and by the placing of the tongue-shaped flap in position across the upper lip defect. The flap was cut in such manner, that the direction of the hair follicles was at right angles to the long axis of the flap; thus insuring the correct direction to the moustache that was to grow from the flap. The raw under surface of the flap was covered with Thiersch grafts. Prompt healing occurred, but an inadvertent movement during the removal of the sutures, caused a separation of the upper lip flap at its distal attachment and necessitated a secondary suture. Three subsequent operations were done to improve the cosmetic effect (smoothing-out procedures); and the appearance had been further improved through the growth of a moustache and a beard. The skin grafts within the mouth had withstood maceration and trauma very well. There had been no return of the carcinoma.

Dr. Robert H. M. Dawbarn said that since Dr. Semken had stated that his work was facilitated by using what he was good enough to call "Dr. Dawbarn's starvation method," and as it had perhaps also had something to do with the non-recurrence of the cancer up to the present time, this might be a fitting occasion upon which however briefly to comment on the starvation plan. He regretted to say that this had never had a fair trial, especially in sarcoma, for which rather than carcinoma it was especially fitted. One reason for this was that in many cases excision of the external carotid on one side only had been practised, with the inevitable result of wasted time. After an interval of a week or two for recuperation it should be repeated on the other side, for reasons that should be obvious to surgeons. At present the technique of the operation—which the speaker had now performed over 200 times—consisted in first tying off two branches—those to the larynx and to the tongue—and then without disturbing the body of the external carotid or its other branches, introducing, after ligating the external carotid close to its origin from the common into its lumen by a hypodermic syringe needle and glass syringe, about 6 c.c. of liquid paraffin, at a temperature of 120° F. which would solidify at 110° F. In this way any anastomosis reentering the field became impossible; and at one stroke twenty-odd ways of feeding the cancer were permanently cut off. It was wonderful how little blood normal flesh required to keep it alive—and how much a cancer demanded in order to keep growing. Everybody agreed that whatever the permanent outcome was, the first effect was a great relief to the patient, from shrinkage of the mass and lessening of tension. It would be noted that if one did not take the precaution to ligate those two branches first specified, the patient would have no control of voice or of tongue, because these arteries too would be paraffin-plugged. To allow a little more blood to reach normal tissues than by purely anomalous ways, it was in most cases wise to tie off, rather than paraffin-obstruct, the occipital artery, thus leaving its connection with branches of the subclavian free for circulation. At the time the starvation procedure won the Gross prize the technique was much more complex. Today it could be accomplished with ease in half the original time, perhaps ten to fifteen minutes, for leisurely work, if no enlarged lymphnodes requiring removal obstructed the field. Dr. Dawbarn said that one cannot be too careful to make sure by careful dissection that there was *a frank carotid bifurcation*, one branch of which immediately began giving off subdivisions, the other none at all in the neck. In this way the danger was obviated of making a blunder which, while following customary rules of technique, once led to the needless death of a patient at his hands. After he had tied a continuation of the common carotid which gave off branches at once, first finding that pressure upon it stopped the pulse of the facial and superficial temporal arteries (their regular tests), and the patient had been taken back to the ward, the anestheist commented upon the curious fact that the tying of the artery had been promptly followed by a pinhole contraction of the pupil on that side. Realizing that the internal, not the external carotid supplied the eye, and the internal, not the external carotid lay in contact with (upon) the sympathetic, it was practically certain that he had controlled the internal—and, to double the misfortune, had tied in the sympathetic with it; division of which in the neck contracts the pupil. At once the patient was hurried back to the operating table and the ligature in question was cut. A further dissection showed that he possessed the commonest anomaly in man, as to this artery (Deaver); namely, there was no external carotid, but the internal, on its way to supply brain and eye as usual, first gave off all the branches commonly supplied by the external carotid. (This same condition, *i.e.* absence or a merely rudimentary condition of the external carotid, its work being done by the internal, was the rule in dogs.) This patient never woke from his operation. This was a middle-aged man, and the anemia of the brain was fatal. This was true of 40 per cent. of middle-aged or elderly internal carotid ligations, from shock, or from subsequent brain softening (Wyeth). On the other hand there should not even be 1 per cent. of mortality from tying the external carotid, at any age, when uncomplicated by other operative measures.

Chronic Constipation.—Dr. James A. Corscaden read this paper. In this he advocated the treatment of chronic constipation by the use of a regime which made the patient take food and drink at frequent and absolutely regular intervals during the day and by giving a diet rich in cellulose. The schedule gave three meals a day and in addition, forty-eight ounces of water which was taken on arising, between the morning and noonday and noonday and evening meals, and on going to bed. The indications for this regime were based on the etiological findings in a series of 60 patients and by physiological principles based on experimental and direct observations. The results of this regime were sought for in 60 patients. Data were obtained in 43 of these, showing three failures, 22 complete successes, and 20 partial results. Of the latter cases nine were individuals who had distinct relapses all traceable to abrupt cessation of the regime. These were all subsequently cured. The remaining partially cured patients were having movements of the bowel without the use of cathartics and were divided into two types; those having a daily small unsatisfactory stool and those having constipation alternating with regularity. In all of the failures and in all of the partial results the cause of the negative result was the failure, complete or partial, of the patient to follow the regime or adopt the diet. This was due to antagonism or indifference on the part of the patient and lack of exactness and effort on the part of the physician. While some of the patients suffered from obstructions in the upper colon as shown by *x*-ray they all became regular. On the other hand those who failed to have regular movements did not reveal a single instance of interference with contraction of the upper colon.

Dr. Robert H. M. Dawbarn said there was nothing herein to which all could not give hearty assent. For

one point alone, he was glad to observe the order to drink a total of twelve gobletfuls of cool water during four intervals of the waking day. Insufficient water drinking was doubtless the chief factor in chronic constipation; and to make thirst the patients' guide was to choose the most treacherous of broken reeds upon which to lean. Given an excellent and active set of salivary glands, the mouth was seldom dry enough to excite a sense of thirst. For a poor creature afflicted by chronic constipation a bad salivary system was a real blessing—for she would then be forced to drink abundantly.

Metchnikoff had said that three chief causes lead to a lesser longevity than an average of 100 years for the human race! Of these, one cause was inherited or acquired syphilis, another alcoholism, and the third was the fact that Providence made us with pockets or pouches along the sides of the colon inviting stagnation of feces, although the central current might be free. Regarding one feature of constipation, causation, which he did not notice mentioned in the paper, a curious experience of his own in practice was not without its lesson for them. A certain middle-aged, sensible, non-hysterical lady, a clergyman's wife, came to him a few years ago for removal of ear-wax. Meanwhile, as she had mentioned always having had to make special efforts for bowel-relief, all her life, he counseled her very much along the lines of Dr. Corscaden's paper, rather than advising any drugs. Two years later on this lady called again, for the removal of ear-wax. This naturally brought up the former visit to his memory —and he asked her how her bowels were then behaving. After a moment's evident hesitation she replied, "I hate to tell you for fear you will be displeased, doctor; but since you ask, the truth is that a month or less after I left your office I became so tired of daily remembering all the things I ought and ought not to do, that I took a friend's advice (after first lapsing into my old way of using various kinds of proprietary pills, etc.). This advice was, to call upon a lady doctor who is a mind curist. Accordingly, I had a series of about ten treatments by her, three times weekly, and ever since then (nearly two years), I have been entirely well, paying no attention especially to rules of diet, and having a good evacuation daily."

I was naturally curious as to details, and my patient willingly gave them: "The lady doctor," she said, "had for her office one of our characteristic, old-fashioned, long and narrow parlors. At one end of this, with back to the light, she sat, at her desk. I was placed on a chair at the further end of this room, and she sat there and glowered at my stomach fixedly. It made me feel uncomfortable and creepy, there, at length, and I asked by way of saying something whether it was necessary to believe in order to succeed? 'Not at all,' was the doctor's answer. After some twenty minutes of this staring she said, 'That will do: that completes the first treatment.' The others were all exactly like it, and good results were soon noticeable." Dr. Dawbarn was sure that nobody here to-night believed for a moment that this quack doctor cured that woman, in the proper sense of the word. But she helped the patient to cure herself by autohypnotism, *i.e.* by concentrating her thoughts upon the derelict organs, leading soon and inevitably to improved abdominal circulation and peristalsis, because a greater percentage of nervous vital energy was drawn thereto than would otherwise have been the case. This being continued long enough to become a habit the cure was the natural result. If a girl while in the water closet had her mind upon a new spring bonnet instead of upon the business which brought her there, the result was naturally a poor one. He said he would never forget a remark during a lecture made to the class by that great neurologist, the late Dr. E. C. Seguin. He said that he was convinced that by continually thinking about a given normal organ or portion of the body anybody could with time render it less efficient in its work—in a word, diseased. If this was true, the converse of the proposition would seem equally so—that if a given organ (let us say the bowel) was out of order, by continual concentration of the attention upon it, improved innervation might result, with bettered function in consequence. It was a poor rule that would not work both ways.

A Preliminary Report on a Study of the Protective Ferments of the Blood by the Abderhalden Method, After the Transplantation of Organs.—Dr. CHARLES GOODMAN presented this report in which he recalled that at the recent meeting of the International Surgical Association, Carrel reiterated his former statements that he had met with considerable success in auto-transplantation, but that homotransplantation of an organ such as a kidney was only temporarily successful, the organ invariably showing degenerative changes within a few days. Lexer at the same time showed that he had succeeded in overcoming some of the biochemical reactions between his animals by a prolonged preliminary treatment of the host with tissues and blood taken from the donor. In the transplantation of parenchymatous organs the autolytic changes and eventual absorption might be due in part to defective venous drainage and the technique described was believed to minimize such injury. In transplanting the kidney of one dog to the neck of another, one might unite the renal artery end to side to the carotid, but the stroma of the renal vein should be placed end to end with the external jugular. This Dr. Goodman stated was a very important point, because it created immediate venous drainage for the transplant on account of the negative pressure in the jugular. Such drainage did not occur if the anastomosis was lateral. For an interval after an organ was transplanted it remained in a state of vasomotor paralysis, and was apt to become over-distended with blood on account of the insufficient venous drainage. Before employing and appreciating the value of end-to-end venous drainage, he had found it necessary to split the kidney capsule in order to prevent parenchymatous destruction by hypertension. On account of its accessibility and the ease with which degenerative changes could be recognized the thyroid had been selected for transplantation in this study. In two consecutive instances the thyroid was removed from the body and reimplanted in the same animal and the results were satisfactory, the thyroid tissue retaining its normal appearance and apparently its activity. In a series of homotransplants, although several of the animals lived for some time, the transplant invariably underwent degenerative changes with absorption.

From a series of fourteen specimens obtained at the Laboratory of Physiological Surgery of the New York University, it had been possible in eight instances to demonstrate the presence in the blood of a protective ferment capable of digesting tissue. The significance of the demonstration was problematical, but it might be an index of the susceptibility of the suprarenal body to insults occurring anywhere in the hemopoietic system. However, this might be, the Anderhalden reaction was positive in eight sera from seven dogs operated on as described. Tests with different substrata were being made to determine whether organs other than the suprarenal were sensitive to the thyroid transplant. It was thought that the biochemical differences which at present caused autolysis and prevented the use of transplants in applied surgery might be accomplished either by the application of Lexer's studies already referred to, or perhaps by the use of the *x*-rays or benzol, which in a measure controlled or modified lymphatic absorption. The use of such agents had been suggested by a study of John B. Murphy's publication in the *Journal of the American Medical Association*, May 9, 1914, in which he had shown that an organism did not react to a graft in the presence of general infection. He believed that the same factors which were engaged in fighting a general infection were also instrumental in causing similar behavior toward a transplant. Dr. Goodman said he hoped by demonstrating the presence of the specific ferments which followed transplantation to succeed in finding a method of controlling their activity. He illustrated the points brought out in the paper by a lantern slide demonstration.

Dr. JOHN WILLIAM DRAPER said he had had the pleasure of watching Dr. Goodman work at the Laboratory of Surgical Physiology. Aside from the technical details which were of import and interest, the most significant thing to him had been the biological side of his work. Dr. Goodman had had an opportunity to spend some time working under Abderhalden in his laboratory in Germany, and in the author's postoperative studies of the blood of the operated animals the Abderhalden technique had been followed to the very letter. The provisional finding which pointed to a reaction in the blood to suprarenal tissue after certain forms of thyroid transplantation would appear to suggest, Dr. Draper said, some possible relation between these two glands.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held October 6, 1914.

THE PRESIDENT, DR. SMITH ELY JELLIFFE, IN THE CHAIR.

Double Cervical Rib; Nerve Symptoms; Surgical Removal.—Drs. S. P. GOODHART and ALFRED S. TAYLOR presented this case. The patient was a woman, thirty years old, whose history, both family and personal, was entirely negative from a neuropathological point of view. Symptoms referable to the cervical ribs dated apparently from the patient's eighth year, when she began to suffer from pains in the left shoulder radiating down the arm, and the entire left upper extremity would become paroxysmally numb. There was also a gradual development of an indefinite sense of discomfort about the left shoulder and a protrusion of the left shoulderblade, which, when pressed upon, gave rise to varying degrees of pain and numbness extending through the arm. These symptoms persisted, and in the course of a few years there was added a certain inability to properly use the left index finger, noticed particularly in playing the piano, and gradually a lack of dexterity of the left hand. During her eighteenth year she noticed that certain movements of the arm, for example, arranging her clothing necessitating placing the arm behind her, caused flexor spasm of the muscles of the forearm and hand. At this time there was no weakness nor wasting of the muscles. When the patient was twenty-three years old she observed weakness in the grasp and in the finer movements of the left hand, followed by progressive atrophy of the small hand muscles, both the thenar and hypothenar surfaces being involved. Soon afterward a coldness of the left upper extremity, particularly from the elbow to the finger tips, was at times subjectively felt and could be objectively demonstrated. The patient came to Dr. Goodhart in 1904 with the diagnosis of progressive muscular atrophy. At that time his examination revealed areas of hypesthesia and hyperalgesia irregularly distributed over the left forearm and hand. These areas varied and finally disappeared, leaving as the only sensory disturbance an area of hypesthesia for all forms of sensation in that part of the forearm and hand corresponding to the inner cord of the brachial plexus, particularly the ulnar distribution. At this time the left hand presented an appearance of the typical *main en griffe*, and some atrophy of the pectoral muscles was noted. Further physical examination revealed osseous tumors in each supraclavicular space, which were recognized as cervical ribs. The one on the left side was found two inches outside of the sternal insertion of the sternocleidomastoid muscle, extending vertically upward two inches from the upper clavicular border. On the right side a far smaller eminence was found in about the same position. The *x*-rays disclosed scoliosis extending from the sixth cervical to the fifth dorsal, with the convexity to the left side, and with a compensatory convexity below. Bilateral cervical ribs were seen attached to the bodies of the seventh cervical vertebræ, articulating at their distal ends with a facet from the upper border of the first dorsal ribs. On the left side the supernumerary rib measured about one and three-quarter inches; the right one, about two inches in length. About 1907 the patient began to observe a weakness in the right index finger and a certain lack of dexterity in executing finer movements with the right hand; slight occasional numbness of the right thumb was also complained of. Thus, involvement of the brachial plexus on the right side developed. Within the next few months numbness of the entire right leg and pains in the calf muscles were experienced by the patient, and Dr. Goodhart was able to detect at times a slight but manifest weakness in the flexors of the toes of the right foot, but there were no secondary nor electrical changes. In May, 1908, the patient submitted to an operation for the removal of both false ribs, which was performed by Dr. Alfred S. Taylor. Upon exposure it was seen that the subclavian artery crossed the first rib anteriorly and below the distal end of the cervical rib, the roots of the plexus lying over the false rib, as had previously been determined by palpation. The eighth cervical and first dorsal roots were undergoing the greatest tension and pressure. This coincided with the clinical symptoms. The relation of the structures was about the same on both sides, and the upper roots were so situated as to be but little compressed. Immediately following the operation there was paralysis of nearly all the muscles and the sensory surfaces supplied by the plexus on both sides. In the course of a week motion and sensation began to return, and the improvement, though slow, was constant. About one year after the operation there was still considerable atrophy and very slight sensory changes over the inner surface of the forearm. At the present time, about six years after the operation, there was marked improvement in the muscle supply.

Dr. RICHARD B. KRUNA suggested that the persisting deformity of the hand and arm might be improved by a systematic course of exercises of the involved muscles and nerve tracts.

Dr. CHARLES A. ELSBERG, in reply to an inquiry as to whether he thought this patient might be benefited by further operative interference, said her symptoms were incomplete and there was no reason to think there had been sufficient injury to the branches of the plexus to justify an operation which would necessitate a complete division of the nerve cords and subsequent suture. Through reeducation and systematic exercises, as suggested by Dr. Kruna, we might get other nerves to take up the impaired muscles.

Spinal Hematomyelia of the Hemiplegic Type.—Drs. FREDERICK TILNEY and C. L. NICHOLS of Brooklyn presented this case. The patient was a printer, twenty-eight years old, who was admitted to the Coney Island Hospital on June 18, 1914, with the history that shortly before admission, while diving in shallow water, his foot slipped and he fell into the water almost perpendicularly. He did not recall whether he struck the sandy bottom on his head, neck, or back, but thought that it was on the vertex, posteriorly. He had to be dragged from the water and was found to be suffering from a complete paralysis of the right upper and lower extremities, and an awkwardness in the use of the limbs on the opposite side. There had been no loss of consciousness and he was perfectly oriented. His head was numb and the whole body felt bruised and sore. The pain was most severe over the right shoulder, extending down the arm and forearm. There were no spasmodic movements in this area. When the patient was examined several hours after the injury he still complained of the sensation of having been bruised, especially over the right clavicle and upper chest. He was exceedingly sensitive from a sharply defined point at the sternoclavicular articulation outward to nearly the tip of the shoulder. The right pupil was smaller than the left; both were symmetrical and responded to light and accommodation. The right side of the neck was moved with great reluctance, and posteriorly there was a certain amount of rigidity. The right side of the chest was less mobile than the left, and the breathing sounds over the former were diminished. The heart's action was slow and regular and the sounds of good character. The pulse was of fair quality and volume. The abdomen showed no abnormalities. No reflexes could be elicited on the right side, and sensation was absent, with the exception of variable areas of response to pin prick. The field of vision was undisturbed. The fundus showed slight congestion of the nerve; the margin was not well defined, and the vessels were slightly engorged, evidencing some pressure. The hearing was affected on both sides. On examination on June 25, one week later, the anisocoria was still more apparent, the left pupil being larger than normal and reacting promptly, while the right was smaller and sluggish. The patient was placed on a water bed for two weeks, during which time the soreness gradually cleared up and the paralysis improved. He was then permitted to sit up, supported by pillows, and to use a mattress bed. Two weeks later he was allowed to sit in a chair and ten days after that he was able to walk. He remained in the hospital a month and a half. On the first day after his discharge he had an agonizing pain on the right side of the head over an area extending from the forehead along the vertex in the median line to the occiput. This persisted for two hours, gradually increasing in severity and then diminishing slowly after the application of cold compresses. A similar attack, less severe, followed a week later. After the patient had been seated for any length of time he became stiff in the right hip, and on arising had a dull pain extending from the lower part of the spine forward into the right groin. This symptom had been noticed irregularly, averaging once a day, since he had been permitted to sit erect in a chair at the hospital. He also complained of a similar pain extending from the cervical spine to the right shoulder. There were no urinary symptoms. The bowels had moved regularly ever since the accident. Examination at the present

time showed a flaccid paralysis of the right upper extremity and a spastic paralysis of the right lower extremity. The tendon reflexes on this side were greater than those on the left, while the abdominal, epigastric, and cremasteric reflexes were absent. The latter were present on the left side. The Babinski was positive on the right side, and there was permanent clonus in the ankle. A peculiar circumstance in connection with the case was that in eliciting the triceps reflex on the right side, percussion on either the tendon or the muscle produced flexion of the forearm instead of extension. The radiograph showed a fracture of the sixth cervical vertebra.

Spinal Hematomyelia; Brown-Séquard Paralysis.—Drs. TILNEY and NICHOLS also presented this case. The patient was a boy of twenty, an electrician, who was admitted to the Kings County Hospital on November 10, 1913, with the history that just previous to admission, while climbing a tree, the branch broke, and he fell a distance of about ten feet, first striking upon his buttocks on a branch below, and then falling to the ground on his chest. He lay flat on his face, without losing consciousness, the fingers of both hands contracted spasmodically. None of the extremities could be moved voluntarily, and he felt as though a current of electricity had passed through him, leaving the body charged from the shoulders down. The right lower extremity seemed to contain a tremendous pressure, and a tingling sensation passed up the left leg, across the pelvis and down the other limb. The direction did not change. Physical examination showed an apparently healthy and well developed adult, rather nervous, with a slight tremor of the hands. The pupils were equal, and reacted naturally. The pulse was regular and of good volume. The heart sounds were normal. The respiration was chiefly abdominal, the chest moving very little. The arms could be moved, though very slowly and with great difficulty. The fingers were held in a position of partial flexion, with no power to either flex or extend them. The knee-jerk was absent on the right side; present on the left. The Babinski could not be elicited. The toes of the right foot were red; those of the other pale, and the surface temperature of the left lower extremity was diminished. There was an absence of the cremasteric reflex. There were marked sensory changes. There was tactile anesthesia in both lower extremities and in the trunk up to the second interspace. Pain sense was absent in the left leg and as far up as the third rib, but present over a corresponding area on the opposite half of the body, where it was apparently hyperacute. The temperature discrimination was entirely absent on the left side to a level a little below the clavicle, but was present on the right side, although the response to heat was not as good as to cold. There were sticking pains in the right leg, and the patient felt as though there was a strap around it and another around the shoulders, each being tightened in an opposite direction. There were fibrillary tremors on the left side. Priapism was present during the examination. Catheterization showed no evidence of hematuria. One month later the patient had slight power of flexion of the left fingers. Sensation was unchanged. The pupils reacted promptly, but were unequal. The patellar reflex on the right side was exaggerated. One week later there was an involuntary urination. Up to that time catheterization had been necessary, but from that time on the control of the bladder was normal. The lesion in this case was located in the upper cervical region. The radiographs demonstrated no fracture nor dislocation.

Spinal Hematomyelia of the Paraplegic Type.—Drs. TILNEY and NICHOLS presented this third case. The patient was a Russian tailor, 34 years old, who came to the Vanderbilt Clinic on September 16, 1914, complaining of inability to walk properly, with pain in the back when seated, swelling and coldness of the feet and lack of control of the bladder. The family, as well as his previous history, was negative. Nine months ago, in an attempt to escape from a burning building, the patient either fell or jumped from a fire escape, a distance of two stories. He was picked up in an unconscious state and removed to the Gouverneur Hospital. He remained unconscious for two hours—perhaps longer—and on recovering his senses he was unable to move either lower extremity and had retention of urine. He remained in the hospital for six weeks, with slight improvement. He was then taken to the Beth Israel Hospital, where he remained three months and where some operation was done. Following this his condition improved and he regained some power to move his legs. He was now able to walk, with some difficulty. Examination at the present time showed normal cranial nerves and normal reflexes, with the exception of those at the patella and ankle, which were exaggerated. The station was unsteady and the gait spastic. Motor power in both extremities was defective, with some atrophy of the muscles. There was a fine tremor of the hands and tongue. There was an area of anesthesia over the left gluteal region.

Dr. FREDERICK TILNEY who had seen the two cases of Dr. Nichols in the early stages, said that in both instances he had concluded that the condition was due to hemorrhage into the cord. In the second case, that showing the Brown-Sequard syndrome, the question of an operation was considered by Dr. Arthur C. Brush, who advised against it. The improvement in this case was so marked during the first three months after the injury that further delay was advised, and the patient was now able to walk, whereas when he was brought into the hospital he was completely paralyzed. In the first case, the patient with hemiplegia following a diving injury, the radiograph showed a fracture of the sixth cervical vertebra, but this was of such a character that the symptoms seemed to be due to hematomyelia rather than to a cerebral injury or a crushing of the cord. In this case an expectant plan of treatment was also followed, and the patient had improved steadily. One of the reasons why these cases were shown here to-night, Dr. Tilney said, was to get an expression of opinion from the members as to whether early operative interference was advisable in dealing with injuries of this character.

Dr. WILLIAM M. LESZYNSKY said that in cases of traumatic lesions of the cord, of which he had seen a large number in hospital practice, the question of operation usually came up for discussion, and in answering it he had been largely guided by the clinical manifestations. If either by palpation or the *x*-ray it could be shown that we were dealing with a fracture dislocation producing crushing of the cord, as evidenced by complete motor and sensory paralysis and abolition of reflexes below the lesion. an operation was inadvisable. When blood is found in the cerebrospinal fluid, the hemorrhage is usually subdural. When the cerebrospinal fluid is clear, as in hematomyelia, operation is not indicated. In many of these cases, Dr. Leszynsky said, the early residual symptoms often became permanent, their severity depending upon the amount of damage done to the cord. It was impossible to give a positive prognosis as to the ultimate outcome.

Dr. BENJAMIN ROSENBLUTH said the first case presented by Dr. Nichols he had seen at the Beth Israel Hospital; the man had been previously treated at the Gouverneur Hospital and was brought in with a complete flaccid paralysis of the lower extremities, anesthesia, loss of reflexes and localized pain over the spine. He was put in plaster, but this proved so painful that it had to be taken off. Several radiographs were taken with no definite findings. A localized injury involving the body of the vertebra and transverse process and possibly the cauda equina was suspected, and when the spinal canal was opened over the region of the cauda the nerves were found to be pushed about in all directions and there was a large collection of cerebrospinal fluid. This pressure was relieved and the man made a good recovery so far as motility was concerned, but he still had an area of anesthesia over the thighs. Dr. Rosenbluth said this was the fourth case of injury of the cauda equina that had come under his observation, and the result of the operation was the most encouraging he had seen.

Dr. J. F. TERRIBERRY, in reply to Dr. Tilney, said that in cases where one could be fairly certain that there was hemorrhage within the cord, little could be expected from operative interference. This could perhaps be determined by the *x*-ray, together with the clinical history. In the two cases shown by Drs. Tilney and Nichols the history clearly indicated a hemorrhage into the cord itself, and under those conditions no benefit could be derived from an operation. The spinal cord is a very sensitive organ as we all know, and any injury to it might be aggravated by operative interference. These cases, as a rule, did much better under proper general care, with subsequent reeducation of the lost muscular function if the residual symptoms demanded it. The fact should be borne in mind that this loss of function was sometimes attributable to a stiffening of the joints of the hands and fingers, and it was only with care and perseverance that one could get the most out of these cases.

A Case for Diagnosis.—Drs. A. Skversky and Smith Ely Jelliffe reported a case of a child, seven and a half years old, of normal birth, who sat, talked, and walked at the proper ages, and appeared to develop normally. She had measles at the age of three years, with an uneventful recovery. Six months later she was said to have had a high fever one night, but no residuals followed. Five weeks after this, without any premonitory symptoms and without convulsions, she had a sudden loss of power on the left side of the body involving both extremities and the face, without speech disorder. Two weeks later, according to the mother's description, she had epileptiform seizures, apparently Jacksonian, for they began in the left lower extremity, ascending, involving the upper extremity and face, and terminating in a generalized convulsion. This occurred only once, and following this her hemiplegia was said to have cleared and she was perfectly well for three months, when she began to have irregular involuntary movements of the extremities on the left side, accompanied by some difficulty in walking. This had been becoming slowly but progressively worse. For the past year she had headaches at irregular intervals, but excruciating, and lately they had become more continuous and dull, usually localized in the right frontal region. She had also complained somewhat of dizziness. There was occasional nausea, but no history of vomiting. There has been no difficulty with vision or hearing. The mother claimed that the child's speech had always been somewhat drawling and monotonous. She was rather bright, but had received no schooling and became emotional by slight stimulation. For the past month she had had some difficulty with bladder control, with occasional incontinence of urine. When the patient was brought to the Post-Graduate Hospital, about a month ago, her chief complaint was difficulty in walking. Examination showed a well developed and nourished child. Her mental level, according to the Binet-Simon rule, was only a little less than a year below her age, and she was therefore not feeble-minded. There was marked ataxia, with mild left hemiparesis. The more important positive neurological findings were as follows: The head was usually inclined towards the right, and the face tilted towards the left. Vision was normal, but the fundi presented double optic neuritis, more marked on the right side. At rest, there was slight ptosis on the right side, and also weakness of the right internal rectus. No nystagmus. The reactions were fairly normal. The fifth nerve was intact: there was slight facial palsy on the left side when crying. Hearing was normal. The speech was drawling in character: swallowing normal. The left upper extremity showed no atrophy nor hypertrophy, but marked hypotonicity and slightly decreased muscular power. The reflexes were present. There was marked incoordination, often resembling a very coarse intention tremor. There was marked adiadochocinesia: The stereognostic sense was intact: there was some dissociation of motion and position and also temperature sense; there was general hyperesthesia, apparently emotional, with contradictory replies and lack of proper cooperation. The right upper extremity showed a slight incoordination on volition. The abdominal and epigastric reflexes were present, with marked asynergia of the trunk. The left lower extremity presented a similar picture to the upper, but more pronounced. There was hypotonicity and decreased muscular power. The patellar and Achilles reflexes were present, but not exaggerated: no Babinski nor other extensor responses. On a few occasions, a double exhaustible ankle clonus was obtained. There was marked impairment of synergistic sense, as well as definite ataxia, not increased on closure of the eyes. The superficial reflexes and sensory symptoms were similar to those in the upper extremity, occasionally dissociated, but contradictory. The authors stated it was evident from the symptomatology present in this case that one of the factors they were dealing with was that of increased intracranial pressure, as shown by double optic neuritis, headache and vertigo, and, more recently, somnolence. Syphilis was ruled out by negative blood and spinal fluid examinations and by the family history. There then remained the possibility of neoplasm, cysts or internal hydrocephalus. If we assumed that we were dealing with a neoplasm, which was quite likely, because the process had been a slowly progressive one, the localization in this case became a rather difficult and uncertain one. There was a good deal of evidence suggestive of chronic cerebellar disease, as shown by the vertigo, the markedly ataxic gait, asynergia on voluntary movement, and mild hemiparesis, together with a definite adiadochocinesia and unaltered plantar and inconstant deep reflexes. There was, however, no nystagmus. As to cerebellopontine angle involvement, there was of course a mild facial palsy, but no disturbance of hearing, and it seemed rather unlikely that an extracerebellar lesion in this region, which was usually of auditory nerve origin, should not produce some disturbance of hearing. In view of the very early appearance of Jacksonian convulsions—two weeks following the initial hemiplegia—it was difficult to rule out a motor cortex disturbance, and with the few definite localizing signs, it was suggestive of a supratentorial process, probably subcortical. It was therefore quite likely that a progressive lesion in the post-frontal region would cause contiguous pressure phenomena, and in addition interfere with the fronto-cerebellar tracts, giving the signs simulating cerebellar disease. The optic neuritis, generally late in onset, would fit in here. The convulsions might be explained by a lesion in the vermis, which usually gave rise to so-called cerebellar fits, and therefore completed the picture of a distinct cerebellar affair. Similarly, the post-parietal area so intimately associated with cerebellar functions might easily account for nearby pressure signs, but the usual sensory disturbances were lacking: also the stereognostic and visual functions were intact. The child had often displayed choreoathetoid movements on the affected side, increased on exertion: this, with her increased emotional reaction to external stimuli would suggest a thalamic lesion, but the sensory symptoms, especially the subjective paroxysmal pains, heat and cold, and the hemianesthesia were absent. If only the posterior end of the thalamis be involved, superior cerebellar peduncle disturbance would answer well. As to the nature of the lesion, if we realized that the disease was probably of three and a half years duration in a child seven and a half years old, it was difficult to ascribe it to the characteristic ones, namely, sarcoma, glioma, tuberculosis, cyst, etc. The optic neuritis was apparently of recent onset, because the vision was fairly intact. Tuberculoma was rendered improbable by the absence of signs elsewhere, while sarcoma or glioma should have done more damage by this time unless there be a recession, with cyst formation. Internal hydrocephalus could be fairly ruled out by the absence of sufficient mental impairment, lack of motor tract disturbance and gross appearance of the head. The most likely lesion would be the relatively benign endothelioma.

Dr. Leszynsky said the history of the case seemed to indicate an encephalitic process to begin with. What the condition was now he did not know, but the symptoms pointed to a cerebellar lesion.

Dr. Tilney said that from the confusing symptoms, it was difficult to decide upon any particular localization. Still, the ataxia pointed quite definitely to a cerebellar lesion, and as we knew that that part of the brain is so frequently affected in children, he would be inclined to ascribe the symptoms to a lesion involving the dentate nucleus on the left side.

Dr. S. P. Goodhart said that in the absence of nystagmus, he was inclined to accept the assumption of Dr. Tilney, and he thought that a post-frontal right-sided lesion could be positively ruled out. In a hypophysial tumor it was not uncommon to find the field of vision unaffected.

Dr. Rosenbluth, who had previously seen this patient at the Beth Israel Hospital, said that while the history he obtained from the mother at that time was not very clear, it pointed to a meningitis in infancy, and the convulsions seemed to be post-encephalitic, apparently of the motor cortex type. The eyes at that time gave negative findings. He regarded the case as one of left cerebral hemiplegia, with post-frontal sensory disturbances.

Dr. Terriberry thought the symptoms pointed to a preceding inflammatory process, and gradually progressing from an irritative into a compressive condition. The symptoms seemed to indicate that the trouble, at present, was confined to the sensory apparatus. It was impossible to trace these symptoms to a small focus. We probably had to deal here with what was at first a rather widely distributed irritation which had now become restricted to a basal situation fairly well forward. He was not inclined to believe that we had to deal with a neoplasm. Possibly there was an internal hydrocephalus as a part of the picture.

Dr. Leszynsky thought the authors had scarcely been justified in ruling out an internal hydrocephalus, while a subtentorial process, which they favored, would

probably have given rise to more pronounced papillitis. In all probability, the speaker said, the child had an encephalitic process which produced the original symptoms; namely, the convulsions and subsequent paralysis.

Dr. M. NEUSTAEDTER thought the vague history of fever obtained in this case could practically be disregarded. It rested simply on a statement made by the child's mother and probably had no bearing on the case.

Specific Lesion Involving the Thalamus.—Dr. SMITH ELY JELLIFFE reported the case of a married woman, 32 years old, the mother of three children, aged respectively, nine, seven, and two and a half years. The patient's history dated back to March, 1913, when she began to suffer from pain on the left side of the body and the left arm and hand, with numbness, and pain in the neck on the same side. These pains were rather severe, and of a sharp, shooting character, and have been more or less constant from that time on. Following this, there was a slowly progressive numbness and tingling, with a sense of insecurity on the left side of the body and face, and she noticed that she began to drop objects that she held in her left hand. There was also a slight irregular tremor of the left hand when she began to use it. Examination showed a definite impairment of epicritic sensibility in the hands and feet and a loss of stereognostic sense. The reflexes were increased on both sides, but not more marked on one side than the other. There was no Babinski; no ankle clonus. There was a definite loss of ability to pronate and supinate on the left side, without impairment of muscular power (adiadochocinesia). There was no interlacing of the color fields, but the eye charts indicated the onset of a gradual bitemporal field contraction for all colors, premonitory to a bitemporal hemianopsia. The Wassermann was originally negative, but under a provocative neosalvarsan injection it became double plus; subsequently it again was negative. The *x*-ray showed no changes in the sella turcica. The patient complained of a crackling noise in the left ear. During the earlier stage of this patient's illness, Dr. Jelliffe said, there had been a great deal of emotional hyperactivity, with asthenia, which had led to a previous diagnosis of hysteria.

Dr. LOUIS CASAMAJOR said the sensory and motor symptoms in this case led him to think of a thalamic lesion. He could recall instances where for a long time such a lesion gave rise to symptoms which were regarded as functional before its organic character was recognized. This assumption of a thalamic lesion, however, was not in accord with a bitemporal hemianopsia, as it was difficult to conceive how a single lesion could reach from the posterior part of the chiasm upwards and not involve the pyramidal tracts.

Dr. TERRIBERRY said the eye chart shown by Dr. Jelliffe did not indicate a bitemporal hemianopsia: it only showed a concentric contraction of the visual fields. The symptoms in this case reminded him of one that recently came under his observation in which he made a diagnosis of hysteria which subsequent events proved to be correct.

Dr. TILNEY said that with the bitemporal hemianopsia eliminated, he thought the symptoms pointed to a thalamic lesion.

Dr. WALTER TIMME thought the symptoms indicated a thalamic lesion. It had lately been reported that the subthalamic lesions had some effect on bladder control, and this fact would suffice to indicate that the lesion producing the syndrome shown by the patient was located in the hypothalamus.

Dr. ROSENBLUTH suggested a multiple sclerosis with unusual symptoms, most likely a luetic process. In such a case we might have to deal with a thalamic lesion, as cases he had seen with multiple sclerosis symptoms with sudden onset had shown thalamic lesions postmortem.

Dr. GOODHART thought the indications were in favor of a vascular lesion of specific origin.

Dr. JELLIFFE said the suggestion made by Dr. Rosenbluth was interesting in view of the fact that the Wassermann test was positive in some cases of multiple sclerosis. Personally, he had no doubt that we were dealing here with an organic lesion. These thalamic cases were not infrequently looked upon as functional because of the fact that the symptoms were purely sensory. We had here a beginning thalamic syndrome which was practically never found in hysterical states. This patient further had a sinus disturbance on the right side which rhinologists diagnosed as specific or tuberculous.

New Clinical Instruments for Measuring Muscle Strength and Tendon Reflex Threshold.—Dr. FREDERICK TILNEY of Brooklyn read a paper on this subject, with lantern-slide illustrations, and showed two new clinical instruments of precision for measuring muscle strength and tendon reflex threshold.

Dr. LOUIS CASAMAJOR said that these instruments of precision devised by Dr. Tilney were a step in the direction of placing neurology on a more exact scientific plane. The dynamometer he had found of extreme value in testing the strength of certain groups of muscles, particularly in cases of anterior poliomyelitis and in watching the return of the muscles function in traumatic brachial palsy. With this instrument we could detect the earliest return of function and could base our prognosis upon exact scientific measurement rather than upon pure guesswork. He had also found it of value in drop foot and other conditions, and it had made a strong impression upon him as being something more accurate than any instrument of the kind that we had had before.

Dr. TIMME said the stereopticon pictures of the tendon reflexes shown by Dr. Tilney were an excellent illustration of the accuracy of this instrument, as compared with the older methods. Instead of adding to the history of a case that the "reflex was still deficient" or an equally unsatisfactory expression, we had here an instrument which gave us in exact terms the amount of improvement or otherwise that had taken place.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

AT a stated meeting held December 10 Drs. ALLEN J. SMITH and ROBERT A. KEILTY demonstrated a specimen of "Chorionepithelioma: Diagnosis from Uterine Scrapings, with Confirmation at Operation." The patient was a woman supposed to be pregnant and in whom uterine hemorrhage led to curettage. From examination of the scrapings a diagnosis of hydatidiform mole was made. With the recurrence of hemorrhage hysterotomy was performed, with the removal of more tissue, which histological examination now demonstrated to be of the nature of chorionepithelioma. Further bleeding taking place, the uterus and appendages were removed, and the presence of the actual growth established.

Drs. D. RIVAS and BALDWIN LUCKE demonstrated "Eggs of Hookworm and Fascilopsis Buski." The specimens came from Hindus, whose stools were examined because they came from Calcutta, and in one ova of Necator Americanus were found, and in another ova of the Fasciolopsis in addition. Apart from eosinophilia, more marked in the case of double infestation, there were no clinical symptoms of the presence of the parasites.

Dr. D. J. MCCARTHY demonstrated "A Tumor of the Cerebellum." The specimen came from a tuberculous subject and the new growth was apparently encapsulated and readily isolable, suggesting its surgical removability, but histological examination showed round-cell infiltration of adjacent tissue. Giant-cells were absent, but tubercle bacilli were present.

Dr. ROBERT N. WILLSON demonstrated a fetus of five or six weeks' development, showing the heart and the blood-vessels and sex-differentiation.

Dr. WILLSON also presented a number of specimens showing intensely calcareous brachial, radial, and ulnar arteries from a man fifty-four years old.

Drs. ROBERT A. KEILTY and ALLEN J. SMITH presented a communication entitled "Intestinal Stasis, Bands and Kinks and Membranes from a Study of One Hundred Autopsies," illustrated by lantern slides. He divided these formations into congenital or embryological, inflammatory, and developmental-hypertrophic, and he showed how they operated under different conditions.

Drs. JOHN A. KOZMER and A. STRICKLER presented a communication entitled "Complement-fixation in Parasitic Skin-diseases." They presented the results of studies with ringworm of the scalp and favus. They obtained complement-fixation reactions in 78 per cent. of the cases, and while they found that both forms of disease reacted similarly, they were unable to obtain similar reactions in the presence of other varieties of disease of the skin and in cases of syphilis. Dr. Strickler related a number of successful therapeutic applications of vaccines in the treatment of ringworm and favus.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

LEHRBUCH DER INFEKTIONSKRANKHEITEN. By Dr. G. JOCHMANN. Paper; illustrated; 1015 pages; price M. 30. Published by Verlag von Julius Springer.

PROGRESSIVE MEDICINE. By HOBART AMORY HARE, M.D., and LEIGHTON F. APPLEMAN, M.D. Vol. XVI, No. 64. Paper; illustrated; 413 pages. Published by Lea & Febiger.

ATEMKUREN MIT 574 REZEPTEN. By Dr. HENRY HUGHES. Paper; 141 pages; price M. 3. Published by Curt Kabitzsch.

ACUTE GENERAL MILIARY TUBERCULOSIS. By Dr. G. CORNET. Cloth; 107 pages; price $1.50. Published by Paul B. Hoeber.

MECHANOTHERAPEUTICS IN GENERAL PRACTICE. By Dr. G. DE SWIETOCHOWSKI. Cloth; illustrated; 141 pages; price $1.50. Published by Paul B. Hoeber.

KLINIK FÜR PSYCHISCHE UND NERVÖSE KRANKHEITEN By ROBERT SOMMER, M.D. Paper; 192 pages; price 3 M. Published by Carl Marhold Verlagsbuchhandlung.

BELLEVUE AND ALLIED HOSPITALS, CITY OF NEW YORK. Twelfth Annual Report. Paper; illustrated; 165 pages.

DER STOFFWECHSEL BEI EXSUDATIVER DIATHESE. By Dr. ALBERT NIEMANN. Cloth; 56 pages; price M. 2. Published by A. Marcus and E. Webers Verlag.

DIE NEUEREN ARZNEIMITTEL. By SKUTETSKY and STARKENSTEIN. Cloth; 475 pages; price 12 M. Published by Julius Springer.

PRÉCIS DE CHIRURGIE DE GUERRE. By EDMOND DELORME. Cloth; 218 pages. Published by Masson & Co.

THE HEART IN EARLY LIFE. By G. A. SUTHERLAND, M.D. Cloth; 207 pages; price $2.00 net. Published by the Oxford University Press.

DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. STITT, M.D. Cloth; illustrated; 421 pages; price $2.00 net. Published by P. Blakiston's Son & Co.

ANIMAL EXPERIMENTATION AND MEDICAL PROGRESS. By W. W. KEEN, M.D. Cloth; 312 pages; price $1.75 net. Published by Houghton Mifflin Co.

AIR, WATER, AND FOOD. By A. G. WOODMAN and JOHN D. NORTON, M.D. Fourth Edition. Cloth; illustrated; 248 pages; price $2.00 net. Published by John Wiley & Sons.

WITH SABER AND SCALPEL. By JOHN ALLEN WYETH, M.D. Cloth; 545 pages; price $3.00 net. Published by Harper & Bros.

THE BACKWARD BABY. By H. B. SHEFFIELD. Cloth; illustrated; 184 pages; price $2.00 net. Published by Rebman Co.

THE SALVARSAN TREATMENT OF SYPHILIS IN PRIVATE PRACTICE. By G. S. TAYLOR and R. W. MCKENNA, M.D. Cloth; 90 pages; price $1.50. Published by Rebman Company.

THE POCKET FORMULARY. By L. FREYBERGER. Leather; 260 pages. Published by the Rebman Company.

DIE VEGETÄRISCHE UND FLEISCHARME ERNÄHRUNG. By Dr. H. DETERMANN. Paper; 73 pages. Published by Carl Marhold.

MORRIS' HUMAN ANATOMY. By C. M. JACKSON, M.D. Fifth Edition. Cloth; illustrated; 1539 pages; price $6.00 net. Published by P. Blakiston's Son & Co.

ANATOMY OF THE HUMAN SKELETON. By J. ERNEST FRAZER, M.D. Cloth; illustrated; 274 pages; price $6.50 net. Published by P. Blakiston's Son & Co.

A TEXTBOOK FOR MIDWIVES. By JOHN S. FAIRBAIRN. Cloth; illustrated; 317 pages; $3.75 net. Published by the Oxford University.

DIE SYMPATHISCHE OPHTHALMIE. By Dr. A. JESS. Paper; 33 pages. Published by Carl Marhold.

CHILD TRAINING AS AN EXACT SCIENCE. By GEORGE W. JACOBY, M.D. Cloth; illustrated; 384 pages; $1.50 net. Published by Funk & Wagnalls Co.

FIRST NATIONAL CONFERENCE ON RACE BETTERMENT. Paper; illustrated; 625 pages. Published by the Gage Printing Co.

THE SO-SO STORIES. Cloth; illustrated; 104 pages. Published by Reed & Carnrick.

FEAR AND CONVENTIONALITY. By ELSIE CLEWS PARSONS. Cloth; 234 pages; price $1.50 net. Published by G. P. Putnam's Sons.

Therapeutic Hints.

Treatment of Tuberculosis of the Larynx.—H. Lambert Lack states that the first aim is to improve the general condition of the patient. Tuberculin injections and local treatment may be carried out simultaneously. Strict silence should be enforced, the patient being instructed to write rather than speak, and all useless cough should be prevented. The local treatment varies according to the lesions. Tuberculous tumors should be removed with cutting forceps or curette, or destroyed by cauterizing or caustics under local anesthesia. If it is impossible to deal with them in this way the patient may be anesthetized and the growths removed, preferably with the cautery, by the aid of suspension laryngoscopy. A superficial ulcer of the vocal cord may be treated in a similar way. If there are fleshy granulations they should be lightly curetted, and then the base of the ulcer thoroughly rubbed with chromic acid or nitrate of silver fused on a probe. In milder cases, or as a subsequent application to an ulcer which is slow in healing, lactic acid may be applied. It is best to apply the undiluted acid under local anesthesia. Fleshy granulations on the vocal cords should also be curetted or picked off with cutting forceps and subsequently cauterized or caustics may be applied. When there is edematous infiltration of the arytenoids and epiglottis without ulceration great care must be exercised. If the disease in the lungs is early or seems arrested and the patient's general condition is good, the larynx should be cauterized under local anesthesia. Three or four deep punctures may be made with the sharp point of a galvanocautery at intervals of not less than ten or fourteen days. Similar treatment may be carried out when there is ulceration of the arytenoids or of the epiglottis, if all other circumstances are favorable. Caustics must never be indiscriminately applied. If the patient's resisting power is not good they merely cause rapid spread of the ulceration, weakened infiltrated tissues breaking down without any tendency to heal. If the epiglottis is edematous and ulcerated and is apparently the only part affected it should be removed under cocaine with the punch forceps. In advanced cases in which the disease involves the arytenoids and epiglottis palliative measures must be directed against the dysphagia and the pain. Ulceration or edema of the epiglottis should be relieved.—*Clinical Journal.*

Insomnia and Indigestion.—T. J. Kelly finds that in the large group of cases of insomnia caused by dyspepsia, relief may be effected by stimulating the gastric functions by the use of a non-fluid diet and by giving before each meal a simple bitter alkaline mixture as:

℞ Sodium bicarbonate, gr. xx.
Tincture of nux vomica, mx.
Tincture of ginger, mxx.
Compound infusion of gentian, ad ℥j.

In the sthenic type of indigestion, in which the hyperacidity is the chief disturbing factor, a sedative mixture should be given before each meal:

℞ Tincture of belladonna,
Tincture of ōpium, āā mx.
Solution of suprarenal extract, mx.
Spirit of peppermint, ad ℥j.

This is to be taken in two tablespoonfuls of water a quarter of an hour before meals.—*Dublin Journal of Medical Science.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 3.
Whole No. 2306.

New York, January 16, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

SCIENTIFIC KNOWLEDGE LOGICALLY APPLIED TO ACUTE GONORRHEA IN THE MALE URETHRA.*

BY G. S. PETERKIN, M.D., F.A.C.S.,
SEATTLE, WASHINGTON.

SCIENCE is defined as knowledge, the result of observation, experimentation, and reasoning. Scientific knowledge logically applied signifies employment of theories of action in so far as they will produce practical results. In the vernacular of the laity, it is the application of common sense to the object undertaken. The first principle in the employment of common sense is the development of the ability to see things as they are and tell of them as they appear, not as one would like to have them. The medical profession would like to have a panacea in the form of a drug or specific treatment for gonorrhea, *but there is none*, and what is more to the point, the treatment of the disease will be more successful if the idea of a panacea is given up and the disease in each case studied, then treated.

The things we have to observe, experiment with and reason on in the subject under discussion may be placed under four headings: (1) the gonococcus, (2) the male urethra, (3) the host or individual, (4) the various therapeutic agents. The next step is to classify under these headings the results of scientific research in the form of facts essential to our main subject so that there can be no question that the final deductions are correct. Logic demands this, yet the writer realizes the danger of making the introduction appear trite and the article a rehash. So to obviate this and save time, the essential facts regarding the gonococcus, the urethra, the host, and the various therapeutic agents are tabulated and placed at the end of the article to be used as reference or read in detail, according to the reader's understanding of the arguments as presented.

Summed up, the essential facts tabulated give us the following premises: (a) Gonorrhea is an inflammation. (b) The causes of inflammation are bacterial (here, the gonococcus), traumatic, chemical, and nervous. (c) The results of the causes of inflammation to the host are heat, pain, redness, and swelling of the area attacked (the urethra). (d) The inflammation occurs in an area the anatomical character and physiological function of which must be recognized in treating the disease. (e) The host overcomes bacterial infection, effects of traumatism, etc., by leucocytosis, chemotaxis, and the lysins of the serum. (f) Leucocytosis, chemotaxis, and the lysins are dependent for their efficiency upon the reduction of the congestion and increased activity of the circulation in the area affected. (g) The mandates of the laws of nature brook no sentimental interference but demand assistance in attaining their object. So, in substance, the general principle of action that must govern all therapeutic measures is to obtain scientific knowledge, through reasoning impersonally and without sentiment on the essential facts; then to employ same to aid and not to oppose the natural laws, physiological and pathological, which control or eradicate this disease.

Therapeutic Measures.—Treatment of gonorrhea to be successful, must have for its fundamental object the relief of congestion in the area affected. This necessarily includes the stimulation of circulation, the destruction of the invading bacteria, etc. This being true, all causes and conditions tending to increase congestion or retard free circulation in the part invaded must be clearly enumerated, so as to obtain through logical reasoning a means of systematically avoiding or overcoming same. Briefly, these causes and conditions may be summed up in the one word, *irritation*, which may be either mechanical (including traumatic and nervous), chemical, or bacterial.

Mechanical Irritation.—The essential facts concerning mechanical irritation, and from which deductions as to the most successful method of treatment must be made for the relief of the peculiar inflammation known as gonorrhea, are as follows: (1) The law of gravity, acting upon the circulation when patient is in a standing position, increases congestion in the pelvic organs. Remedy: Absolute rest in bed in the reclining position, or better still, a modified Trendelenburg. (2) Exposure to sudden variations in temperature tends to increase congestion, especially of mucous membranes. Remedy: Maintenance of equal temperature in rooms occupied by patient. (3) Constipation, through direct pressure of compact feces upon the prostate, seminal vesicles, and upon the pelvic veins of other organs, retards circulation and causes congestion. Remedy: Maintenance of activity of the bowels, one or two semi-solid movements a day being necessary. This is accomplished (a) through eating regularly and in amount proportionate to the physiological inactivity engendered by rest in bed; (b) through choice of foods, as follows:

Fish:	All kinds boiled.
Farinaceous:	Brown, graham, oatmeal, whole wheat bread.
Vegetables:	Most kinds well boiled, as spinach, onions, brussels sprouts, cauliflower.
Desserts:	No sweets or pastries; figs, prunes, apples, baked apples, blackberries, cherries, plums.
Fruits:	Best taken before meals and between meals.
Beverages:	Plenty of water, at least eight to ten glasses daily; stimulants, none.
Forbidden:	Rich gravies, strong condiments, fried foods, hard boiled eggs, bananas, new bread, sweet pastries, alcoholic stimulants, rhubarb, tomatoes and asparagus.

*Read before the King County Medical Society, Seattle, October 19, 1914.

(c) through drugs, as magnesium sulphate, 1 or 2 drams night and morning, or other salines whose physiological action also helps to relieve congestion, aided by enemas when necessary. (4) Motion of inflamed area, either active or passive, causes con-

Fig. 1.—*a*, Mucous membrane, normal. *b*, mucous membrane, infiltrated. (After Motz.)

gestion. Active motion consists of (a) tenesmus through sudden constriction of the already overdistended blood vessels and pressure of the inflamed and swollen mucous membranes against one another; (b) erections. Erections increase congestion, and cause traumatism by stretching the swollen and inflamed folds of the mucous membrane of the urethra, which have lost their elasticity, (Fig. 1), therefore crack, thus producing fissures which permit the gonococcus to penetrate into deeper tissues. Remedy: Rest, secured (a) by preventing tenesmus through various means used to render the urine bland and mild (see chemical irritation, below); (b) by preventing erections through (1) inhibiting the use of alcoholic stimulants, especially beer, which cause erections through irritation of the urethral mucous membranes which reflexly excites the sexual centers, and through direct stimulation of the centers themselves; (2) prevention of overheating of the body, which causes reflex stimulation of the sexual centers and may be prevented by the use of a hard mattress, light bed coverings and by tying a towel around the waist knotted in the back so as to prevent sleeping on same; (3) through sleeping alone, to prevent excessive heat and sexual excitement; (4) avoiding sexual intercourse, even kissing, loving, and all scenes, exhibitions, literature, conversation, and company that will cause sexual excitement; (5) voiding the urine during the night at intervals of four hours, or more frequently if necessary, in order that pressure from an overdistended bladder may not cause erection; (6) if above treatment does not prevent erections, relieve same by gently massaging the seminal vesicles when the bladder is well distended, urinating immediately afterwards. By thus emptying these vessels, the reflex stimulation of the sexual centers due to the overdistention caused by lack of sexual intercourse will be relieved. Especially is this indicated in patients accustomed to regular sexual intercourse. Passive motion: Stripping of the penis by patient. This act is caused by patient's nervousness and anxiety to see rate of progress. It brings the inflamed and swollen membranes together, causing abrasions of the mucous membrane and the attendant evils. Remedy: Absolute prohibition of the act, instruction of the patient as to its harmful effect, and relief of discharge through local treatment to be spoken of later.

Chemical Irritation. The causes of chemical irritation are general and local. The general causes are: (1) Toxins produced (a) by constipation and other abnormal gastrointestinal conditions, which reduce the resisting power of the host and throw added work upon the kidneys and urinary tract. Remedy: Relief of gastrointestinal condition, especially constipation, as directed under Mechanical irritation (3). (2) Low vitality of the patient, due to various causes, as anemia, etc. Remedy: Relief of anemia, increasing the general circulatory activity, etc. (3) Improper diet causes by-products, irritating salts, etc., in the urine which irritate the inflamed mucous membranes. Remedies: (1) Hygienic: Care in diet, which preferably should be fluid for the first week, or light in character; tea and coffee may be used once daily, also lemonade, but all effervescent waters containing an excess of minerals, also alcoholic stimulants, are absolutely forbidden. (See also Mechanical irritation, 3); (2) Therapeutic: Internal medication, preferably sandalwood oil. So as to prevent any irritation of the gastrointestinal tract, this oil should be pure East Indian made freshly into capsules (5 grains or 0.30 gram), which should be as clear as water. These should be taken two every two hours for eight doses to cause saturation, then one every four hours or four in twenty-four hours. This drug renders the urine bland and mild and excludes irritation and congestion caused by acid urine, as well as obtaining rest by preventing tenesmus, frequency of urination, etc. Substitutes: Fluid extract of zea, two teaspoonfuls every two hours, or sodium bicarbonate, a teaspoonful every four hours. Local causes of chemical irritation will be treated under bacterial irritation, the two being so closely allied as to be inseparable.

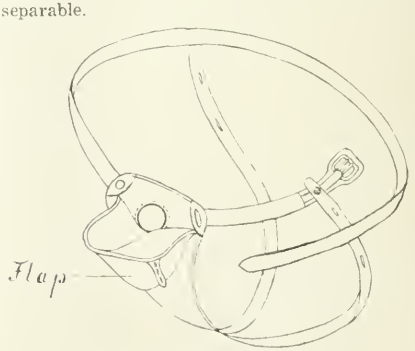


Fig. 2.—Teufel's suspensory.

Bacterial Irritation.—This is both mechanical and chemical. Mechanical bacterial irritation is caused by the activity of the invading organism and the results of their presence, as pus, increased mucous discharge, etc.; chemical bacteria irritation is

caused by toxins and other by-products which are the result of the activity of the organisms and the destruction of the epithelial cells, leucocytes, etc. Both causes retard circulation and increase congestion. Referring to the essential facts enumerated

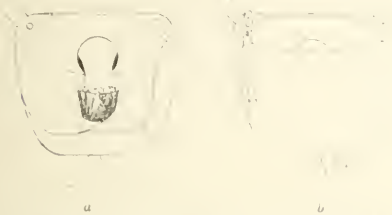


Fig. 3.—Suspensory in place: *a*, with dressing, cotton and rubber dam, on organ; *b*, flap closed holding dressing in place.

under the general headings "Gonococcus" and "Urethra," we note, since the urethra is lined with epithelial cells and the temperature of the human body is that essential to the reproduction of the gonococcus, that this tract is the best incubation tube for this germ known to medicine. It is but a natural conclusion, therefore, that whatever method will render the urethra a less efficient incubation tube will at the same time lessen the bacterial irritation and hasten cure. *Since the gonococcus duplicates itself every ten minutes*, it naturally follows that this rate of increase can only be compensated for, if we aim to destroy the gonococci, by the frequency with which we cleanse the urethra. This fact also shows the absolute fallacy of all methods of treatment which advocate the cleansing or medicating of the urethra three or four times daily and then permitting the patient to rest eight or nine hours at night without cleansing the canal of the discharge. Such prolonged period of freedom from treatment permits a greater increase in the number of gonococci through their reduplication during the night than can possibly be compensated for by their destruction through three or four treatments administered during the waking hours.

Remedy for Bacterial Irritation.—This is purely local in character, and can be placed under four headings: (1) Sitz baths. (2) Local application of heat. (3) Drainage. (4) Cleansing of urethra. (1) Sitz baths, two or three times daily; temperature 106° F. (41° C.) to 120° F. (50° C.); duration, three to ten minutes. The best method is to begin with a temperature of 100° F. (38° C.) and rapidly increase the temperature of the water until the maximum is reached. Protection from cerebral anemia should be given by means of cold compresses about the head or neck. The slightest chilling following the bath should be avoided (See Mechanical Irritation, 2), else the efficiency of the treatment is nullified. This may be prevented by giving the bath in a room of temperature equal to that of the bedroom, drying the patient with a coarse towel, and providing warm slippers and bath robe to be donned immediately. The bed should be warmed with hot water bottles before patient returns to same. (2) The patient should soak the whole penis in water as hot as can be borne every two hours, using for this purpose a bottle or bowl. Where foreskin is present, same should be retracted and thoroughly cleansed. (3) Drainage of the urethra. Poor drainage causes congestion and reinfection. Remedy: (a) If patient is circumcised, the meatus and part of the head should be constantly protected with a moist dressing of saturated solution of boracic acid, which should be held in place by a suspensory made as indicated in Figs. 2 and 3. Care should be taken that the suspensory does not cause constriction by fitting too tightly at the opening through which penis is inserted. As a substitute for the suspensory a bandage may be lightly applied and held in place by an elastic band, but not so tightly as to retard circulation. In either case, dressings should be changed according to the amount of discharge—at least every two hours or more frequently during the early stages. This dressing serves three purposes: First, it aids the escape of the discharge by preventing agglutination of the meatus by the mucus, which, because of gravity, collects, and being exposed to the air, dries, and so seals the discharge in the urethra; second, the antiseptic used destroys the activity of the gonococci in the discharge on the cotton and prevents reinoculation; third, it prevents infection from extraneous microorganisms which would otherwise collect about and enter the meatus if it were not protected. As mixed infection is one of the principal causes of the prolongation of an attack of gonorrhea, this dressing is one of the simplest means of hastening cure. (b) If the meatus is exceptionally small, the same should be opened, but not to such an extent as to vitiate its physiological function (See Urethra, e). (4) Cleansing of the anterior urethra. Remember the gonococcus lives at a temperature of 98.6° F. (37° C.) and is incapacitated or dies at a greater temperature, so the patient should use boracic acid solution or plain water, as hot as can be borne (to 120° F. (50° C.) if possible), every two hours dur-

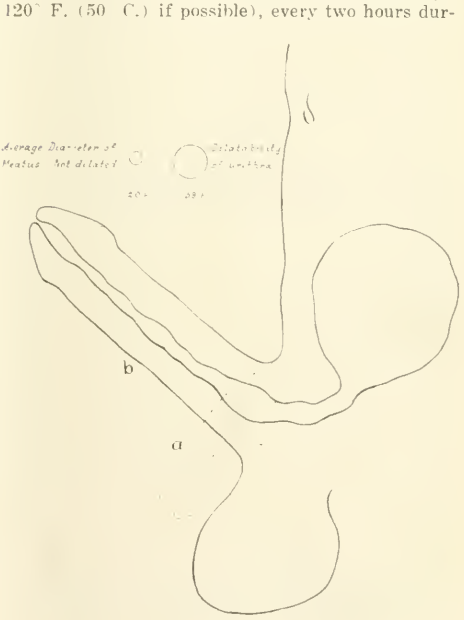


Fig. 4.

ing the day after soaking penis, and every three or four hours during night, patient having orderly or nurse awaken him, or should be awakened by an alarm clock.

Technique of Cleansing Urethra.—The urethra is

a collapsible canal, shaped irregularly (Fif. 4). When at rest the mucous membrane lies in folds (Fig. 5), which affords hiding places for millions of microorganisms. Correct medication of the urethra necessitates the cleansing of the entire mucous mem-

Fig. 5.—(After Motz.)

brane, which can be done only by distending the canal to its full capacity so as to obliterate every fold. The average capacity of the urethra is 15 c.c. (½ ounce); therefore a syringe of 30 c.c. (1 ounce) capacity should be used if all the folds are to be obliterated. Acute inflammation of the urethra causes swelling of the mucous membrane and loss of elasticity (See Essential facts, c) (Fig. 1); so sudden or forcible distention of the same would cause laceration, permitting deeper infection. Therefore, a bulb syringe (Fig. 6, a), the force of which can be regulated by the operator, should be used, not a piston syringe (Fig. 6, b). The care of this syringe is the same as that advocated for glass nozzles (See technique of irrigation, which follows).

A knowledge of the biological characteristics of the gonococcus teaches us that it invades the mucous membrane by penetrating between the epithelial cells. The epithelial cells of the urethra extend from the meatus to the bladder (See Urethra, d). Taking into consideration the infinitesimal size of the gonococcus (See Gonococcus, b) and its characteristic of penetrating between the epithelial cells, it is impossible for the compressor urethræ muscle (Fig. 7, 1) to contract sufficiently to prevent the onward march of the microorganism into the posterior urethra without crushing the epithelial cells, which it does not do. For this reason and the probable invasion of the gonococcus into the posterior urethra, hydrostatic irrigation which permits the irrigating fluid to enter the bladder and thus cleanse the posterior urethra, should be substituted, when the infection extends beyond the sphincter. The patient should irrigate himself, but not until detailed instructions have been given by a physician and proficiency attained through the physician's demonstrating the correct method of irrigation and the psychological character of the act—otherwise traumatism may be caused, which would defeat in part the purpose of irrigation.

Method of Irrigation.—The fluid will enter the bladder if the patient will remember the psychology of the act: *That he can urinate when he desires and that he can retain the urine as long as he wishes.* This demonstrates the fact that the compressor urethræ muscle (Fig. 7, 1) which controls urination is under the control of the will. Therefore, if patient wishes the fluid to enter the bladder, he must relax this muscle, which can be accomplished by thinking he is going to urinate and thus assuming the mental attitude that causes total relaxation of all muscles. In irrigation, no great hydrostatic force should be used, as force suddenly distending the urethra and impinging against this muscle will cause it to contract involuntarily and the resulting spasm will prevent relaxation. Naturally, full control of this muscle is not immediately secured. The desired control, however, is often easily attained by irrigating only the anterior urethra a number of times before attempting irrigation of the posterior.

Technique of Irrigation.—Apparatus needed: Two quart douche bag, glass nozzles, towel, basin. To prevent complications arising from infection from pyogenic microbes and reinfection by the gonococcus, etc., the glass nozzles should be made sterile by washing out with scalding water and keeping same in a 1:500 bichloride solution. Care should be taken that the nozzles are thoroughly free from the bichloride by washing with hot water before using, so avoiding chemical irritation that would aid rather than resist the bacteria in their attack upon the mucous membrane. The douche bag should also be kept clean by washing out with scalding water after each irrigation. The patient should be given the following instructions: Hang up douche bag so that force will be given to the water; loosen clothes and expose genitals. Pass all the urine from the bladder. Then sit on the edge of chair, bathtub, or

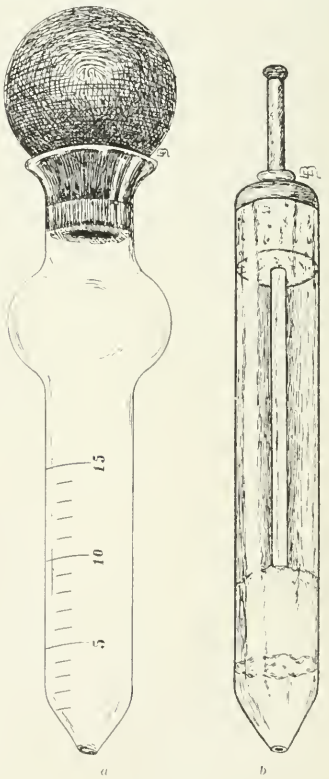


Fig. 6.

toilet, or if preferred patient may stand. If sitting, place towel beneath penis and over testes, placing basin on same beneath penis so as to catch irrigating fluid. Uncock clasp which shuts off water, and control fluid by clasping tube just behind the glass

nozzle with the index finger and thumb of right hand. The same thumb and forefinger are used to control the rate and force of flow. See that there is no air in the glass nozzle. Prevented by permitting plenty of fluid to flow from the tube into the basin,

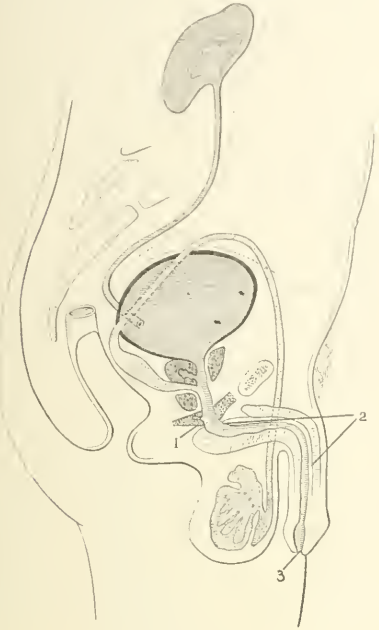


Fig. 7.

the nozzle being held upright so as to permit air to escape. Grasp the head of the penis with the left hand and apply the nozzle to the mouth of the urethra. First wash out the front part well. This is done by holding the nozzle loosely at the meatus. After this is done, allow the fluid to gradually distend the anterior urethra, then release the sphincter so as to permit the medication to enter the bladder. When bladder becomes filled, immediately void fluid so as to reirrigate the canal. Injections, when warm water or boracic acid is used, should be repeated at each irrigation until the fluid returns clear.

Local Medication.—The object of all local antigonorrheic medication is to kill the gonococcus, but antiseptic drugs sufficiently strong to kill bacteria are also very apt to destroy the vitality of the tissues with which they come in contact, and in so doing they would here retard rather than aid the host in overcoming infection. Therefore, as frequent irrigation, because of the rate of reduplication of the germ, is the chief factor in destroying the gonococcus, strong antiseptics are contraindicated, because frequent use, even of weak solutions, irritate the mucous membrane. To date mankind possesses no drug that is bacteriotropic for the gonococcus and nonorganotropic for the epithelial cells. So, until all acute swelling (edema) of the mucous membrane has subsided, there should be no local medication except boracic acid solution or hot water. Later, possibly some albuminous silver salt, because it is nonirritating in fairly strong solutions, may be employed, such as argyrol, 20 per cent., or protargol, 1 per cent., to be used in the following manner.

Technique of Medication.—Apparatus needed: Hot water, bulb syringe, one rubber glove for left hand, two towels, two basins, one empty, the other containing 1:500 bichloride solution and cotton sponges. Place rubber glove on left hand. This is for the purpose of preventing silver stains. Patient should first void urine, then cleanse anterior urethra by means of syringe with water as hot as can be borne. This is absolutely essential in order that the medication may not only come in direct contact with all the inflamed membrane, but penetrate between the tissues. Patient should sit on chair in manner described under irrigation. Holding head of penis lightly with thumb and forefinger of left hand, inject the silver salt into the canal with bulb syringe very gently, but to such an amount as will thoroughly distend urethra. Then grasp penis at head tightly with thumb and index finger, retaining the solution for ten to fifteen minutes. It is to be remembered that part of the efficiency of the albuminated silver salts depends upon its penetrative power, which is in proportion to the amount of pressure under which it is retained. Therefore, as above stated, the patient should distend the urethra thoroughly, but not to the extent of causing pain. While patient retains solution, the empty basin should be placed beneath the organ so as to catch any escaping fluid. At the end of ten or fifteen minutes patient should allow the fluid to escape into this basin, then immediately take the basm of bichloride solution and wash off with the sponges all the excess of stains on hands and organ. Then apply cotton placed in rubber tissue (Fig. 8) over head of penis, thus not only retaining the remaining silver salt solution, but also preventing staining underwear by the escape of same. Frequency: These injections may be substituted once or twice daily in place of the irrigation by hot water, if they do not cause too much irritation. At the end of a week, if there is little pus and much mucus discharge, permanganate 1:6000 or 1:2000, or a solution of silver nitrate, 1:10,000 or 1:3000, may be used.

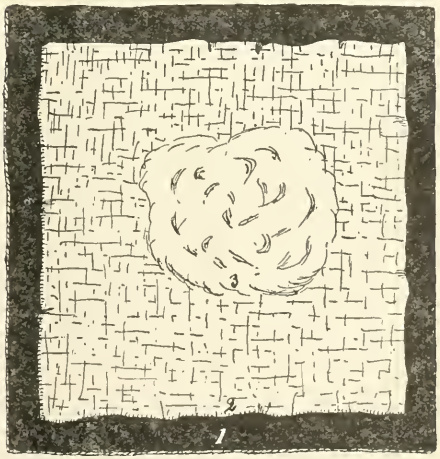


Fig. 8.—1, Dental dam; 2, lint; 3, cotton.

Directions as to how the solution should be used, though not irrelevant here, constitute so large a subject that they must be omitted. Even if presented they would only aid in attaining proficiency.

for proficiency comes through experience, based on observation, experimentation, and reasoning. The first step in obtaining experience in inflammatory diseases of the urethra is the formation of a definite premise upon which to base one's deductions. The definite premise here is the daily observation, macroscopically and microscopically, of the urine *held for a definite length of time* (*four hours*) in a number of normal individuals under varying hygienic conditions. Using this knowledge as a basis of comparison, daily examination of the urine held for four hours in cases of specific infection, will enable one to ascertain with certainty the progress of the disease, the efficiency of treatment and whether instructions given are carried out correctly. Treatment based on such logical experience will produce the greatest percentage of results, since it is rational and varies with the individual, and is not empirical.

Summed up, (1) absolute rest in bed, (2) building up bodily resistance, (3) relieving congestion and increasing circulatory activity in the area affected, and, (4) frequent cleansing of the urethra according to scientific knowledge will cure most cases of acute gonorrhea in two weeks and leave the minimum per cent. of pathological after effects, if the

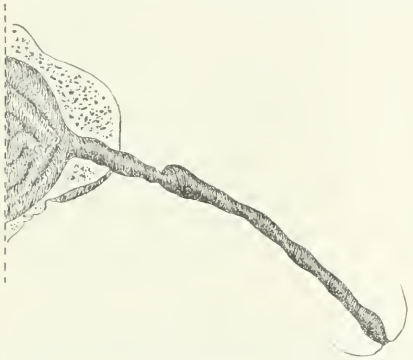


Fig. 9.—Cast of normal urethra. (After Deaver.)

treatment is pursued systematically and with care in detail as here described.

Treatment will be pursued systematically and with care as to detail best in a hospital, but even then only when patient and nurse, as well as physician, thoroughly understand why each order is given and how each should be fulfilled. Then will intelligent cooperation be secured and results attained, due to the fact that the individual, and not a disease, is being treated. If the patient thoroughly understands the correct method of obtaining the object to be desired and does not follow instructions, the responsibility is his and the attendant inconveniences—prolongation of the attack, added cost, etc.—must be borne by him without complaint. If, on the other hand, the physician fails to give intelligent and explicit instructions to the patient and nurse, the responsibility rests upon the physician's shoulders. In any event, if explicit instructions are not given, responsibility for lack of results is placed upon the individual, where it belongs, and not upon the science of medicine.

I realize that the first criticism of the treatment here advocated will be: The difficulty of securing acceptance by the patient because the initial cost in time and money appears so great. True; but nature's laws are immutable and man's success is in proportion to the correct interpretation of the workings of natural laws, and if the mandates of the physiological and pathological laws (varying not only with the host but the invading organism) which eradicate gonorrhea are not carried out absolutely by both physician and patient, maximum results will not be attained, for the mandates of these laws give no option, either to physician or patient. This treatment is the correct treatment, inasmuch as it is based upon the natural laws governing the disease, in so far as we have been able to interpret them correctly to date. If this treatment is the correct treatment, all other treatments are at best substitute treatments. However, the technique of ambulatory or substitute treatment of gonorrhea must be reserved for another article.

1. THE GONOCOCCUS.

(a) The gonococcus is a microorganism. Its power to resist destruction varies with its environment, not only with the different organism of the same species, but also with the same organism at different times. (b) Its measurements are 0.0016 mm (.000064 in.) in length and 0.0008 mm (.000032 in.) in width. It is so small that to appear the size of the head of a pin it must be magnified twelve hundred times. (c) To be seen it has not only to be magnified, but stained. To be classified, it has not only to be specially stained (Grams stained) but sometimes cultivated, and even then its identity may be questioned. It lives at a body temperature of 98.6° F. (37° C.). Its natural environments are the epithelial cells of the body, especially the columnar cells of the anterior urethra. This microorganism penetrates between the cells to the subepithelial connective tissue, which it does not penetrate unless the vitality thereof is impaired, as by trauma, etc. (d) *It duplicates itself every ten minutes.* (e) It produces while living antibodies which can be found in the blood by means of a complement fixation test or blood test.

2. THE URETHRA.

(a) In a collapsed condition, the urethra averages six inches (15 cm.) in length, the size varying with the individual and the size of the penis. During erection a urethra six inches (15 cm.) long will stretch to a length of eight (20 cm.) or eight and one-half inches (21 cm.) and expand proportionately (Fig. 4, a and b). This signifies that upon collapsing, the lining or mucous membrane must be thrown into folds, which are in contact with each other, as illustrated in the magnified specimen (Fig. 5), a cross section of the male urethra collapsed. (b) Anatomically, it is divided into three parts, the pendulous portion, the membranous and the prostatic. Mechanically (*i.e.* for practical purposes) it is divided into the anterior and posterior urethra, this division being due to the compressor urethræ muscle (Fig. 7, 1) or shut-off muscle, which is under the control of the mind and permits man to void or retain the urine at will. It surrounds the urethra so tightly at the membranous portion (Fig. 7, 2) that no fluid can pass out of or into the bladder until it relaxes, therefore its employment as a line of division. That portion of the urethra anterior to the muscle is called the anterior urethra; and all posterior, the posterior urethra. (c) The diameter of the urethra varies, the narrowest portion being the meatus (Fig. 7, 3), the next narrowest commencing at the membranous urethra, the variation in size and configuration being well illustrated in Fig. 9, a cast of a normal urethra. (d) The urethra is a mucous membrane. It is formed principally of epithelial cells, the anterior of simple columnar cells, the membranous of stratified columnar and the prostatic of transitional epithelium, but each kind gradually merges one into the other. (e) The meatus (Fig. 7, 3) is a nozzle to give resistance to the semen and stream of urine, so that both will be projected, and in the case of the urine so that it will distend the folds of the urethra and keep same clean and maintain the tonicity of the mucous membrane, thereby its power of resistance to disease.

3. THE HOST OR INDIVIDUAL.

Recognizing that immunity and susceptibility to microbic infection vary with the different individual

or host and with the same host at different times, and that this fact must be taken into consideration, we come to the main subject of investigating the pathological condition in the urethra—an inflammation. (a) The causes of inflammation are (1) bacterial, (2) traumatic, (3) chemical, (4) nervous. Primarily, the cause of gonorrheal urethritis, uncomplicated, is the gonococcus of Neisser. Causes superadded and to be prevented as producing complications are other bacteria (pyogenic organisms), traumatism, chemical, etc. (b) Attacked by bacteria, the host resists and attempts the destruction of the invading organisms, with the result that the phenomena of heat, pain, redness, and swelling of the mucous membrane occur. (c) The means of resistance employed by the host to destroy bacteria are chemotaxis, phagocytosis, and the use of the lysins of the serum. (d) The efficiency of chemotaxis, phagocytosis, and the lysins depends mainly upon the reduction of congestion and the increased circulatory activity of the area attacked.

4. THE VARIOUS THERAPEUTIC AGENTS.

These consist of such means as will aid the host, attain the result aimed at—the destruction of gonococci—by chemotaxis, phagocytosis, and the use of the lysins through assisting and not interfering with the working out of the physiological and pathological laws which eradicate disease.

VACCINES IN RELATION TO MOUTH INFECTION.

By JOSEPH HEAD, M.D., D.D.S.,

PHILADELPHIA.

As in the treatment of all diseases with vaccines the depots of infection must be removed by every means possible so that the work of the antibodies will be reduced to a minimum. This is particularly the case in the treatment of mouth infections, and all of the bacterial masses, dead epithelial scales, and food remnants must be carefully removed each day with floss silk, tooth brush, and mild washes if the vaccine treatment is to prove of value.

When the bacterial masses have been removed so that only a thin film remains, there are two mouth washes that may prove exceedingly valuable as a means of discouraging further growth until the time arrives for the next cleansing. These two washes are one per cent. peroxide of hydrogen made slightly alkaline, and a saturated aqueous solution of sodium silicofluoride which has a strength of 0.61 per cent. These washes held in the mouth for a minute or two after the mechanical cleansing prove of value clinically, and their daily use is of great assistance in reducing the areas of mouth inflammation. This is particularly interesting as Anderson has shown that peroxide in such strength for such a time has no carbolic acid coefficient, and researches by Hitchens has proved the same thing about sodium silicofluoride as a mouth wash. And yet they are of value clinically. Ehrlich in his address appearing in the *Lancet*, Aug. 16, 1913, showed how the *Spirochæta pallida*, when subjected to the action of salvarsan had the same mobility and life apparently as the organism that had not been so treated; and yet the *Spirochæta pallida* treated with salvarsan could be digested by the leucocytes in a manner impossible when the organism had not been subjected to the action of salvarsan. May not this be the explanation of why non-antiseptic mouth washes are at times more effective than those that have a high germicidal efficiency? May not the mild peroxide or sodium silicofluoride sensitize the germs so that the ferments of the blood or saliva can digest the otherwise undigestible germs? This is advanced as a possible explanation of the unquestioned value of certain washes that of themselves seem inert.

In addition to the regular daily hygiene of the mouth it is necessary that all dead or infected pulps should be carefully removed and the root canals filled, for many pockets of infection around teeth with living pulps resist all systemic treatment or local applications until such depots of infection have been removed. It is also just as essential that all tartar should be carefully curetted from the roots of the teeth, as its presence always acts as a source of infecting irritation. There is also another valuable therapeutic agent for softening tartar scale and reducing the inflammation of the gums in the weekly applications of the acid hydrogen ammonium fluoride. This consists of 20 parts hydrogen ammonium fluoride, 10 parts free hydrofluoric acid, water q.s. to make 100. This, according to the tests of Hitchens, has a carbolic acid coefficient of 5.82, and should be applied with a platinum pointed syringe with a celluloid barrel as it attacks glass. This drug, when properly used, with careful instrumentation is particularly effective in the local treatment of mouth infection. For unless the tartar scale is absolutely removed, healing and reattachment of the infected gums to the roots is impossible.

When we come to the systemic treatment of mouth infection a judiciously selected vaccine, in my opinion, gives most excellent results; but since the local and general treatment should always be used in conjunction, it is often difficult to determine the exact proportion of credit for the cure that should be given to each. The local treatment alone has been so effective at times that I am forced to admit that had I been using the vaccine the vaccine would have had a measure of credit. And yet I am convinced and am morally sure that as a general condition, properly selected vaccines cause a healing and a permanency of result that are impossible with local treatment alone. In fact, the results of vaccine treatment are usually cumulative, as shown by the continued improvement in the local conditions for a year after the course of vaccine treatment is finished.

And so the four principal drugs I have used in the treatment of mouth infection are: Hydrogen peroxide, sodium silicofluoride, acid hydrogen ammonium fluoride, and vaccines. All drugs have disadvantages as well as advantages. The advantages of these drugs have been dwelt upon, their disadvantages are as follows: One per cent. peroxide cannot be used in some mouths without causing great irritation. Sodium silicofluoride wash is generally useful in reducing inflammation and tartar scale, but in about one per cent. of the cases increases the deposit on the teeth or causes nausea; ordinarily, it is considered agreeable as well as useful. The bifluoride properly applied is invaluable, but is exceedingly sour and disagreeable. It also causes nausea to a small percentage of patients. However, the great proof of its efficiency lies in the fact that patients generally submit to its weekly applications for long periods of time. The vaccines have the great disadvantage of occasionally causing headaches, nausea and various reactions in the muscles and lymphatics. In rare instances there is the appearance of a rash, and mild symptoms of serum sickness. This latter, with vaccine is almost negligible since 3 billion staphylococci or streptococci weigh only a milligram or less.* Thus, if these microorganisms were considered as pure protein,

*Wilson & Dickson: *Journal of Hygiene*, Vol. XII, Page 49.

which they are not by a large per cent., these appalling doses of bacteria would contain less than a fourth of the protein found in 0.05 c.c. of horse serum. And 0.05 c.c. of horse serum is the dose suggested by Vaughan as a preliminary dose to be given to a patient as a test, whether he can safely take antitoxin.* According to Lewinsky, horse serum contains 80.4 mg. of protein per cc.

In forty-two of my cases, the complete bacteriology of which has been reported by Dr. Claude P. Brown, the presence of six principal germs was noted in such a large proportion of cases that the scattering of other germs appeared so insignificant as to make them seem almost in the light of accidental flora.

These germs were: Streptococcus, among which, especially in winter, was found the *Streptococcus viridans;* pneumococcus; *Bacillus influenzæ; Micrococcus catarrhalis;* diphtheroids, and staphylococci. It was decided to take all the strains of these germs occurring in these forty-two cases, and after mixing them, form a stock vaccine, of which each cubic centimeter of syringe A would contain pneumococcus, streptococcus mixed, *Micrococcus catarrhalis,* 12½ million each; *Staphylococcus albus* and *S. aureus,* 50 million each; *Bacillus influenzæ* and diphtheroids 50 million each. Syringe B contains twice as much as syringe A; syringe C twice that of syringe B, and syringe D twice that of syringe C. So that syringe D contains pneumococcus, streptococcus, *Micrococcus catarrhalis,* 100 million each; *Staphylococcus aureus* and *S. albus,* 400 million each; diphtheroids and *Bacillus influenzæ,* 200 million each. This vaccine has given most encouraging results, and a few of the cases in which it was used will be specifically reported, but I hope in another year to be able to make a more complete report that will throw conclusive light on its therapeutic value.

As the consistency with which these seven germs were found in the pockets of infection around the teeth may be due to the method used in taking the material for the vaccine, a description of my technique may prove of value. The tooth should be protected from mouth contamination by a sterile napkin. The neck of the tooth adjacent to the pocket of infection should be then thoroughly washed with cotton soaked in salt solution and then dried. This will remove the masses of extraneous mouth flora. The edges of the pocket of infection and the adjacent tooth should now be slightly seared with a cherry red cautery which can be accomplished with practically no pain to the patient, and then a small cup-shaped spear of thin platinum should be heated to a cherry red and plunged to the bottom of the pocket. In this way a two-fold purpose is at once accomplished. The extraneous germs near the edge within the pocket are destroyed and the deep seated germs alone are collected on the thin platinum point which has cooled before reaching them. This renders it possible to carry to the blood agar only the germs directly responsible for the disease in question. The vaccines so obtained were made up to contain all the germs found except the spore formers and the anærobes. While it is possible that the bacteria of these classes may play a rôle in the infections, my experience indicates that this rôle is a minor one.

Of the seventy cases reported I shall first classify them according to the reactions of the vaccine. Of those cases that received the standard dose up to the full amount per cubic centimeter, without local or systemic reaction, there were thirty-nine. Of these thirty-nine cases, eight received a second series of treatments at more than six months intervals from the finish of the first series, and one of those eight even a third series of treatments. Of these eight cases, four received the second series of vaccine with equal complacency, while the other four showed decided reaction systemically and locally. Whether this was due to a change in the character of the vaccine or whether it was an allergic reaction, is a question. Of the seventy cases, fourteen were conventional in their reactions and required only normal care. Of the others, fifteen required the utmost care and attention, and the fact that a dose was well received without a reaction one time was absolutely no guarantee that it would be received with any tolerance the next time. In fact, these fifteen cases demanded the utmost watchfulness in the vaccine treatment, and it is such cases as these that make it necessary that vaccines should always be associated with the greatest care in general diagnosis, and the utmost circumspection during administration. The extraordinarily good results as shown by a local healing of the mouth was noted in twenty-one cases associated with nine instances of no local or general reaction, six of normal reaction, and six of severe systemic response. Of the cases showing marked systemic improvement there were altogether ten. Of these, six showed no systemic reaction, two were normal, and four were of the severe reaction type. I shall not go further into this tabulation, as to do it efficiently a greater number of cases are required. The table, however, is fairly instructive and may throw further light for those who care to study it.

In reference to the dosage where there was no special reaction a quarter of a cubic centimeter was given the first time, a half the second week, three quarters the third week, and finally the full cubic centimeter the fourth week, which was continued week after week unless a reaction occurred. A reference to the table will thus make it possible to see just what doses were used in these cases where the reaction is marked O. All the strains of the various bacteria were put in 50 million each except those of staphylococcus that were put in 300 million per cubic centimeter up to Patient No. 45 of the table. But later each species was put in only once, all the various strains being mixed in one counting so that after Patient No. 45 of the table, the combined strains of each species would be inserted in the vaccine to the number of 50 million each, except in the case of the staphylococci, which were combined to the number of 300 million per cubic centimeter. This deduction was made in order that a more delicate graduation of the dose might be possible. This statement makes it possible for those interested to figure out the average bacterin dosage per patient.

When the blood count showed excessive lymphocytosis before treatment the first dose was 1/10 of a cubic centimeter. Lymphocytosis appears to be the rule during the administration of vaccine. The dosage associated with the usual reaction (in the table) is marked 1. Unusual or extreme reaction is marked 1+. The reaction or absence of reaction appears to be associated with the tolerance of the patient to the vaccine more than whether the dose is large or small in amount, and an intolerance may suddenly develop to a dose that has been well borne many times previously. For instance, in Case No. 24 there were positively no symptoms of reaction dur-

*"Protein Split Products," page 471.

ing the whole treatment. The patient, a strong man of 50, stood a very large dose containing *B. influenzæ*, a Gram negative bacillus, four streptococci, a pneumococcus, and a tetragenus in amounts of 50 million for each germ, making for Case No. 24 100 million B. *influenzæ*, 200 million combined streptococci, 50 million pneumococci, 50 million tetragenus, and 300 million staphylococci. There were practically the same doses and results for Case No. 25, a young married woman of 37. On the contrary, Case No. 16, a married woman of 40, 40 million streptococci could not be borne once a week, and the case required constant watching and dose modification, although in all three cases the results from a local and systemic point of view were equally satisfactory. As has been before stated, dosage depends upon the individual to a marked degree, some accepting easily what would cause great disturbance in others. Probably the acuteness of the inflammation and the number of the depots of infection are responsible for these so-called idiosyncrasies, and these facts still further emphasize the necessity for thorough physical examination and diagnosis before the vaccine treatment is commenced.

In reference to intolerance being developed by a dose previously well borne, I shall quote the action of a series of doses of the stock pyorrhea vaccine as shown on myself and marked in the table as No. 44. My bacterial mouth infection analysis shows the presence of 2 streptococci, a *Staphylococcus aureus*, 1 *B. influenzæ*, 3 *M. catarrhalis*, and a diphtheroid. My teeth were very loose and painful, and the local treatment was only partly successful. Therefore, because my analysis was so near the stock vaccine in structure and I was anxious to try its effect personally, I did not use an autogenous vaccine, but started last July to take the stock vaccine, and have taken forty-six doses at weekly intervals. As stated before, syringe A contains: pneumococcus, streptococcus, a Gram negative coccus, each 12½ million; *Staphylococcus aurcus* and *albus*, each 50 million; diphtheroids, and *B. influenzæ*, each 25 million. Syringe B = twice that of A; syringe C = twice that of B; syringe D = twice that of C. I took A, B, C, D in the first four weeks and then continued with D until 28 doses had been taken in weekly intervals. All this without any reaction or discomfort worth mentioning. The 29th dose caused my arm to be sore for 24 hours, with a slight soreness in the axilla, and a continuance of the induration that made me feel the digestion was not so perfect as heretofore. I then used syringe C for eight doses without reaction, and the ninth dose caused nausea and depression for 24 hours. The next week I used syringe B and had a slight depression; the next week B gave no depression, but the induration persisted, so I used syringe A. The next week I returned to B and got a distinct reaction, and so returned to A for two weeks, and then found that A gave a reaction, and then used 6/10 of a cubic centimeter of A, and last ½ A, and then stopped, not being able to bear with comfort more than one-half of the first minimum dose. In the meantime, my teeth have tightened, my gums improved, I have almost entirely lost my former tendency to take cold, and I am in better health than I have enjoyed for years, which I attribute to the elimination of the toxins of the mouth infection from my system. Why I developed an intolerance for the vaccine I do not know.

Another patient, Case No. 2, is having the same experience. It is her third course of vaccine treatment and the stock vaccine was used. Syringe A was given without reaction. After the first dose of syringe B she had swelling of lips, itching on back. After syringe B was given three times, syringe C was given without reaction. D was given eight times without reaction and on the ninth nausea appeared. Syringe C was then given without reaction for ten times. Excessive soreness of the arm and sharp pains in the chest caused a reduction of the dose to B. This also caused a renewal of the reaction and the dose was reduced again to A, which she took five times at the usual weekly interval.

This patient, described as Case No. 2, is a widow, aged 35, who came to me three years ago so anemic and thin that she looked as though she were in the first stages of tuberculosis, although physical examination revealed nothing radically wrong. Her mouth was badly infected. Since the treatment her mouth has healed, her skin cleared, she has gained in weight, and all of her friends when noting her improved health are told by her that she attributes it to the vaccine. I have noticed this same series of phenomena in other cases to a less degree.

I have found the study of blood counts most interesting and valuable as a diagnostic and therapeutic guide, and perhaps a slight résumé of some of these might prove of interest.

Case No. 16. Married woman, 47, under treatment for two years. Gout in right eye, great depression with constant fatigue. Gums made more progress under a streptococcus vaccine in six months than she had previously made in two years. When she started, her hemoglobin was 67, and at the end of the first series of treatments rose to 93. The other vaccines were given as shown by the table, but the hemoglobin remained just the same, practically, and the white blood corpuscles, that at first had been 5,500 per c.mm., consistently rose to 7,200. Her teeth and gums are now almost completely well, but as she is still gouty and as she is at the menopause, there will probably be relapses from time to time that, however, can be readily controlled.

Case No. 64 was another illustration of an interesting blood count series. A man of 40 suffering from acute general mouth infection complicated with general physical depression. Hemoglobin 80, white blood corpuscles 16,000. Local treatment was instituted and an autogenous vaccine (streptococci and staphylococci) prepared and given. In two weeks his leucocytes had dropped to 12,600 and in nine weeks to 9,500, while his hemoglobin had risen to 90. In the meantime his gums had healed, his spirits improved, he gained in weight, and he is practically well.

There are many interesting changes in the blood count during the administration of vaccine in the treatment of mouth infection, and I feel that a comparison of data in this field may prove of great value not only scientifically but from the dosage point of view. For instance, Case No. 65, a man of 40 with pronounced pyorrhea, was given a vaccine of streptococci and diphtheroids, 50 million each per cubic centimeter. He had no reaction and took the full dose without any symptoms at all. So little was he affected that unknown to me, after his injection, he would go off and play squash. His hemoglobin at the start was 84, erythrocytes 4,860,000, leucocytes 9,400, polymorphonuclears 68 per

cent., combined lymphocytes 22 per cent. With continued improvement during six weeks, local and general good health, his hemoglobn dropped to 72, his leucocytes to 5,500, and the differential count showed polymorphonuclears 4.9, transitionals 54.9, and lymphocytes 33.3 per cent.

George Washington's maxim says, "you should not tell things in company that are hard to believe." I did not make the blood count myself. I give it as I received it. I, however, shut down the vaccine to 1/10 cubic centimeter and took another count in two weeks, when the hemoglobin had risen to 78, the leucocytes 6,500, the polymorphonuclear neutrophiles 4, transitionals only 12.5, while the lymphocytes combined had gone up to 44 per cent. Shortly after he went away with his gums completely healed and his health apparently perfect. His blood count in the fall will be of great interest.

Case 61. Married woman of 38 with great local and systemic improvement showed an increase of hemoglobin from 61 per cent. to 75 per cent. during a period of eight weeks. Her leucocytes had also dropped from 8,000 to 4,000, and as her erythrocytes had also dropped to 2,568,000, it was decided purely on her blood count to stop the vaccine until the fall, when another blood count could be made. Through a mistake the original red blood corpuscle count was not made, so just how much the red cells had really fallen off can only be surmised. When the treatment was commenced there was a lymphocytosis of 45 per cent; in four months this rose to 49 per cent., and in two months dropped to 40 per cent.

Case No. 59. A married woman of 35, mouth infection pronounced in three or four teeth, but not general. Hemoglobin at the beginning was 55 per cent.; in six months it rose to 75 per cent. At the beginning of treatment the red cells were 4,035,000; in six months they had dropped to 2,720,000. The leucocytes in six months also dropped from 7,500 to 3,100. There was practically no lymphocytosis at the beginning or end of the treatment. This was interesting, as my experience would indicate that vaccine treatment usually causes a lymphocytosis. On account of the falling off of the leucocytes and the red cells, the treatment was temporarily stopped, although the patient was gaining in weight and showing improvement in every way locally and generally. More interesting facts might be cited along the lines of the blood count, but it would seem advisable to wait for a greater supply of data. These figures, however, certainly tend to indicate that in the blood count we have a sensitive index of the patient's condition, and in the future the frequent taking of complete blood counts will figure largely in my routine treatment.

In summing up my paper I would say that local surgical treatment for the removal of infecting masses is the first essential. Non-germicidal washes such as hydrogen peroxide and sodium silicofluoride may sensitize the thin bacterial films so that the ferments of the mouth and tissues can readily control them. Vaccines properly selected and given are of unquestioned value. The blood count also may prove of great value as a guide to dosage.

Scarlet Fever in the Aged.—C. B. Ker records a case in a man, aged seventy-four years, complicated by otitis and arthritis. In a total of 263,986 cases treated in modern fever hospitals, Ker could find only twenty in persons above 60.—*Brit. Journ. of Children's Diseases.*

ARE WE GETTING PROPER VALUE FROM OUR PLANT AND EXPENDITURE FOR THE TUBERCULOUS?

By EDWARD S. McSWEENY, M.D.,

CASTLETON CORNERS, STATEN ISLAND, N. Y.

MEDICAL SUPERINTENDENT, SEA VIEW HOSPITAL.

My answer to the question is "No." Fortunately, now there is a chance to do something; a widespread demand for economy insures common sense a hearing, if not respect. Not only does there seem a chance to stop an abuse, but the opportunity is presented of doing something for the tuberculous who can be helped, for I hold it absolutely true that every cent spent foolishly or uselessly is a cent stolen from the rightful beneficiaries. Means, no matter how actually great, are always proportional to the demand, and there practically never is such a superabundance that the real work to be done does not suffer from waste.

To maintain that as high standards are possible as would be if the number of patients were materially reduced and the staffs of the institutions relieved of the distractions incidental to the presence of a large number of misfits, is to go contrary to all experience. Tuberculosis is not quite so peculiar a problem as to differ in this respect from everything else. The consumptive who can be and should be helped is suffering from bad management. I believe the management is so bad that if its faults were corrected, not only would there be ample means to take care of the proper tuberculosis cases properly, but there would actually be a balance over.

Here I may say that I am going to deal with only one phase of the matter—Institutional Care. The subject as a whole is too big to attack in a short paper, though much the same criticisms are applicable throughout.

Let us first consider what the present state of affairs is: An enormous number of tuberculous patients of all kinds and stages of disease and an annual expenditure on them of millions of dollars. Need, therefore, one would think, that care be used to insure each getting just what he or she required, and good reason for careful consideration of how the money is spent, so that every dollar expended will yield a dividend to the patient or community, or both; but this, strangely, does not seem to have materially influenced action, for, while tuberculosis institutions bear all sorts of names and allege all sorts of objects, practically all house a medical and social hodge podge that bears small, if any, relation to the professions of their conductors. Anyone who can be caught, no matter who or what he is, and can be proved to have a tuberculous or possibly tuberculous lesion, in he goes with the rest, without reference to the probable results. The highest type of case sets the standard, and the expenditure is the same for all.

So much for what we have and what I condemn. The more you know about tuberculosis institutions the less you will question my description. Ordinarily in assuming a position of sharp criticism of existing conditions and in offering reasons for dong so, as is proper when seriously differing on important points from the accepted state of affairs, one is put to some trouble in combating the solid arguments of opponents. But here we find the remarkable anomaly of every sound medical and social consideration being in opposition to the prevailing practice. The matter of treatment is fundamentally a

medical question, but we find that action at present is largely based, if it have any foundation at all, on a wholly erroneous impression of the nature and course of the disease. There is no excuse for medical men not realizing this; but that the public should not plainly see it, too, from the results, is astonishing. From the lack of accommodation for any others, moreover, it would seem that adult tuberculosis, other than pulmonary, was unknown.

If we stand on the firm ground of the pathological process and the clinical course of tuberculosis we can not only maintain that the social often outweighs the medical, or perhaps better expressed, the pathologic classification of the patient, but also that because a person has tuberculosis it by no means always constitutes an important factor in his condition, and can urge the following classification and program as the only one by which our plant and expenditure can be made to yield its full value:

1. Cases of criminality, insanity, epilepsy, feeble mind, old age, permanent disability of other origin, alcoholism, and vagrancy, complicated by tuberculosis, should not only not be treated in view of it alone, but the primary condition should be considered first and the tuberculosis regarded as a complication. This implies tuberculosis departments in institutions for these classes. It is done to some extent now in some of them, largely in criminality only and not at all in others. On the one hand, when we know that the tuberculosis has little or nothing to do with or only bears an indirect relation to the individual being a public charge, and there is often no profit for the patient or anyone in treating it, why not have the honesty to say so? On the other, the principle once adopted, especially regarding vagrancy, would largely solve the tuberculosis hospital problem for New York City. The time and effort spent in admitting, discharging, and readmitting these people first to one place and then to another are absolutely without effect, while consuming a large fraction of the available resources, because the whole proceeding is stupid from the beginning. If that were done at first that should be done, there would be but one admission, the patient would be placed where he or she belonged and could be kept, and the space and money so saved used for its rightful purpose. I hold no brief for the lazy, incorrigible, or ne'er-do-well. My efforts are not going to be devoted to coddling tramps and other parasites, but in obtaining their rights for the decent consumptives, which is wholly impossible under present conditions, and in adding my strength to obtaining for those who foot the bills good value for their money. If a tramp has tuberculosis, he should be treated for it, but because he has tuberculosis is a mighty poor reason for not dealing with him as a tramp. Why sacrifice your major classification for the minor and just because a man or woman has tubercle bacilli in his or her sputum or lungs, which is only one factor in their condition, and perhaps not a factor at all, take them away from the place designed for their kind and where they can perhaps be benefited, and put them in a place where they do not fit, do them the least possible good and spoil your other institution? This class is the crux of the whole problem.

2. Cases of chronic disability, due to pulmonary impairment of tuberculous origin, should be kept in tuberculosis homes with infirmary service, to be retained there until death. In a paper read some years ago I stated strongly my opinion, which I still hold, that despite the fact that for tuberculosis no cure in the ordinary sense of the term is known, it is the only disease of this class in which everyone is agreed as to the proper method of treatment, and that one of the greatest factors of success in the antituberculosis propaganda is the assistance of the tuberculous themselves, which can be procured only by preaching the doctrine of hope. Nevertheless, there is no need of making ourselves ridiculous, and when we have a case disabled beyond repair, even if the tuberculosis should be arrested, even if we think he will perhaps live for years or die of something else, what is the use in placing him in a tuberculosis sanatorium or hospital with cases that give a reasonable prospect of active, useful life? Nothing is perhaps so protean in the catalogue of disease, so hard to classify, not even common colds, but there are limits even in tuberculosis. There is no sense in the present plan, which, ignoring everything but the fact of demonstrable changes in the lungs of tuberculous origin, puts every case in the same institution, all getting the same treatment and the same care and the same expenditure, just as if the same result could be expected in all. Moreover, it is not only useless, but it is wrong and foolish to make these folks miserable by the discipline and routine of a tuberculosis hospital as regards exposure to the cold, restrictions of various kinds (*e. g.* alcohol and smoking), repeated medical examinations, supervision in detail, etc., etc. Disabling tuberculosis of a chronic type not only does not necessarily, but in practice almost never yields such improvement from treatment as to restore the individual's self-supporting capacity. To make such cases happy and hold them indefinitely without legal commitment in a tuberculosis home should be easy. To do so in a hospital has been proven impossible. The reason is obvious. In one case the patient's comfort and pleasure can dominate the situation; in the other, the medical aspect demands first consideration. To do the right thing would here cost a great deal less than doing the wrong thing does now.

3. Cases of chronic tuberculosis without disablement should not be treated at all. Whatever the stage anatomically is immaterial. Let us remember that tuberculosis, even to a considerable extent, is perfectly compatible with excellent general health under conditions of normal life and occupation, and such tuberculosis does not necessarily show any results from any known treatment. There are two conditions to be always differentiated—tuberculosis infection and tuberculosis disease or toxemia, or technical and actual tuberculosis. The former, too, is not necessarily microscopic, but may be a clinically demonstrable or even large process. In this connection we must always answer the questions: Is the tuberculosis active or quiescent? Is there any reason to believe that the person's tuberculosis will be affected by treatment? Such well—often robust—patients form a considerable group of the present tuberculosis hospital and sanatorium cases, especially the long-stay patients. They are not all tramps by any means, but often the permanent unfortunate victims, first of other people's ignorant advice and urging, and later of enforced idleness and institutional life. Too many have learned that the easiest and pleasantest life for them is as cases of tuberculosis. To get rid of them and the first class is the largest problem at present. Dispensary or home hospital supervision with, if possible, a yearly country vacation, would probably accomplish all that is done at the present time, and would go a long way to kill the merited reproach of creating

loafers. Patients come under observation for many reasons. To assume that all need some treatment or to send all who will go to some institution, because that is the easiest way to be rid of them, or is good insurance for the diagnostician, is unjustifiable. They should be told of the lack of necessity for present treatment, advised when to return, and forced to earn their own living. Many people seem to go on the principle that this is the one thing that should never be done. No one charged with responsibility therefor has any right to maintain them at the public expense.

The problem of employment for the handicapped is difficult, but we do not solve it, in fact only create a greater one when we place these patients in hospitals or sanatoria. If those who could support themselves were made to do it, and those who could not were induced to contribute by their work in tuberculosis homes, we would be nearer to an answer to the question.

Right at this point I can take up the question of segregation. At the present time I do not believe that we have a sufficient basis, either in public opinion, medical science, or in our knowledge of the extent of tuberculosis, to consider segregation purely as such, a necessary, justifiable, or practical measure. If in the light of fuller information such a plan is adopted, let it be done intelligently and with proper consideration of all the factors involved. At the present time it is used as an excuse for maintaining at high cost in tuberculosis institutions all sorts of cases and persons who have no other reason for being there—a perfectly absurd action when we consider that there is no way to determine whether the number so immured constitute one-tenth or one-ten thousandth of the total. Under these circumstances, I believe it to be absolutely unjustifiable to retain a case for no better reason, unless it be of the malicious sputum positive type to be held as a prisoner. There is no assurance that a dollar so spent is not absolutely thrown away. If the plans which I have outlined here were carried out we might incidentally segregate all who could be, so there is no profit in carrying the argument further at this point. I certainly believe we would segregate more than we do at present if we fostered the idea of care until death, rather than by keeping all patients in a state of expectation of the day of cure or dismissal, and creating the general atmosphere that treatment is temporary.

4. That there is among the many cases of tuberculosis a large fraction, early and late, who require treatment for their disease for varying, often long, periods, and are entitled to the best treatment that medical science knows, at the public expense, just as much as does the patient suffering from any other disease or injury; that their interests shall not be compromised by the means apportioned being frittered away in a wholly illogical fashion; that there are many kinds of tuberculosis, and that we should not rob the case who requires and will get results from treatment, for the sake of those who will not, any more than we would hesitate to spend money on, or would take any less care of, or use any less effort to relieve a case of sciatica, because there happened to be plenty of paralyzed persons to look after according to other standards. For those persons, that is, those definitely ill from tuberculosis, in an acute condition, including exacerbations and terminal stages in chronics, not comprehended in the previous exclusions, and for tuberculous persons suffering from other acute conditions, the tuberculosis sanatorium-hospitals and hospital-sanatoria should be reserved. The last mentioned demand treatment for their intercurrent diseases under such circumstances that they will not constitute a danger to others, because of their having tuberculosis. The tuberculosis, however, should not be allowed to dominate the picture or determine the length of treatment, except as would any other complication. However, not every tuberculosis hospital can be manned and equipped to treat all conditions met in a general hospital, and often it would be better to isolate tuberculosis cases with acute conditions in general hospitals, just as we do contagion, but especially in large cities, tuberculosis hospitals prepared to treat any acute condition are desirable. I have used the names "sanatorium-hospitals" and "hospital-sanatoria" advisedly, because the vast majority of tuberculosis cases which offer for treatment are neither incipient nor terminal, but belong in the great middle class, or second stage. This, curiously enough, is lost sight of in planning institutional care. I think that every tuberculosis institution should be a combination of hospital and sanatorium, with marked predominance one way or the other. This would mean an intelligent recognition of the fact that most of those to be treated are border-line cases, so to speak, and would provide the means for properly classifying and handling them all. Let us hope, too, that some day the last tuberculosis institution will take down the sign "No Readmission." If any patient ever was entitled to treatment as often as he got ill, that one is the one suffering from tuberculosis. It is typically cyclic in its course. What I state with regard to tuberculosis hospitals and sanatoria being reserved for the acutely ill, I do not wish to have interpreted as meaning that it is the only form of treatment adaptable to them. Because of the unfortunate effect of idleness on many persons, especially the working class, the desirability of trying out home treatment in suitable cases before sending to sanatoria should always be taken into account; that is, we should at least show some conservatism. It is most important to be sure first that our patient has tuberculosis—entirely too many diagnoses are made without sufficient basis—and, secondly, that granting he has tuberculosis, that it is from that that he is suffering. Tuberculosis patients, like other persons, have acute conditions like colds, and chronic conditions like malaria, and may require treatment only for them.

Of inapplicable, high-sounding, empty schemes to meet the criticisms of the present state of affairs, we have had plenty. The classification noted here is comprehensive enough to cover all possibilities, but very definite.

To some extent the second, third and fourth classes interweave, and the transition from one to the other is not always sharply defined. The patient must of course always get the benefit of the doubt, but we have here a good working program. Hand in hand with the medical aspect of this question goes that of the social classification. If the medical classification noted above is carried out, the social classification is largely solved. Experience shows that the great majority of undesirables belong to the vagrant, alcoholic, and chronic types. The question must not, however, be considered settled by this alone. What we want to do is to get the self-respecting, self-supporting man and woman, who is usually the one with a family, into the hospital, and this can be done only by having hospitals for

them and them alone. There is no occasion to be apologetic. They are just as much entitled to freedom from contact with persons of dirty habits and nasty minds as they are to clean beds. There is too much sentimentality and waste of effort on the good-for-nothing. They need no champions, but the decent do. Incidentally, I might mention that the riff raff are unhappy in respectable company, and one can kill two birds with the one stone by giving them the agreeable companionship of their fellows. Let us have a strict social classification in our sanatoria and hospitals by all means, and for the chronics, too, for if almshouses are of many kinds and degrees, from the proud old ladies' home to our needful but sorry Blackwell's Island institutions, why not the tuberculosis homes as well? The patient will almost naturally find his or her own level; assisting those who do not is a comparatively small affair. This is not only for their best interest and comfort, but, happily, the best action for the community.

In conclusion, I would say that I believe that the cause of the present state of affairs is, firstly, the unfortunate tendency of physicians to regard the whole question of the classification of tuberculosis cases settled when they tag the patient first, second, or third stage, forgetting that other classifications are often more important, and, secondly, of the artificial element in the antituberculosis propaganda now so widespread. Many persons realizing its many manifest absurdities, have yet remained silent, believing that in the long run the good to be derived in the form of public interest was a justification; but, personally, I never could see any profit in it, except to those who were making it their business or pleasure. Results tell, and to my mind the result of this propaganda has been to get the whole thing into a fine mess and impose a trying and unpleasant task of radical change on other shoulders. Now is the time for plain speaking. The question is essentially a medical one, and the stimulus to reform has got to come from the medical men who know tuberculosis. No matter if a lot of financially interested or well-intentioned persons are going about in a great state of excitement demanding that all cases of tuberculosis be treated, and hustling cases of all sorts into institutions, simply because tuberculosis can be proved or made likely in their case; there is no reason for permitting this to continue, no matter how hard put they may be to find a substitute activity. Let us enlighten their ignorance. If they want to help in an intelligent, sensible handling of the subject, well and good; if not, it will doubtless get along without them. At all events, if the present state of affairs is the result of their efforts, the sooner they are suppressed the better. Medical men know the facts and need not hesitate to stand up and speak out, and, if for no higher motive than personal interest, it is wise to do so, for sooner or later, like any other fraud, it will be found out. The question is here germaine: "Has New York City tuberculosis accommodation enough?" In any such estimate we must take account of the probable large increase in the use of the city's tuberculosis hospitals and sanatoria by the better class poor. They will not go to them under present conditions, but probably would if what I advocate was done. No greater good could follow the adoption of this program than to have them take advantage of the means provided, from which we are now apparently doing our best to automatically exclude them. Even with this increase, I think it probable that there is tuberculosis hospital and sanatorium accommodation enough; certainly there will be with the enlarged Sea View. What are needed are tuberculosis homs and provision for tuberculous tramps and alcoholics. Every disease is worthy of effort and expenditure in proportion to the effects of its morbidity and the size of its mortality. Tuberculosis ranks high in both, and provision of public funds on this account should therefore be large; but what is chiefly required is intelligent use of what we have. More may be found necessary, but there is no profit in spending any more on tuberculosis institutions, if it is to be spent without any greater reference to ordinary common sense than at present.

THE OCCUPATIONAL FACTOR IN DISEASES OF WOMEN.

By ALFRED DE ROULET, M.S., M.D.,

CHICAGO.

PROFESSOR OF GYNECOLOGY, LYOLA UNIVERSITY MEDICAL SCHOOL. ATTENDING PHYSICIAN, HOUSE OF THE GOOD SHEPHERD.

SOCIETY is vitally interested in woman in her capacity of wife and mother and cannot regard complacently any arrangement of human affairs which will unfit her for these functions. Owing to the increasing numbers of women seeking employment outside of the home under conditions which may prove detrimental to health, the demands of childbearing and the laws governing that function remaining unchanged, a study of the effects of the new conditions upon both mother and child becomes necessary.

There is an extensive literature on occupational diseases and accidents from the employer's, the sanitarian's, the economist's, and the underwriter's standpoint, but there is little or nothing from the gynecologist's or obstetrician's.

In recent years there has been a great deal published in the current magazines, and especially in the British military journals, regarding the physical degeneration of the race. In our offices and dispensaries every day we hear the older women scoffing at their daughters' lack of endurance and boasting of the long hours of hard labor they themselves had endured when young. Is it not more than possible that in the overwork of the mothers might be found the cause of the weakened stamina of the daughters, or that the stock which furnishes our soldiers, largely the sons of working women, owes its deterioration to the same cause?

That women do not well endure the strain and hardships of industrial occupations is shown by the low birth rate, and the high death rate, and the frequent subnormalities both in size and weight which characterize the children of working mothers.

The statistics of the Leipsic Krankenkasse show that abortion occurs seven times more frequently in working than in nonworking women, that premature labor is six times as prevalent, and that the various accidents and complications of pregnancy and labor, as hyperemesis, placenta previa, ectopic gestation, premature detachment of placenta, hemorrhage, and uterine inertia are three times as frequent.

On account of her more delicate physique, a woman is not fitted for work requiring long-continued physical endurance. A woman under twenty cannot work continuously for ten hours a day in the most sanitary shop without serious injury or without

jeopardizing her chance of future usefulness as a woman. Neither her mind nor her body is fully developed, and the long hours, the monotonous work, the chronic exhaustion, the often unhygienic surroundings, to say nothing of the strain of existence on insufficient pay, are not conducive to physical or moral well-being.

Eight hours a day of ordinary work without undue nervous tension is enough to tax the strength of the average fully matured healthy young woman, yet in America 48 per cent. of all women workers are under twenty years of age and a large proportion of these are compelled by driving necessity to work at top speed for ten or more hours a day.

It is a question how much ill health among working women is due to injurious trade conditions and how much to outside factors, as poor or insufficient food, bad housing, unsuitable clothing, or vicious habits, but a little inquiry into both home surroundings and working conditions will enable one to form a reasonably correct opinion in any individual case.

Night work is particularly injurious, not only from the exhaustion incident to the long hours, the use of artificial light, and the absence of any possibility of recreation or relaxation, but also from the practical impossibility of obtaining sufficient sleep in day time. In shop practice it has been found that a year's unrelieved night work will break down physically and nervously all but the strongest girls.

Labor-saving machinery has added to the burdens of the working woman since the machine is now used as a means of speeding up production at the expense of the worker's health and strength. For example, the machine is set at a point where only by taxing every nerve to the limit can the operator keep pace. This effort causes a breakdown much sooner than does heavier work without the strain.

In certain of the hand trades, piece work is used as the lever for speeding up. Among tobacco workers, a stogy maker receives from 11 to 15 cents a hundred for rolling stogies. In some shops if she can roll over a thousand a day she gets an extra cent a hundred. In certain cracker factories, girls receive a cent a dozen for wrapping and sealing the packages of crackers with a bonus of ten cents offered if they can wrap over a hundred dozen a day, an almost impossible task. For sewing covers on boys' base balls, girls are paid 5 cents a dozen with hunger as the incentive to keep up the speed.

Certain trades are especially undesirable for women, such as those requiring long-continued standing, working in a stooping or bent position, lifting heavy weights, operating heavy machines, violent treadle work, or exposure to extremes of temperature, steam, dust, poisonous dusts and vapors, etc.

Women do not bear well the strain of long continued standing, as is required of sales girls, press feeders, and a large proportion of laundry and factory workers. This fact is so generally recognized that most States have laws requiring employers to furnish a reasonable number of seats for their female employees. Employers differ widely in their estimates of what constitutes "a reasonable number."

Prolonged standing not only exhausts the worker but it places an unnecessary strain on the arches of the feet and on the ankle, predisposes to curvatures of the spine, and is a factor of considerable importance in the development of downward and backward displacements of the uterus, of pelvic congestions, and of the various menstrual disorders. Varicose veins of the vulva and legs are common in young women while varicose veins and ulcers are even more common in older women.

In girls from 14 to 20 years old, prolonged standing and violent treadle work, such as is required in operating stamping and perforating presses, foot-power printing presses, and certain laundry machines, there is a noticeable effect upon the development of the pelvic bones.*

At this age the pelvic bones are not hard enough to withstand the almost constant pressure of continuous standing or the repeated impacts of treadle work. Prolonged standing of itself is undoubtedly responsible for a considerable percentage of simple flat and justominor pelves while the constant use of one leg in violent treadle work may readily cause a variable degree of oblique contraction together with a slight curvature of the spine. The lesser degrees of rachitic deformity may also develope in the same manner as the result of the mechanical factors just mentioned combined with a slight rachitis not uncommon in the underfed and ill-nourished factory girl.

In operating machinery where the girl stands on one foot and works a treadle with the other, the weight of the body being balanced on one leg, the pelvis gradually tips, being lower on the supported side, while the spine develops a compensatory scoliosis. At the same time the thrust of the supporting femur against the acetabulum tends to force the pelvic wall upward, backward, and inward and a marked oblique contraction may result. The younger the worker the greater the deformity.

In lifting heavy weights and in doing any kind of work requiring excessive muscular effort, the lungs are forcibly inflated and the abdominal muscles and diaphragm rigidly contracted. This causes a sudden violent increase of intraabdominal pressure, which, frequently repeated, may result in displacements of the pelvic organs, in the formation of hernias, and in abortion.

On the other hand, work requiring long-continued sitting bent over a machine or table, as in the sewing trades, watch factories, stogy and cigar making, coil winding, etc., is not devoid of harm. The bent position not only interferes with breathing but causes an injurious pressure on the lower abdomen, obstruct portal circulation, and is an important factor in the development of hemorrhoids and obstinate constipation so prevalent among these women. Among operators of foot-power sewing machines excessive menstruation is almost universal while in the sedentary factory trades anemia, chlorosis, tuberculosis, endometritis, sterility, and abortion are very frequent.

*Based on the external measurements of 826 working girls, all white, from 16 to 25 years of age and mostly nonpregnant. Cases of normal transverse diameters with an external conjugate of 18 cm. or less were classed as flat pelves. With an external conjugate of 18 to 20 cm. the case was classed, pending an internal measurement, as a possible flat pelvis. Of the 826 examined, 51 showed an external conjugate of 18 to 20 cm. while 43 showed a diameter of less than 18 cm. Of these 8 showed an interspinous diameter equal to or greater than the intercristal. 44 showed symmetric diminution of all diameters, 31 showed a difference of more than one cm. between the right and left oblique diameters, 18 showed a difference of more than 2 cm. between the right and left oblique diameters, while in 4 there was a difference of more than 3 cm. In 108 nonworking girls of approximately the same ages, 3 showed conjugates of 18 to 20 cm. one of 17½ cm. In 3 the pelvis was uniformly contracted, and in 2 there was a difference of over 2 cm. between the right and left oblique diameters.

Among tobacco workers, especially the makers of cheap cigars and stogies, who do their work either at their homes or in sweatshops, the girls are usually underpaid, overworked, crowded into filthy, unventilated rooms, the air of which is filled with clouds of the almost impalpable dust of the dried tobacco. Nasal and bronchial catarrh, conjunctivitis, and tuberculosis are very common while endometritis, menstrual disorders, and abortion are abnormally frequent.

In laundries, canneries, cracker factories, and preserving establishments the workers are exposed to extremes of temperature. In all of these the heat, the insufficient ventilation, the physical exhaustion, and the abrupt change at night from the superheated workrooms to the comparatively cold air outside renders these workers particularly liable to rheumatism, pneumonia, tuberculosis, and heart troubles.

In laundries the operation of the body ironer and the cuff press is the most harmful from the gynecologist's standpoint. Here the operator is not only working in a hot steamy air vitiated by the fumes of partially burned gas, but she is compelled at the same time to do the most violent form of treadle work.

The body ironer consists essentially of two heavy revolving metal cylinders, the upper one heated by means of gas jets in its interior, the lower one padded but not heated. The garment to be ironed is placed on the padded roll and forced by treadle action against the heated roll. To operate the reversing mechanism a second treadle action is necessary. With the left foot the operator bears heavily on the first treadle to force the rolls together. This pressure must be strong and continuous for the instant it is relaxed the lower roll drops. To reverse the direction of the rolls, the operator balances herself on one treadle and forces down the second, the weight being rapidly shifted from one treadle to the other until the garment is ironed. This work requires continuous, heavy, fatiguing muscular exertion. It is practically impossible for a girl weighing less than 170 pounds to run one of these machines, and an additional ten or fifteen pounds is an advantage rather than a detriment.

For operating cuff presses much younger girls are employed. Here the girl places a cuff on a padded saddle-shaped head and presses a treadle to force this head against a heated steam chest. A second kick causes the head to drop back, the cuff is turned and the process repeated. To iron a single cuff requires four distinct pressures on the treadle, and to hold her job a girl is expected to turn out at least 175 cuffs per hour.

Among operators of the body ironer uterine displacements, hernias, endometritis, and abortion are prevalent, while cuff-press operators, partly on account of their greater youth and partly on account of the difference in the character of the work, show an excessive number of pelvic deformities, menstrual disorders, and leucorrheas.

The operation of foot-power machines, where the machine is run by an alternate heel and toe pressure, as the ordinary sewing machine, results in a persistent pelvic congestion, characterized by excessive menstruation, dysmenorrhea, hemorrhoids, and backache. A number of gynecologists have taken advantage of this condition by prescribing a reasonable amount of work on the sewing machine for the relief of scanty menstruation.

Among the trades in which women are employed are a number in which there is daily contact with poison in one form or another. Of these so-called poisonous trades, those involving the use of lead and arsenic are the most important.

Lead is used in a multitude of industries, such as the manufacture, handling, and use of paints, the making of electric accumulators, printers' type, tin plate, the glazing of pottery, the polishing of glass, the manufacture of artificial gems, the weaving of lead-dyed yarns, china decorating, the manufacture of agate ware and enameled signs, etc. In all of these trades lead poisoning is of frequent occurrence. The inhalation of lead contaminated dust frequently causes respiratory troubles as the result of mechanical irritation of the respiratory mucosa, but poisoning results only from lead that is actually swallowed.

Women are much more susceptible to this poison than men, and young women are more susceptible than old. In women also the condition is much more serious than in men. The first evidence of plumbism is the appearance of a bluish discoloration along the gums, due to a deposit of lead sulphide in the tissues. This is followed by colic, obstinate constipation and a gradually increasing pallor. Later there is paralysis of certain groups of muscles, most often those of the wrist. Nephritis is usually present in well-developed cases. In addition to these symptoms in women there are headache, partial blindness, hysteria, coma, and sometimes insanity. A characteristic and very obstinate form of eczema occasionally develops.

Women in the lead trades are especially liable to abortion, and it is very seldom that one of these women gives birth to a healthy, well-developed, full-term child. A knowledge of this fact having become popularized in England cases of acute plumbism are occurring with increased frequency in the non-working classes.

Should a woman with lead poisoning give birth to an apparently healthy child, the latter will usually die before it is a year old. Should a nursing mother develop lead poisoning, the baby must be weaned at once, as the lead in the mother's milk will be sufficient to poison it.

Chronic arsenic poisoning is often unrecognized, but is of rather frequent occurrence in dye workers, makers of artificial flowers, zinc workers, trimmers in wholesale millinery shops, carpet weavers, and wall paper makers. The poisoning may be due either to the inhalation of arseniuretted hydrogen or to the swallowing or inhalation of arsenical dust or its contact with the skin.

When the poisoning is due to arseniuretted hydrogen, the symptoms begin almost immediately with shivering, weakness, headache, and collapse. Within the next twenty-four hours the urine becomes red or reddish brown from the presence of dissolved blood pigment. This is followed, if not accompanied, by a deep coppery jaundice. In severe cases death follows in from two to ten days. In mild cases the patient may recover, though the recovery is very slow and tedious. This form of poisoning occurs usually as an accident in the manufacture of zinc salts and in certain stages of the manufacture of galvanized iron. It is due to the unsuspected contamination of the zinc with arsenic.

The common form of arsenic poisoning is due to inhalation, swallowing, or contact with some form of arsenic. The skin becomes irregularly pigmented, the nails loosen, ulcers and eczematous patches appear on exposed parts of the body. Sore

throat, conjunctivitis, and nasal catarrh are usually present, while digestive disturbances, loss of appetite, vomiting, diarrhea, nervous symptoms, paresthesias, anesthesias, muscle weakness, and paralysis are not unusual. In addition to these symptoms deep, stubborn, punched-out ulcers frequently appear on the genital mucosa. Similar genital ulcers have also been observed in chronic mercurial poisoning, especially as it occurs in felt workers.

In the felt industry nitrate of mercury is used to increase the felting qualities of the rabbit fur used in making the best grades of felt. In addition to the genital ulcers already mentioned, these workers show severe inflammations and ulcerations of the respiratory mucosa, as the result of the inhalation of particles of lint saturated with the mercury salt. The teeth become blackened and corroded, the gums retracted, and not infrequently the molars fall out. These women also show a characteristic tremor known in the trade as hatter's or felter's shakes.

In both mercury and arsenic workers abortion, endometritis, menstrual derangements, and nervous disorders are very prevalent, but not to so great an extent as in the lead industries.

Considerable numbers of women are employed in cleaning establishments where naphtha is used. These women suffer from headache, vertigo, nausea, and vomiting. At first the symptoms are similar to those of acute alcoholism and disappear when the sufferer goes out into the fresh air. The irritating action of the vapor on the respiratory mucosa soon results in a chronic bronchitis, while the taste of naphtha in everything eaten soon causes a distaste, if not an actual loathing for food. Starvation results in malnutrition and profound anemia. Later the sight becomes weakened and there is a distinct loss of muscle power. Mental depression and hallucinations are of rather frequent occurence, while abortion, sterility, dysmenorrhea, and amenorrhea are exceedingly common.

In the rubber industry many of the employees are subjected to the fumes of carbon disulphide used in vulcanizing. While the carbon disulphide process is cheap it cannot be made safe and the poison is one to which women are exceedingly susceptible.

Industrial carbon disulphide poisoning is usually more or less chronic in character and is due to the long-continued inhalation of minute quantities of the vapor. After a variable time the worker begins to suffer from violent headaches, giddiness, and lassitude. The body is cold, the skin smarts and tingles. Later, a stage of excitement supervenes, during which the patient is nervous, irritable, and absolutely unable to sleep. Following this is a progressive diminution of muscle power, muscular twitching, and incoordination. The muscles waste and paralysis in varying degrees appears. Vision is usually diminished. Mental deterioration commences, the memory fails, perception is blunted, speaking becomes difficult; anemia is marked. Sterility and menstrual derangements are usually present.

The chronic form of this poisoning is rarely fatal. The mild cases run a tedious course, but gradually recover on change of occupation. The severe cases may improve as the result of a complete change, but the mental and physical deterioration is usually permanent.

Aniline poisoning is occasionally seen in this country and is usually of rather more interest to the urologist than to the gynecologist. Crude anilines are generally contaminated with arsenic, and as a result the majority of cases of aniline poisoning reported in America are not aniline but arsenic poisoning.

Genuine aniline poisoning is occasionally encountered among the makers of black inks and among the dyers of black woolens. The poison is absorbed through the skin or by inhalation. It acts on the red corpuscles of the blood causing a discharge of the coloring matter and the formation of methemaglobin. The symptoms are headache, dizziness, muscular weakness, cyanosis, and in severe cases air hunger. Nephritis appears early and persists long after the disappearance of all other symptoms. In chronic aniline poisoning tumors of the bladder, both malignant and benign, are of remarkably frequent occurrence. In the European aniline works a thorough cystoscopic examination is required in all cases of suspected poisoning.

For want of time only a small number of the more important occupations having a direct bearing on pelvic disease have been considered. Many occupations directly affecting the pelvic organs have been omitted because of the small number of women engaged therein.

The trades involving grave constitutional deterioration but not directly affecting the pelvic structures, as the sewing and textile trades with their frightful toll of tuberculosis, core making, and the steamy trades with their pneumonia, rheumatism, and cardiac disease, and the speeded factory trades with their physical and nervous breakdown, have of necessity been considered outside the scope of this paper, yet these conditions constitute a grave menace to the welfare of the race and urgently demand further study as to their effect on the health of women workers, on their reproductive capacity, and on the children they bear.

15 East Washington Street.

SOME OCULAR MANIFESTATIONS OF AURAL DISTURBANCES AND THEIR INTERPRETATION.

By J. A. HAGEMANN, M.D.,

PITTSBURGH, PA.

A SCRUTINY of the approved text-books dealing with otology leaves the impression upon one that the signification of eye symptoms due to conditions in the ear is not adequately elucidated by the authors. An endeavor to supplement this deficiency is the motive of the present paper. Teleologically considered, ocular nystagmus, resulting from aural pathology or experiment has been an enigma, the solution of which has taxed the perseverance and defeated the ingenuity of numerous investigators. It is uncontroverted that ocular nystagmus may be induced by several cranial lesions other than aural, but they are intentionally disregarded herein, as their consideration would transgress the limits and purposes of this paper. It is a matter of common empirical knowledge that the familiar rotation tests, caloric tests, etc., either establish or disprove labyrinthine involvement, but the raison d'être remains abstruse.

The nerves, or branches of some of them, which are to be considered in scrutinizing the supply of the eye-moving muscles whose concordances with aural irritations serve as our index, are the third, fifth, fourth, sixth, and seventh. The third, or

motor oculi, supplies all the muscles of the orbit except the superior oblique and the external rectus. The motor oculi emerges at the anterior border of the pons and passes forward diagonally to the clinoid process of the sphenoid bone. The nerve divides into two rami, which enter the optic cavity by way of the superior orbital fissure in communion with the trochlear, and the first ramus of the trigeminus (ophthalmic), and the abducens nerves, in order to reach the ocular muscles innervated by them, and to supply the levator palpebræ superioris muscle. The three rami of the fifth or trigeminus nerve (ophthalmic, supramaxillaris, and inframaxillaris) all enter the Gasserian ganglion. The first division of the ophthalmic ramus of the fifth, the lacrymal, supplies the lacrymal gland and the conjunctiva, terminating in the integument of the upper eyelid. The trunk of the trigeminus becomes discernible at the basal surface of the pons. The anterior (motor) root makes its exit between the anterior decussating fibers of the pons, and is almost covered by the posterior (sensory) root. Both roots lie in close apposition and presently enter Meckel's cave. This cave is formed by a separation of the dura mater into its two layers, and is located upon the upper and anterior surface of the temporal pyramid. Near the apex of the pyramid formed by the temporal bone there is a depression lined with the external layer of the dura, which assumes the functions of periosteum. The Gasserian ganglion rests in this depression, and is covered by the inner layer of the dura. The fourth, or trochlear nerve, emerges immediately behind the corpora quadrigemina, winds round the outer side of the crus cerebri, immediately above the pons Varolii, pierces the dura mater in the free border of the tentorium cerebelli, and passes forward through the outer wall of the cavernous sinus toward the orbit, where it supplies the superior oblique muscle. The sixth nerve (abducens) springs from the corpus pyramidale near the pons or from the pons itself. The deep origin has been traced into the medulla. Before leaving the posterior cranial fossa the abducens approaches the base of the brain, and courses subdurally to the cavernous sinus, whose posterior wall it pierces. After traversing the sinus, the nerve enters the orbital fossa by way of the superior orbital fissure. It supplies the external rectus muscle. The auditory nerve (portio mollis of the seventh pair) arises from the floor of the fourth ventricle, and is also involved with the gray matter of the medulla. In conjunction with the facial nerve, the auditory, after a short course along the base of the brain, enters the internal auditory meatus. The two nerves shortly separate, however, and the auditory continues its course to divide into its two ramifications, the cochlear and vestibular nerves, whose titles sufficiently indicate their destination.

The foregoing condensed and necessarily incomplete summary of the origin, course, and distribution of the several nerves which participate in the various reactions brought about by the involved relations between the ear and eye is merely introduced for the purpose of refreshing the reader's memory upon the anatomical relations embraced. By the aid of illustrations contained in almost any volume on anatomy, the salient anatomical points will be brought out in relief, and simplify what at first glance might appear a difficult or complex subject. A vinculum between the cortical centers controlling optic muscular movements and the medullar and allied optical centers has not been unequivocally demonstrated. As a result of experimental and pathological observations, theoretical association-centers have been interpolated, whose apparent location is in the large ganglionic cells situated about the corpora quadrigemina. From these cells a tract arises which descends toward the medulla, and by reason of its relationship to the nuclei of the several nerves which supply the eye muscles, may be regarded as a reflex center. If we accept this view, we are supplied with a practical hypothesis to interpret the significant ocular manifestations of auricular irritation. The impression propelled from the semicircular canals, be it experimentally or pathologically aroused, is borne along the course of the auditory nerve. At or near its source the conjectural association centers convert the impressions into motor impulses, which are projected along the several nerves supplying the ocular muscles. Not emanating from conscious, cortical direction, it is cognizable that the resultant muscular movements should be signally different from those under the guidance of conscious cerebration. Yet these involuntary, graphic manifestations are anything but erratic. By painstaking intentness one is enabled to localize approximately certain aural lesions, and to corroborate or refute diagnoses based upon other signs and symptoms. Confusion has resulted from the indiscriminate use of the term "reflex" as applied to the subject under discussion. It should be borne in mind that ocular evidences of aural pathology may be manifested in three diverse ways. Firstly, as a reflex; secondly, as a transmission, and thirdly, as an effect of a direct impairment of a nerve in transit. The familiar ocular nystagmus is a true reflex, as the impression is borne to a distributing center, whence it is propelled via a different nerve to its ultimate destination.

To enter upon a description of the manifold ocular responses to auricular irritation would lead us too far afield, and would be but a repetition of text-book lore. Suffice it to assume that the medullar auricular centers, having received an impression of unusual disturbance in the semicircular canals, at once take on an exaggerated responsivity. While in this discordant state their normal functions are notably perverted. Being intimately associated with the neighboring ocular muscle centers, they readily impart their perturbation to these, whereby more or less involuntary, spasmodic contractions of the ocular muscles and consequent nystagmus are produced. Even the voluntary ocular movements imposed by the cerebral cortical centers may be imperfectly performed; a turning of the eyes laterally or perpendicularly resulting in a decided nystagmus, whose direction and form are contingent on the location of the irritation in the semicircular canals.

The second manner by which a correlation between the middle ear and the eye may be established is through the instrumentality of the trigeminus nerve. During the course of a case of acute purulent otitis media severe pain in the eye may be experienced, accompanied with the symptoms ordinarily characteristic of conjunctivitis. This is not a reflex, but a transmission, as the impulse is not borne centripetally to a cerebral or cerebellar center, thence to be propelled centrifugally along the course of another nerve, but passes from one branch to another of the same nerve by a circuitous route, and the resultant paroxysm is in reality a

distal manifestation of the enkindling excitation. The impulse passes along branches of the trigeminus, beginning at the nerve-filament that supplies the tensor tympani muscle. This filament is derived from the optic ganglion, which vinculates with the auriculotemporal nerve, a branch of the inferior maxillary, itself the third division of the fifth nerve. The impulse then traverses the first or ophthalmic division of the trigeminus to its lacrymal branch, where the afflictive evidence of the distant irritation becomes perceptible through pain, lacrymation, photophobia, etc.

The third and least prevalent way in which correlation between an aural pathology and ocular manifestations may be occasioned is by direct impairment or ravage of a nerve that supplies one or more ocular muscles. Generally and collectively speaking, the trochlear, motor oculi, and abducens nerves and the Gasserian ganglion lie over the apical end of the temporal bone. The abducens is particularly vulnerable here, because it courses in a fibrinous or bony gutter or duct from the outer side of the inferior petrosal sinus to the cavernous sinus, and at this point hugs the bone for perhaps 1 cm.

As already mentioned, the Gasserian ganglion lies in a shallow concavity near the apex of the temporal bone. Occasionally a temporal bone will contain a chain of pneumatic cells extending from the vicinity of the middle ear to the apex. It is conceivable, and has been necroscopically demonstrated, that an infective process may traverse this channel, perforate the surface of the bone, and invade the neural fibers lying in close apposition thereto. Injury or destruction of the abducens nerve would be announced by paralysis of the external rectus muscle; a condition readily elicited. On attempting to look toward the paralyzed side, the affected eye will stop centrally, the while its mate will turn toward the inner canthus. Trauma of the Gasserian ganglion would be heralded by conjunctivitis, atrophy of the cornea, and other grave signs separate from the eye. Paralysis of the trochlear nerve has been reported. This would be evidenced by loss of function of the superior oblique muscle.

The import of pupillary contraction and expansion as a result of diseases of the ear is not well understood. Apparently similar conditions will, in different patients, produce diametrically opposite reactions. Inequality of the pupils, particularly in children, should in the absence of palpable causes, prompt one to search for aural pathology.

While the foregoing discourse is far from being exhaustive, the hope is cherished that it may prove of assistance to some other in unraveling several of the tangled skeins which occasionally come into our hands.

Highland Building.

A CLINICAL REPORT OF THE SUCCESSFUL USE OF EMETINE IN THE CONTROL OF HEMORRHAGE FOLLOWING NASO-PHARYNGEAL OPERATIONS

By JOSEPH WEINSTEIN, M.D.,

NEW YORK.

The following report of 12 cases in which emetine was successfully employed to control or prevent hemorrhage during and after operations upon the nose and throat is not submitted by the writer as a positive statement that emetine will control all such cases of hemorrhage, but as an invitation to his fellow workers in the field of rhinology and laryngology to cooperate with him in the "trying out" of a remedy, which, if found to be efficacious, will be of inestimable benefit to mankind.

Pelletier, in 1867, separated from ipecacuanha its emetic principle and named it emetine. Paul and Cownley in 1894 isolated its two crystalline alkaloids, emetine and cephaeline. Since then emetine has been most successfully employed in several fields of medicine. Captain Edward P. Vedder, U. S. A., and Dr. Leonard Rogers of Calcutta have demonstrated its use in cases of amebic dysentery, in which they are supported by such men as Chauffard, Dopter, Lukis, Low, Allen, Friedenwall, and Zobel.

Rogers has also demonstrated its uses in cases of amebic hepatitis, and with others its value diagnostically, the true amebic dysentery reacting to emetine within three days after its injection hyperdermatically.

Renault has recently employed it in the treatment of cholera, obtaining, in a severe epidemic, 73 per cent. of recoveries. Flandin and Joltrain used emetine successfully in the hemoptysis of tuberculosis, and French physicians, for hemorrhage occurring in typhoid and uterine hemorrhage following cancer.

Dr. Joseph P. Prestley employed it successfully in controlling a case of obstinate nosebleed, and Dr. William Sellers in a case of persistent hemorrhage from the gums. In 1914 Barrett and Smith demonstrated its use in pyorrhea alveolaris and also state that emetine hydrochloride given subcutaneously is likely to prove curative in many cases of tonsillitis. In this they are supported by Middleton.

No mention seems to have been made thus far in the literature of emetine having been previously employed in nasopharyngeal surgery, and in using the drug in this field the writer has been influenced entirely by his own studies and observations. The action of emetine upon hemorrhage has not, as yet, been satisfactorily explained. It does not coagulate the blood nor does it lower the blood pressure, but apparently acts directly upon the capillaries by closing them up.

The writer is mindful of the small number of cases which he is submitting in testimony of the efficacy of emetine to control hemorrhage of this class, but trusts that this report may be a nucleus about which many other reports of the successful employment of emetine in this field will rapidly grow.

Case I.—Miss K. P. Tonsillectomy under local anesthesia. Injection—emetine hydrochloride one-half grain, half an hour previous to operation. No hemorrhage.

In the following series of 11 cases the emetine was given immediately *after* operation.

Case II.—Mrs. H. Complete obstruction of both nasal fossa, disease of the ethmoid, nasal polypii. Bled profusely when operated upon for polypi several years previous, to the extent that posterior packing was necessary for 48 hours. Operated on at present time for polypi and ethmoid (one side). Practically no hemorrhage.

Case III.—Mrs. M. Chronic suppurative ethmoiditis. Clinical history of profuse bleeder; weight 260 pounds. Practically no hemorrhage. Packing was removed after six hours with slight oozing, which subsided in twenty minutes.

Case IV.—Mr. H. Deviated septum. Removed posterior ends of inferior turbinates. Packing removed next morning. No bleeding. This patient had had previous nasal operation when bleeding continued for five days.

Case V.—Mr. S. Tonsillectomy (double) under ether anesthesia. No hemorrhage.

Case VI.—Mr. G. Severe hemorrhage following tonsillectomy. Operation was performed by another physician, followed after five hours by a severe hemorrhage. Every means had been employed to check it. Hemorrhage ceased in ten minutes after one injection of emetine.

Case VII.—Mr. J. G. Capillary bleeding from septum extending over a year's time. Would stop at times, but always recurred within two or three days. Various treatments unsuccessfully employed. Since injection of emetine three weeks ago there has been no recurrence of bleeding.

Case VIII.—Mrs. G. Deviated septum. No hemorrhage. This case is particularly interesting as when packing was removed there was not *one drop* of blood.

Case IX.—Miss F. Double middle turbinectomy, followed by profuse bleeding. Controlled in ten minutes after one injection of emetine.

Case X.—Mrs. G. Hypertrophied margins of both inferior turbinates removed, also posterior ends of both inferior turbinates. No bleeding followed. Patient attended theater same evening. Profuse bleeding next morning when packing was removed. A second injection of emetine was given previous to repacking. Hemorrhage ceased in five minutes and repacking was not necessary. This is the only case in which the writer found it necessary to give a second injection of emetine.

Case XI.—Mrs. R. Double middle turbinectomy. Packing removed from one side of nose after eight hours. No bleeding. No hemorrhage the next morning when the packing from the other side was removed.

Case XII.—Mr. L. Posterior ends of both inferior turbinates removed, and right middle turbinectomy. No hemorrhage when packing was removed next morning.

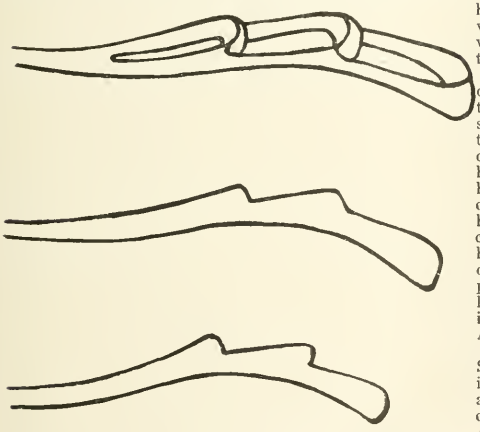
In each instance ½ grain emetine hydrochloride was given hypodermatically.

261 Central Park West.

THE ROMEO THREE-BLADED UTERINE CURETTE.

By PASCAL ROMEO, Ph.B., M.D.,
KANSAS CITY, KANSAS.

The curette which I have designed is intended, so far as it is possible, to eliminate the disadvantages of the ordinary curette and to make thorough and



uniform curettage a safe operation, even at the hands of those who are not very familiar with the required technique.

The curette has three blades arranged in stepping formation, as can be seen by the accompanying illustration, along the convex side of the instrument, in such a way that during the curettage all three blades will engage simultaneously on the inner surface of the uterus. The concave shape of the uterus conforms to the convex shape of the curette and with the three points of contact of the same, the danger of perforating the womb is avoided and the curettage is made thorough, since the instrument is prevented from cutting too much or too little into the uterine tissues by its anatomical points of contact. In the puerperal uterus, where there is retention of membranes on account of abnormal adhesions, the common curette, even the dull one, may cause undue trauma and may not always free the uterine cavity from foreign bodies.

In this case the three-bladed curette renders a very great service, as the work of the same is controlled by the association of all three blades and their anatomical arrangement.

My personal experience in a large maternity home, also the testimonial of many obstetricians and gynecologists at home and abroad, have determined me to present the three-bladed curette to the medical profession at large, as it may be interested in its general practice, especially where a specialist is not always available. The curette is manufactured by Becton, Dickinson & Co. of Rutherford, N. J.

346 North Fifth Street.

Medicolegal Notes.

Grounds of Liability in Malpractice Cases.—In an action against a physician for malpractice, based on his negligence in placing the plaintiff's swollen and inflamed leg in a plaster cast so tight as to impede circulation and cause blood poisoning, the jury rendered a general verdict for the plaintiff, and specially found that it was the customary practice to so incase an injured limb; that the plaintiff continued to suffer intense pain after the cast was placed on her leg; that gangrene might be produced without blood poisoning; that a tight bandage would not produce blood poisoning without first producing gangrene; that pain existing before the cast was put on was due to a sprained ankle; that a disease of the bone substance, in which pus was present, existed; and that neither bone of the plaintiff's leg was fractured nor split. The jury did not find that her hip was not dislocated. It was held that the special verdict was not in conflict with the general verdict, with all legitimate inferences from the evidence within the issues authorizing a recovery.

The question of negligence, or failure to exercise ordinary skill and care in the treatment of any particular case, does not depend upon the professional skill and learning of the physician, but is to be determined from a consideration of his acts, conduct, omissions, and treatment in the particular instance. If he possessed the highest degree of skill and learning in his profession, and failed to exercise the care and diligence required by the law in treating the patient, his skill and learning could not shield him from the consequences of such negligent treatment. On the other hand, if he did not possess the skill and learning required by the legal standard, but his treatment in the particular instance was proper, he could not be held liable for the want of such skill which resulted in no injury to the patient.—Longfellow v. Vernon, Indiana Appellate Court, 105 N. E. 178.

Sales by Itinerant Vendors.—The United States Supreme Court holds that prohibiting the sale by itinerant vendors of "any drug, nostrum, ointment, or application of any kind intended for the treatment of disease or injury," as is done by Louisiana Laws 1894, Act No. 49, section 12, does not violate the equal protection or due process of law clauses of the Fourteenth Amendment to the Federal Constitution, although the sale of such articles by other persons is permitted.—Baccus v. Louisiana, 232 U. S. 334, 34 Sup. Ct. 439.

Basis of Hypothetical Question.—A hypothetical question, to an expert called for the plaintiff in a malpractice case, as to a treatment being proper to reduce a fracture, may be based on what the plaintiff's witnesses alone testify was done, and need not contain what the defendant claims was done.—Duffy v. Charters, Michigan Supreme Court, 147 N. W. 541.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 16, 1915.

PHYSICOCHEMICAL STUDIES ON THE BLOOD.

FROM the viewpoint of diagnosis the greatest emphasis has been placed upon the morphology of the blood and comparatively scant attention has been paid to the physicochemical changes that occur in this medium under normal and pathological conditions. The studies of Hamburger on the osmotic and ionic properties of the blood formed the basis for a large number of investigations along this line, most of which have been concerned with seeking the application of the fundamental laws of physics to the vital fluid. The majority of the studies of the physical properties of the blood have been concerned with the so-called resistance of the red corpuscles to hypotonic salt solutions.

A comprehensive research into the nature and degree of the last-mentioned phenomenon has been made by Gottfried Holler (*Zeitschrift für klinische Medizin*, Vol. 81, Nos. 1 and 2). The resistance of the red blood cells is regarded as a complex phenomenon dependent upon the actual resistance of the protoplasmic framework and the osmotic pressure of the intracellular fluid. The author devised a special technique for studying the degree of this resistance under various conditions. The main features of this technique consist in the preparation of two similar series of tubes containing solutions of sodium chloride and arranged in an order according to the descending concentration of the solution. Suspensions of red blood cells are added to both series of tubes; but the suspension added to one of the series is first repeatedly washed in physiological salt solution. The tubes are allowed to stand for twenty-four hours and are then examined against a white background. The red corpuscles form a sediment at the bottom of the tubes. The tube in which the supernatant liquid first shows the slightest red tinge is regarded as the one which indicates the minimum degree of resistance of the red blood cells to hemolysis.

With this technique it was found that under normal conditions the minimum resistance for unwashed red blood cells is indicated by the tubes having a saline concentration of 0.44 to 0.48 per cent. In case of the washed corpuscles the resistance is lower. Holler used this method in studying the resistance of the red blood cells in a wide range of diseases. Thus in febrile conditions generally there is a diminution in resistance, a fact attributed to the reduced alkalinity of the blood. On the other hand, in typhoid fever and pneumonia the globular resistance is increased as the result of the withdrawal of sodium chloride from the red blood cells to supply the demands of the exudate and the setting free of chlorine ions which have an important effect upon the osmotic pressure of the cellular content. In jaundice there is an increased resistance, while in severe anemia, as in chlorosis, the resistance is diminished. In the primary hemolytic anemias there is evidence of a biochemical peculiarity which favors the early lysis of the red blood cells.

The technique elaborated by Holler lends itself readily to routine laboratory work on the blood, and promises results of eminent diagnostic value, particularly in the realm of hematology.

THE MECHANISM OF URINARY EXCRETION.

THE newer studies of the functional capacity of the kidneys have been undertaken with reference to this organ as a whole, rather than with reference to any of its constituent parts. To what extent these studies will serve to throw any light upon the long-disputed problem as to the relative rôles of the Malpighian bodies and of the convoluted tubules is still a matter for conjecture. At any rate, the older physiological data will require thorough overhauling with the aid of the newer functional tests. The old controversy has waged about the hypothesis of Bowman which held that the vessels of the glomeruli act as filters and permit only the water of the blood to escape, while the convoluted tubules excrete the urea and the salts; and the hypothesis of Ludwig which held that the glomeruli excrete the entire urine with all of its constituents while the concentrating of the urine is regulated by the cells of the convoluted tubules which absorb water to a considerable extent from the urinary excretion.

Erich Leschke has applied the newer methods with the aid of dyestuffs in testing the relative merits of the above theories and reports his results in the *Zeitschrift fur klinische Medizin*, Vol. 81, Nos. 1 and 2. He notes that previous investigations along this line have shown that the greater part of the coloring matter injected into the blood is eliminated by way of the convoluted tubules, while the rôle of the glomeruli with respect to these dyestuffs is still problematical. The author's investigations has confirmed those made by others, namely, that foreign substances such as the salts of ferrocyanic acid and iodine are excreted by the cells of the convoluted tubules. None of these salts has been detected in the cells of the glomeruli. With the aid of original histochemical methods Leschke has shown that the important urinary constituents are all excreted by the cells of the convoluted tubules. The glomeruli excrete water together with a percentage of sodium chloride and of other salts corresponding to that in a physiological salt solution. If large amounts of these salts and of urea and purin bodies are injected into the body, the excess is eliminated by the convoluted tubules, while the glomeruli continue to excrete the fluid

having the equivalent concentration of physiological salt solution. The specific activities of the cells of the convoluted tubules control the concentration of the urinary outflow.

The important researches of Leschke tend to substantiate the original theory advanced by Bowman. To what extent the cells of the uriniferous tubules are capable of effecting a resorption of water is uncertain. But any hypothesis regarding this is unnecessary, in view of the specific activities of the cells which excrete the urinary constituents.

EXPERIMENTS ON THE ETIOLOGY OF ECLAMPSIA.

A LARGE number of theories have been advanced to explain the origin of eclampsia, but the one which seems to hold greatest sway is that which attributes this condition to an intoxication. E. T. Hull and G. L. Rohdenburg (*American Journal of Obstetrics and Diseases of Women and Children*, December, 1914) performed a series of experiments upon rabbits, based upon the hypothesis that eclampsia is due to an excess in the maternal circulation of the products of the digestion of fetal protein. It is pointed out that with the exception of bacterial disease and intentional injection, pregnancy is the only condition in which complex proteins are introduced into the general circulation parenterally.

As a result of the above experiments it was found that ferment-active homologous protein introduced parenterally causes an extensive degeneration of the liver and, as a rule, but slight degeneration of the kidney. These changes in the rabbit correspond to those observed in the case of the eclamptic human female. If the homologous protein is boiled so as to destroy the enzymes and is then introduced parenterally it causes but slight lesions in the liver; but, on the other hand, it causes marked lesions in the kidneys, as evidenced by the large amounts of albumin and casts in the urine. The animals die in convulsions and coma, manifesting all the symptoms of human eclampsia. The injection of leucin, a product of autolysis, causes a marked degeneration of the liver in rats and rabbits.

The authors believe that an overload of fetal elements is thrown into the circulation and is autolyzed with the formation of an excess of leucin. This injures the hepatic vessels with consequent thrombosis, cloudy swelling, local necrosis, and more or less complete autolysis of the liver cells. The renal changes are regarded as probably due in part to other products of autolysis and perhaps also to protein fractions incompletely broken down by the liver. The liver may be damaged to a surprising degree experimentally before clinical symptoms appear in the animals.

Hull and Rohdenburg believe that the hemorrhages and the convulsions are due not to extensive hepatic changes but to the renal lesions. They attribute considerable importance to albuminuria as a clinical sign, since severe renal degeneration appears to be the predominant lesion. The suggestion is made that a negative protective ferment and the determination of the leucin content of the blood in a pregnant patient may be of diagnostic value.

THE PASSING OF STATE QUARANTINE.

WITH the change of administration of the New York State Government, strong hopes are entertained that the quarantine station at this port will before long be transferred to the care of the Public Health Service; indeed, it is said that the arrangements for this transfer are already being discussed. If this is done it will be but a short time before the anachronism of city or State quarantines will be definitely at an end. At present there are only three places in the country where this condition prevails, and at one of these, Baltimore, the quarantine service is practically under federal control, for the Public Health Service maintains a quarantine at Cape Charles which all vessels for Baltimore must pass before entering the Chesapeake. The other local quarantine is at Boston, and we learn from the *Boston Medical and Surgical Journal* that the transfer of the control of this station is under serious discussion, having been already approved by the Boston Association for the Relief and Control of Tuberculosis, the Norfolk and Suffolk Districts of the Massachusetts Medical Society, the Boston Homeopathic Medical Society, and the Boston Finance Commission. The transfer of these three quarantine services to the control of the federal government would be in the interests of public health, of administrative economy, and of good politics.

AN OVERLOOKED FACTOR IN THE DEVELOPMENT OF EUROPEAN WAR TETANUS.

THE frequency of tetanus wound infection in the present war, especially among the German troops, has already given rise to an extensive journal literature characterized largely by efforts at placing the responsibility where it really belongs. We see at one or two hospitals 100 per cent. of recoveries, in others medium mortalities, while in some others, despite all precautions, the death rate approximates 100 per cent. A factor occasionally invoked is wet weather or some other condition of the milieu, while even the *genius epidemicus* of old writers is again up for discussion. It seems quite evident that the German surgeons have never been informed as to some work done this year in the Hygienic Laboratory of our Public Health Service. The work was rather unpretentious—only a record of experiments on small laboratory animals; but the evidence went to show that tetanus bacilli could circulate in the blood freely without forming any toxin until they came in contact with some special local disease process which appeared at once to activate them. Any staphylococcus suppuration might answer for this purpose, and, strange to relate, the presence of quinine in the tissues after a subcutaneous injection of the latter showed similar powers. It is held in standard works that the tetanus bacillus is merely fixed by the peripheral nerves and never enters the circulation. This is probably true so far as virulent bacilli are concerned, but in regard to a latent form this possibility seems never to have been worked out in mankind.

CHAULMOOGRA OIL IN LEPROSY.

CHAULMOOGRA oil has of course been employed in the treatment of leprosy for some little time by different methods, and in various combinations. Dr. Victor G. Heiser, surgeon, U. S. Public Health Service and Director of Health for the Philippine Islands, has, however, been conducting investigations

with regard to the value of a mixture of Chaulmoogra oil, camphorated oil, and resorcin used hypodermically in the treatment of leprosy. A report on the matter was read at the eleventh annual meeting of the American Society of Tropical Medicine, held in Boston, Mass., May 29 and 30, 1914. The summary and conclusion of this report are published in Public Health Reports, Oct 16, 1914, and the conclusion is briefly as follows: The present stage of the development of the treatment does not warrant a claim that anything like a specific for leprosy has been found, but experience does show that it gives more consistently favorable results than any other that has come to the attention of Heiser and his co-workers. It produces apparent cures in some cases, causes great improvement in many others, and arrests the progress of the disease in almost every instance. The treatment is apparently equally efficacious in all forms of the disease, that is, the tubercular or hypertrophic, the anesthetic, and the mixed.

Ground Squirrels.

Ground-squirrel plague, although not identical with true bubonic plague, can be communicated by the animal infected to man without the intervention of fleas or biting insects. This fact is pointed out in a paper contributed by Dr. Derrick T. Vail of Cincinnati, in describing a case of "squirrel plague" conjunctivitis in man, to the *Ophthalmic Record* for October, 1914. Like the bovine tubercle bacillus, the squirrel plague bacillus, while communicable to man, is distinct from the human plague bacillus and less virulent in its effects. Dr. Vail shows that the case described by him was beyond doubt one of squirrel plague ophthalmia and, so far as he is aware, the first case of the kind ever recorded. In Public Health Reports, December 11, 1914, Dr. J. O. Lyon, surgeon, U. S. Public Health Service discusses the economy of ground squirrel extermination, which seems to prove conclusively that these animals are exceedingly destructive. Thus from the points of view of both health and economy ground squirrels are pests whose extermination is indicated.

News of the Week.

Belgian Physicians' Relief Fund.—The following contributions were received by the Committee of American Physicians for the Relief of the Belgian Profession during the week ending January 9, 1915:

E. G. M.	$10.00	G. E. L.	$5.00
L. M. W.	5.00	E. E. K.	10.00
A. T.	10.00	A. M. C. O.	100.00
J. G. R. M.	25.00	D. S. M.	10.00
J. C. T.	25.00	C. M. B.	1.00
L. C. F.	10.15	M. C. M. S.	25.00
E. T. F.	10.15	H. M. S.	10.00
F. W. S.	10.00	E. H. M.	5.00
G. L. H.	25.00		
Total			$296.30
Previously reported			$662.50
Grand total			$958.80

It has been thought best to make public acknowledgment of contributions by initials only, but we feel we are violating no confidence in stating that the initials A. M. C. O. and M. C. M. S. stand for the Academy of Medicine, Cincinnati, Ohio, and the Marion County (Ohio) Medical Society. These two bodies have set a good example which might be followed with great advantage to our suffering Belgian colleagues by other medical societies—local, State and county—throughout the country.

The Gorgas Prize Medal.—Dr. Harold Hays, Secretary, writes that a prize, to be known as the Gorgas Medal, to be given yearly in honor of Surgeon-General Gorgas, has been established by the Association of the Medical Reserve Corps, U. S. Army, New York State Division. This medal is open to competition to members of the Medical Corps of the United States Army, the Medical Reserve Corps of the United States Army, and the Medical Corps of the organized militia. Officers may submit papers on any subject of a medico-military nature. General Gorgas has appointed the following board of officers to act upon papers submitted: Colonel Charles Richard, Lieut.-Col. Champe C. McCulloch, Jr., and Major Eugene R. Whitmore, Army Medical Corps. These officers are members of the faculty of the Army Medical School and will have sole authority to appoint the time that papers are to be submitted, and to pass upon the merits of the papers. All inquiries should be addressed to one of these officers.

Dr. Otto Kiliani of this city, who is now serving with the Bavarian army in charge of a lazaretto at the front, has received the iron cross for conspicuous services.

Dr. Charles F. Stokes, recently Surgeon-General of the U. S. Navy, has been offered by the New York City Board of Inebriety the position of superintendent of the city farm colony for inebriates in Orange county. The farm colony occupies 800 acres near Warwick and now has thirty-two inebriates under treatment. A temporary dormitory is being erected, so that soon fifty-six more men can be accommodated.

Dr. S. Lewis Ziegler has been appointed Director of Public Health and Charities of Philadelphia in succession to Dr. Richard H. Harte, resigned.

A Japanese Red Cross Party passed through New York this week on its way to England, sailing hence on Wednesday. The party consisted of two surgeons, seventeen nurses, and an interpreter. The chief surgeon was a former member of the medical corps of the Japanese army, Dr. Suzuki, and his assistant, Dr. T. Oshima. Miss Yamamoto was in charge of the nurses. Three Red Cross units have been sent to Europe, one each to Russia, France, and England.

Medical Lawmakers.—The Portland *Argus* says that twelve members of the present State Legislature of Maine are medical men, five in the Senate and seven in the House. The physicians in the Senate are Drs. Aaron J. Fulton of Aroostook, A. M. Garcelon of Androscoggin, Henry M. Moulton of Cumberland, G. Gilmore Weld of Penobscot, and Wallace N. Price of Sagadahoc. Those in the House are Drs. Albert W. Plummer of Lisbon Falls, Richard T. Leader of Lewiston, Augustine B. Libby of Merrill, Isaac D. Harper of Gorham, Elmer J. Morrison of Bar Harbor, Cecil E. Wasgatt of Deer Isle, and Adelbert Merrill of Belfast.

Street Accidents.—According to the report of the National Highways Protective Society, 290 persons were killed on the streets of Greater New York by automobiles during the past year. This is a decrease. The figures for 1913 were 302. In deaths by trolleys there were 100, as against 108 in 1913; 128 were killed by wagons, whereas 170 met their deaths in that way in 1913. Outside of the city of New York, where most of the cars are operated by owners, there were 310 persons killed by automobiles in the State. In 1913 there were 149. The report also shows that 61 persons were

killed by trolley cars and 32 by wagons. The corresponding figures for 1913 were 79 and 32. Buffalo's record alone was 72 deaths by automobiles.

A Federal Narcotic Law.—On December 10 the House of Representatives passed a law putting many restrictions on the sale of coca leaves or opium or any of the alkaloids and other preparations made from them. The bill provides that "every person who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes, or gives away" any of these drugs shall register with the collector of internal revenue of his district and shall pay an annual tax of one dollar. Drugs can be sold or given only on the production of a written order of the purchaser or recipient which order shall be preserved by the seller or giver for two years. Any one giving a prescription for any of these drugs must write it upon a special form in duplicate and preserve the duplicate for two years to show it to any authorized government official upon request. The provisions of this act apply to the United States and all its territories and possessions, and go into effect March 1, 1915. We presume this law is constitutional since it has been enacted by both houses of Congress and signed by the President, but it seems to leave to the individual States no power to regulate the licenses of drug sellers within their own boundaries unless to place still further restrictions upon the traffic.

"Boston Medical and Surgical Journal."—Announcement is made that this journal has been incorporated under the laws of Massachusetts as a charitable institution, the business management of which will be in the hands of Mr. Ernest Gregory acting for the incorporators, with Mr. W. M. Leonard, the former publisher, as consulting manager. Dr. E. W. Taylor has retired from the office of editor-in-chief and the editorial staff now consists of the following physicians: Dr. Robert M. Green, Editor-in-Chief, Drs. Walter L. Burrage and Frederick T. Lord, acting for the Massachusetts Medical Society. Drs. Walter B. Cannon, Harvey Cushing, David L. Edsall, Reid Hunt, Roger I. Lee, Allan J. McLaughlin, Robert B. Osgood, M. J. Rosenau, E. C. Streeter and E. W. Taylor constitute the Consulting Editorial Board. The *Journal* is now the official organ of the Massachusetts Medical Society and the only weekly State medical journal in the country.

Prosecutions for Illegal Practice in Utah.—Out of ten prosecutions for the alleged illegal practice of medicine in Utah during the past two years there has been but one conviction, according to the biennial report of the State Board of Medical Examiners, recently issued. The remedy for this unsatisfactory condition, the report says, lies in simplification of court procedure and insistence on performance of duty by county and district attorneys. The report shows that ninety-seven licenses were issued by the board during the two years.

Free Dental Clinics for School Children.—The system of Dental Clinics now conducted by the Department of Health of this city is a direct extension of the first Municipal Dental Clinic founded and maintained through the energy of the Honorable Peter T. Barlow, Magistrate of the City Court. The clinic was situated at 449 East 121st street, New York City. The Department of Health took over this clinic about April 1, 1913. Subsequently a completely equipped dental clinic which had been operated by the Brooklyn Bureau of Charities was donated to the Department of Health and installed at 124 Lawrence street during the summer of 1912. Additional dental clinics have been established as follows: 330 Throop avenue, Brooklyn; 1249 Herkimer street, Brooklyn; 580 East 169th street, The Bronx; 164 Second avenue, Manhattan, and 689 Bay Street, Staten Island.

Gifts to Science and Charity.—The will of the late Mrs. Mary Anna Palmer Draper gives $50,000 to the New York Polyclinic Hospital, $25,000 to the New York Skin and Cancer Hospital, and $25,000 to the laboratory of surgical research of New York University, of whose medical department Dr. Henry Draper was at one time dean.

Mrs. Luther S. Johnson of Lynn, Mass., has given $100,000 to the Lynn Hospital corporation to be used for the erection, furnishing, and partial maintenance of a nurses' home.

"School and Society" is the name of a weekly educational journal which begins publication with the new year under the editorship of Dr. J. McKeen Cattell, professor of psychology in Columbia University and the Teachers College, editor of *Science*, *The Popular Science Monthly*, and *The American Naturalist*. It is announced that the journal will follow the general lines that have made *Science* of service in the sciences, cooperating with publications in special fields, aiming to become the professional journal for those engaged in the work of our lower and higher schools, and to be of interest to the wider public for whom education is of vital concern. The first number opens with an article by Dr. Charles W. Eliot, president emeritus of Harvard University, entitled "Educational Evolution." Dr. G. Stanley Hall discusses the teaching in our schools of the war, and President W. T. Foster of Reed College commends the "State-wide campus" of the modern university. There are departments devoted to discussion and correspondence, quotations, books and literature, educational research and statistics, societies and meetings, educational events and educational notes and news.

The Medical Pickwick is the title of a new journal for medical readers, yet not a medical journal, the first number of which bears the date, January, 1915. The magazine is published at Saranac Lake, N. Y., and Dr. Walter M. Brickner is the editor, which fact is a guarantee that the journal will not be lacking in humor. But the aim of the publication is not alone to be humorous, it is to be entertaining as well, to treat of all matters, except scientific, relating to medicine. The first number contains a foreword by Fielding H. Garrison; "The Singer in the Snows" (referring to Stevenson's life at Saranac), by Stephen Chalmers; "The Brownings," by J. Louis Ransoshoff; "Isle de Blackwell," by John B. Huber; "Modern Medical Writers," by Davina Waterson; "The Author's Complaint," by Walter M. Brickner; "The Pickwick Medical Society," by Ira S. Wile; "The Medical Pickwick," by Samuel W. Kelley; "An Old English Sign-board," by Eli Moschcowitz; "Nut Raising for Doctors," by Robert T. Morris; "Two War Poems," by Henry C. Coe; "To Johannes Brahms in Vienna," by Theodor Billroth; "Therapeutics of Two Hundred Years Ago," by Alice Chadwick; "Incubation at the Temple of Epidaurus," by Lucille Kohn; "Julius Pagel," by Major C. Seelig; unsigned articles on "The Man Himself, Abraham Jacobi," "Original Account of Mountain Sickness," "The Surgeon in the Field Hospital," "William Hunter," "Anecdotes of Dr. John Radcliffe," and a great number of anecdotal

and humorous paragraphs, original and scissored. Dr. Brickner has opened a new vein in the mine of medical lore, and it gives good promise of leading to pay dirt.

Medical Society Elections.—Medical Society of the County of New York.—At the meeting held November 23, the following officers were elected: *President*, Dr. Howard Lilienthal; *First Vice-President*, Dr. Frederic E. Sondern; *Second Vice-President*, Dr. George O. Stewart; *Secretary*, Dr. John Van Doren Young; *Assistant Secretary*, Dr. Daniel S. Dougherty; *Treasurer*, Dr. Charles M. Richardson.

Physicians' Motor Club of Philadelphia.—At the annual meeting held December 5 the following officers were elected for the ensuing year: *President*, Dr. S. Leon Gans; *First Vice-President*, Dr. John J. Robrecht; *Second Vice-President*, Dr. Charles A. E. Codman; *Third Vice-President*, Dr. Charles R. Haig; *Secretary*, Dr. Howard A. Sutton; *Treasurer*, Dr. Lewis H. Adler, Jr.; *Directors*, Dr. Ellwood R. Kirby and Dr. W. D. Robinson.

College of Physicians of Philadelphia.—At a stated meeting held December 6, Dr. John B. Deaver read a paper entitled "Gastric Uulcer," and the following officers were elected for the ensuing year: *President*, Dr. James C. Wilson; *Vice-President*, Dr. Richard H. Harte; *Secretary*, Dr. Francis R. Packard; *Treasurer*, Dr. John B. Roberts; *Honorary Librarian*, Dr. Frederick P. Henry.

Obstetrical Society of Philadelphia.—At the annual meeting held December 7, the following officers were elected for the ensuing year: *President*, Dr. Daniel E. Longaker; *First Vice-President*, Dr. John A. McGlinn; *Second Vice-President*, Dr. F. Hurst Maier; *Secretary*, Dr. Edward A. Schumann; *Treasurer*, Dr. William E. Parke.

New York Neurological Society.—At a meeting of this Society, held January 5, the following named officers were elected: *President*, Dr. William M. Leszynsky; *First Vice-President*, Dr. E. G. Zabriskie; *Second Vice-President*, Dr. F. Kennedy; *Corresponding Secretary*, Dr. J. R. Hunt; *Recording Secretary and Treasurer*, Dr. C. E. Atwood; *Councillors*, Drs. L. P. Clark, Frederick Tilney, Alfred S. Taylor, I. Abrahamson, and S. E. Jelliffe.

The Orleans Parish (La.) Medical Society, at its annual meeting, December 12, 1914, elected the following officers: *President*, Dr. W. H. Knolle; *Vice-President*, Dr. Lucian H. Landry; *Second Vice-President*, Dr. R. C. Lynch; *Third Vice-President*, Dr. Henry Daspit; *Secretary*, Dr. Paul T. Talbot; *Treasurer*, Dr. George H. Upton; *Librarian*, Dr. Howard D. King; *Additional Members, Board of Directors*, Dr. Chas. N. Chavigny, Dr. Maurice J. Gelpi, and Dr. E. L. King.

American College of Surgeons.—At the third convocation of the College, held in Washington, D. C., November 16, the following officers were elected: *President*, Dr. J. M. T. Finney of Baltimore; *First Vice-President*, Dr. W. W. Chipman of Montreal; *Second Vice-President*, Dr. Rudolph Matas of New Orleans; *General Secretary*, Dr. Franklin H. Martin of Chicago; *Treasurer*, Dr. A. J. Ochsner of Chicago.

The Bexar County (Tex.) Medical Society, at its meeting on December 17, elected the following officers: *President*, Dr. Thomas Dorbrandt; *Vice-President*, Dr. Conn Milburn; *Secretary*, Dr. W. H. Hargis; *Treasurer*, Dr. L. B. Jackson; *Delegate to the State Medical Association*, Dr. C. D. Dixon; *Alternate*, Dr. R. L. Dinwiddie; *Censor*, Dr. Frank Paschal.

Obituary Notes.—Dr. Paul Fitzsimmons Eve of Nashville, Tenn, formerly professor of surgery and dean of the Medical Department of the University of Tennessee, died at his home, after a short illness, on December 26, aged 58 years. Dr. Eve was graduated from the University of Tennessee, Medical Department, in 1878, and from the College of Physicians and Surgeons, New York, two years later, and was immediately thereafter appointed a demonstrator of anatomy in the University of Tennessee, later becoming professor of anatomy, and still later succeeding his brother as professor of surgery and dean of the institution. He was a member of the American Medical Association, and a member and ex-president of the Tennessee State Medical Association, the Davidson County Medical Society, and the Nashville Academy of Medicine.

Dr. Leonard Melville French of Manchester, N. H., died December 21 at the age of 65 years. He was a graduate of the Dartmouth Medical School in 1873.

Dr. Samuel Livingston Howard, a retired physician of Louisville, Ky., died December 14 at the age of 67 years. He was born near Ghent, Ky., and was a graduate of the Ohio Medical College.

Dr. Miner C. Hazen, the oldest member of the Middlesex County Medical Association, died in Haddam, Conn., on December 26 at the age of 85 years. He was born in Agawam, Mass., and was graduated from the University of Michigan in 1855. He prescribed first in Middletown and in 1860 moved to Haddam where he remained in active work up to the time of his retirement some six years ago.

Dr. Emery E. Sherman of Independence, Iowa, died recently at the age of 79 years. He was born in Conway, Mass. In early life he crossed the plains a member of trains to and from California, but later took up the study of medicine, being graduated from the Rush Medical School in 1861. He then entered the army as assistant surgeon in a Missouri regiment and served until the end of the war, when he began practice in Palmyra, Wis. There he remained for twenty years and then removed to Independence where he practiced for twenty-three years.

Dr. F. A. Tillinghast died of pneumonia at his home in Arctic Center, R. I., on December 24 at the age of 72 years. He was born in Escoheag and was graduated in medicine from the University of Vermont in 1867. For many years he practiced in Norwich, Conn., but settled in Rhode Island in 1897.

Dr. Elisha H. Lyford of Dover, Me., died on December 20. He was born in Atkinson in 1840 and was graduated from the Medical School of Maine, Portland, in 1866. He practiced most of his life in Vinalhaven, removing to Dover about six years ago.

Dr. Clement Dietrick O'Leary, a practitioner in Providence, R. I., up to about three years ago, died of tuberculosis at the Wallum Lake Sanitarium on December 22. He was born in New Haven in 1864 and was graduated from the Medical Department of Columbia University, New York, in 1887.

Dr. G. Houston Chapman of Uniontown, Ky., died suddenly on December 18. He was born in 1849 and was graduated from the Jefferson Medical College, Philadelphia, in 1874.

Dr. E. R. Cogswell, a retired physician of Cambridge, Mass., died of pneumonia on December 22, at the age of 73 years. He was a graduate of the Harvard Medical School in the class of 1867.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ST. JOHN'S AMBULANCE AND RED CROSS SOCIETIES—SOME HOSPITALS IN CONNECTION WITH THEM—HOSPITAL SUNDAY FUND; ANNUAL REPORT—LIVERPOOL'S MILITARY MOVEABLE HOSPITAL—OBITUARY.

LONDON, December 26, 1914.

THE St. John's Ambulance Association and the Red Cross Society, at a time like this, naturally absorb much attention, and to them Queen Mary's Needlework Guild is supplying special requirements in the way of clothing of every description in addition to articles classed as medical, *e. g.*, gauze, iodoform gauze, lint, boracic lint, wool, cradles for bedclothes, and so on. A joint committee of the two societies is promoting the work and preventing overlapping as well as employing staff nurses and sisters, both for home and foreign service. Two hospital trains for service in France and Belgium have been subscribed for by the union of millions of the United Kingdom; one of them is nearly ready to proceed, can carry 358 wounded, and has a staff and personnel of 51; its fellow is being rapidly built. Both are constructed by English railway companies on specifications by the War Office. They will cost nearly £25,000, nearly all of which was procured by the society of millers within about three weeks of the resolution to provide them being adopted.

British Red Cross ambulances of various sizes are working at the front, and their value can scarcely be exaggerated. At Boulogne there are a number standing day and night with their orderlies ready to start on transport work. The society has also a voluntary Aid Department at Boulogne, consisting of nearly thirty persons, besides three fully trained hospital nurses. English forces are common enough at Boulogne, both as passers through and as visitors. At present the medical men are perhaps more numerous than usual. Among them Sir F. Treves has been over and was highly delighted with the transport arrangements by which the wounded are taken off from a train the moment of its arrival, to the wards or to the hospital ship with a speed which he calls "a revelation to those who have only seen horse or hand carriage in the removal of the sick." For their service he reports there are seven railway wagons completely fitted up on a platform siding, every detail having been worked out with the greatest care, the equipment being excellent, and "the order and method worthy of the highest praise." Those passing through are also supplied with food and other comforts. As many as 2,300 were one day so ministered to, and in about five weeks the total number reached about 30,000, " a fine piece of Red Cross work inexpensively administered and the very greatest boon to the poor fellows who reach the base after a long, exhausting journey." There are ten military hospitals at Boulogne and seven others, voluntary, but accepting military control; one has 270 beds and another 189.

At Wimereux, the British hospital has 102 beds with an *x*-ray department. There is also an Anglo-American hospital (Lady Hadfield's), with 100 beds, 20 nurses and 30 orderlies, under the St. John's Ambulance Association; an Australian hospital with 166 beds, the medical staff and nurses all from Australia—*x*-ray department here, too; a Canadian hospital and another for women (65 beds), are also in full work. At Calais the Baltic Hospital for Belgian soldiers has 105 beds and 11 motor ambulances. There is an annex for enteric cases (20 beds), and a clearing house by the railway station.

The annual meeting of the Metropolitan Hospital Sunday Fund was held on Tuesday. Sir C. E. Tritton presided and urged that to-day the hospitals of London had a greater claim than ever. In the wards of many of them were numbers of wounded soldiers who had fought for their country with a heroism and bravery that was the talk of the world. On returning disabled they were carefully tended in these hospitals. He hoped that every one would do his utmost to add to the comfort of these heroes on this saddest Christmas the world has known, following the example of the House of Commons which had laid aside all prejudices and party passions to rally round this effort.

The Venerable Archdeacon Brook Deedes in moving the adoption of the report expressed the satisfaction of the supporters that in this exceptional year the income was better than in the previous one by £400. In the coming one there would be increased demands, and they must take care that there should be no anxiety as to the provision of sufficient funds. The Rev. H. Harwood, in seconding the motion, said they were exceedingly grateful that so far they had not suffered on account of the numerous, unusual claims of other organizations. People were giving everywhere with more than ordinary generosity; it really seemed as if they were beginning to understand the luxury of giving.

The report was adopted and the Council was re-elected for the year 1915, in which the date of Hospital Sunday was fixed for June 13.

Liverpool is much interested just now in a proposal to equip and send to the front what her residents talk of as the "movable hospital." This is a military hospital of the most complete type with everything necessary for the treatment of the wounded and other urgent cases. It is constructed in sections and can be dismantled, taken to pieces and packed for removal in forty-eight hours, while on arrival it can be rebuilt and fitted ready for use in twenty-four hours. It will therefore be able to follow the forces, and, except in cases of hurried marches, can be located near the firing line. There are to be eight pavilion wards, each having accommodation for twenty-six patients. Dr. Nathan Raw and Dr. Jones of Liverpool will take charge of the hospital, with a nursing staff of forty obtained locally.

Deputy Surgeon-General William Henry Harris of the Indian Medical Service died on December 11 at Shanklin in his 85th year. He qualified in 1851, joined the Madras Medical Service in 1853, took M.D., St. Andrews, 1859. He reached the rank of Deputy Surgeon-General in 1881, having been a fellow of Madras University and professor of midwifery, as well as superintendent of the lying-in-hospital.

Another Indian medical veteran, Lieut.-Col. Edward Butler Ruttledge, who retired in 1889, has died at the age of 70.

Lieut.-Col. E. L. Maunsell served in the R. A. M. C. from 1880 to 1908. He was M. O. H. at Gibraltar for several years. He died on the 7th inst., aged 61.

Mr. Bernard Pitts, consulting surgeon to St. Thomas' Hospital and a pioneer in abdominal surgery, died on the 13th inst., aged 66. A bold, skillful and careful surgeon, he accomplished much, and his upright conduct kept him the full confidence of

the profession. His lectures at the Royal College of Surgeons on Affections of the Air Passages in Childhood were greatly appreciated.

PSYCHOPATHOLOGY OF THE WAR.

London, Dec. 24, 1914.

This has been anything but a merry Christmas for every one in England; not only has the war been conducted with the loss of thousands of good men, for its casualties are probably much greater than the Government is willing to admit, but all Northern Europe has been under water, and it has rained hard every day for more than a month—a record-making deluge which credulous people are inclined to ascribe to the heavy firing at the front. From all accounts the hardships and exposure, despite modern provisions for the betterment of the troops, are very great, and Napoleon's celebrated Russian campaign did not approach the conditions that exist to-day, and have for weeks. Men have fought for days in the trenches waist deep in cold water, and even the Highlander does not complain. As a consequence much rheumatism and pneumonia have prevailed in all the armies, and men have been consequently invalided.

So far as wounds are concerned, they are, as I have said in another letter, confined chiefly to the extremities, and the head injuries are ordinarily fatal. So much fighting has taken place in the trenches that there are comparatively few body traumata, excepting those due to the bursting of shells therein. A new feature of this war consists in the production of curious psychical conditions due to excitement, strain, or shock. Many of us who are familiar with the railway psychoses at home, will find their counterparts in the Western battle fields. There are, as ever, cases of traumatic insanity in predisposed subjects. The retreat from Mons is now being understood and recognized, as it should be, as the most awful incident of warfare of any age. It was simply continued carnage. When the British forces withdrew before the hordes of Germans who were suddenly thrown upon them, the mental shock was incredible. There was no cowardice, no rout, and the shattered forces, like the teeth of Cadmus, sprang from the ground to the astonishment of the admiring Germans, but the result was that many soldiers instantly became deaf-mutes. This was especially the case in the Seventh Division, which comprised hardened and brave troops who had fought in several previous wars. A considerable number of these men remain in this condition to-day and are being studied by several London neurologists, who say they have found a new kind of psychosis. They are apparently sane, but have received so sudden and severe a mental insult as to cause a complete inhibition of the faculties of hearing and speech.

Dr. Joseph Blake who is the practical head of the American Ambulance Hospital in Paris, tells me that there are not many new cases there of neurological interest, but many soldiers with wounds involving the peripheral nerves. I have seen and heard of strange cases of neuritis and consequent anesthesia—one of the ulnar nerve, caused by a blow of a piece of frozen dirt thrown out by an exploding projectile, which seems of frequent occurrence.

Besides the other admirable measures taken to preserve the health of the troops and to relieve the strain at the front, the military authorities are granting short leaves of absence which rarely exceed five days, and are spent in England. Of course, this surprises the Germans. It is already apparent that even a few days' absence from the hellish experience and anxiety in the field which is carried almost to the breaking point, will do much to improve the morale of the soldiers. I was told last week by a returned officer that the enemies' method of attack was to begin at one end of a trench and gradually drop big shells, advancing in fire surely but slowly, so that every man was keyed up, not knowing when his turn would come and what would be the result.

Allan McLane Hamilton.

Progress of Medical Science.

Boston Medical and Surgical Journal.

December 31, 1914.

1. Louvain and Its University. R. M. Green.
2. The Vesalian Spirit. L. S. Pilcher.
3. Analysis of Recoveries at the Psychopathic Hospital, Boston. T. H. Haines.
4. Subnormal Temperatures in Tuberculosis. A. K. Stone
5. Coccygodynia, Causes and Treatment. R. Duffy.

1. **Louvain and Its University.**—R. M. Green, in the opening address at the celebration by the Harvard Medical Society of the four hundredth anniversary of the birth of Vesalius, presents an account of the history of the University of Louvain, in which Vesalius received his early education and to which he returned to lecture on anatomy after he received his medical degree at Paris. The name of Erasmus is also associated with that of Louvain.

2. **The Vesalian Spirit.**—L. S. Pilcher, in the second address at the celebration referred to in the last article, points out that Luther in religion, Michael Angelo in art, Paré in surgery, and Vesalius in anatomy were all contemporaries and the products and exponents of the Renaissance. The peculiar qualities of Vesalius were energy, enthusiasm, contempt for authority, and a demand for personal demonstration.

3. **Recoveries at a Psychopathic Hospital.**—T. H. Haines analyzes a second series of one hundred recoveries at the Boston Psychopathic Hospital. He notes that the large number of patients suffering from serious disturbances of metabolism and at the same time insane but recoverable, demonstrates the unique field of service of psychopathic work and psychopathic hospital.

4. **Subnormal Temperature in Tuberculosis.**—A. K. Stone calls attention to the fact that at a certain period of tuberculosis, usually succeeding the active febrile stage, there is often a period when the temperature curve shows marked excursions in the subnormal, the temperature at no time rising above 98.6 degrees and rarely reaching this point. The patients are usually improving, but it takes very little to give rise to real febrile exacerbations. The period of subnormal temperature may last for weeks. Mild tuberculous infections frequently show a rapid change from a febrile condition to a subnormal temperature. This is particularly the case in tuberculous pleurisy when the fluid is removed. A persistent subnormal temperature is an almost unerring indication of tuberculosis.

5. **Coccygodynia.**—R. Duffy differentiates the vague pains about the coccyx which are present in various nervous conditions from true coccygodynia. In neurasthenia often, in tabes at times, in hysteria, and in traumatic neurosis pains in the sacral and coccygeal regions are complained of. But such pains are indefinite and dull rather than sharp, and there is not much tenderness of the coccyx. In true coccygodynia the pain is

always sharp and lancinating and caused by movements of the body or anus, or by pressure. The coccyx is exquisitely tender on rectal palpation. The pain is definitely located in the coccyx and does not radiate. The author believes that true coccygodynia is always of traumatic origin, there being an injury of the sacrococcygeal articulation or of the nerves in its neighborhood. Fracture or caries of the coccyx may account for some cases. As regards treatment, the statement is made that medical treatment is only temporizing. There are two forms of surgical treatment, excision of the coccyx and De Vésian's method of the injection of alcohol. The latter was described by Yeomans in the MEDICAL RECORD, August 22, 1914.

New York Medical Journal.

January 2, 1915.

1. Pneumococcus Infection and Immunity. R. I. Cole.
2. The Psychical Aspect of Syphilis. H. G. Klotz.
3. Appendicitis Under Field Service Conditions. A. W. Williams.
4. The Psychology of War. W. L. Howard.
5. The Drug Habit and Legislation. J. B. Woodhull.
6. Acute Articular Rheumatism. A. C. Reed.
7. Healed Tuberculosis of the Tongue, Larynx, and Lungs. F. W. Pottenger.
8. Spontaneously Precipitated Albumin in Urine. J. Rosenbloom.
9. Primary Nasal Diphtheria. H. A. Schatz.

1. Pneumococcus Infection and Immunity.—R. I. Cole points out that there are different types of pneumococci, all of a single species, each giving rise to clinical manifestations of infection of special grades of severity. The mortality of pneumonia varies from 47 per cent. in cases caused by type III to 6 per cent. in cases caused by type IV. The infection caused by type III is, however, relatively infrequent. Butterfield and Peabody have demonstrated that methemoglobin is formed when pneumococci are cultivated in media containing blood. This suggests a possible explanation of the toxic action of pneumococci, and of other bacteria as well, on tissue cells.

2. The Psychical Aspect of Syphilis.—H. G. Klotz discusses the disturbances in mental equilibrium occurring in patients infected with syphilis. A negative serum reaction, under certain conditions, indicates a highly probable but not absolutely certain cure. The serum test under certain conditions, particularly in so-called latent syphilis, is likely to do more harm than good, and its application ought to be put under the rule of common sense. As long as uncertainty exists with regard to a definite cure of syphilis, the psychical aspect has to be taken into account, and the patient will have to rely, not only on the laboratory, but also on the confidential advice and sympathy of the physician who has closely watched the clinical symptoms and will also bear in mind the mental state.

3. Appendicitis Under Field Service Conditions.—A. W. Williams reports the results in fifty-two cases of appendicitis in which the patients were operated upon under field service conditions with United States Army troops. The author would change Deaver's expression, "cut well, sew well, and your patients get well," to "go in quickly, get out quickly, and your patients will get well quickly." The following points are regarded as favorable to early operation for appendicitis in the military service. The patient is, as a rule, a young able-bodied soldier. If by reason of any physical disability he is unable to perform his daily duties, he is required to go on sick report. When his name is entered on sick report, he has to be seen by the surgeon. So, if he is taken ill during the night, and delays going on sick report until next morning, not over twelve hours will elapse before his case is investigated. Owing to the discipline he is accustomed to in the military service, when told by a medical officer that he requires an operation, he usually accepts the decision without question. Over-solicitous relatives and friends are not present to urge delay. At a field hospital the medical officers live in camp, in tents adjacent to the wards, so consultants and assistants are always on hand.

4. The Psychology of War.—W. L. Howard believes that war is the outcome of sex instincts and their many modes of expression. He points out the distinction between the sexual instinct and sensuality, the former making for home, health, morality, and patriotism.

Journal of the American Medical Association.

January 3, 1915.

1. Are Institutions for Infants Necessary? H. D. Chapin.
2. Experiences of the New York Health Department in Typhoid Immunization. L. I. Harris and M. L. Ogan.
3. The Pathology of the Mistaken Diagnoses in a Hospital for Advanced Tuberculosis. J. E. Ash.
4. Contributions to the Physiology of the Stomach. XXI. The Supposed Action of the Bitter Tonics on the Secretion of Gastric Juice in Man and Dog. A. J. Carlson.
5. The Etiology and Pathology of Bone and Joint Tuberculosis. J. Fraser.
6. Recurrent Spondylolisthesis, with Paralysis; Bone-Splint Transplantation. E. W. Ryerson.
7. Cystic Odontomas. G. B. New.
8. The Causes of Scoleosis and Their Relation to Treatment. Z. B. Adams.
9. Plague in Havana. G. M. Guiteras.
10. Mesothelial Tumors of the Jaws. R. H. Ivy.
11. The Radical Removal of the Verumontanum with Notes on Pathology. A. G. Rytina.
12. The Endoscopic Treatment of Nocturnal Pollutions. A. Randall.
13. Anarthria Due to Syphilis. C. B. Craig.
14. Sprue Treated by Emetine Hydrochloride. F. Schmitter.

1. Institutions for Infants.—H. D. Chapin considers this subject under two heads: the hospital for the acutely sick infant, and the foundling asylum. The stay of an infant in a hospital should be as short as possible owing to the progressive loss of weight which generally occurs if the infant is not discharged shortly after the acute symptoms of its illness have subsided. Another disadvantage of the hospital is the danger of the spread of specific infections, and particularly by the ordinary ward infections as rhinitis, pharyngitis, tonsillitis, otitis media, bronchitis, bronchopneumonia, and vaginitis. The author would not encourage the multiplication of infants' hospitals throughout the country. Large wards and large institutions are undesirable. More can be accomplished with sick infants by home treatment than has ordinarily been supposed. As regards foundlings and abandoned infants, the boarding-out system offers a healthier physical environment than the infant asylum.

2. Typhoid Immunization.—L. I. Harris and M. L. Ogan record the results of the experience of the Health Department of New York City in typhoid immunization. This procedure is definitely preventive in all but a relatively insignificant few cases. In those subsequently affected it strikingly decreases the morbidity and the mortality. Severe reactions are rare, and are avoided by the following precautions: Never administer the vaccine to any but the healthy. To permit of slow absorption, avoid puncture of a vein, or intramuscular injection. Clean the syringe and sterilize the area for injection, using tincture of iodine for this purpose. Children especially are to avoid exposure to the sun following the treatment. Avoid administering the vaccine during the menses or pregnancy. Allow no hard work or indulgence in alcohol after the injection. Avoid reinjecting in indurated areas. Severe reactions have never left permanent injury. When the incubation period has begun, the time for antityphoid immunization has passed. Long exposure to overwhelming doses of typhoid bacilli (in those who are in close contact with cases and especially in epidemics), may nullify the immunizing powers of antityphoid vaccine, and an attack may therefore follow one or more injections. Chronic illness (tuberculosis, etc.), as well as debility

from other causes, fatigue, and exhaustion, predisposes to severe reactions. Injections after intimate and long exposure hasten the onset. For a period of at least two years, and possibly more, immunization is as effective in protecting from an attack of typhoid fever as is a previous attack of the disease itself. Recurrences may follow after a complete immunizing course of treatment, in exceptional instances in which debility and fatigue exhaust the resistant and defensive powers of the body, and when exposure to massive doses of typhoid bacilli exists.

3. **Mistaken Diagnosis in Hospital for Advanced Tuberculosis.**—J. E. Ash states that in the 198 necropsies performed in the Boston Consumptives' Hospital since its foundation, twenty-three cases, or 11.5 per cent., have been proved to be non-tuberculous, in so far at least that there was no active lesion. The points emphasized after an analysis of these cases are the following: A patient showing progressive loss of weight and strength, with cough, expectoration, and even hemoptysis and abnormal physical signs in the chest, is not necessarily in a hopelessly advanced stage of tuberculosis, but occasionally still amenable to treatment directed to the real cause of the symptom complex. Particular attention should be paid to excluding cardiorenal conditions and pneumonia with its sequelæ. One sputum examination, either positive or negative, should not be depended on to establish a diagnosis.

4. **Bitter Tonics and Gastric Secretion.**—A. J. Carlson finds that bitter tonics acting either in the stomach or in the mouth are practically without influence on the quantity of the secretion of gastric juice either in man or in the dog.

11. **Radical Removal of the Verumontanum.**—A. G. Rytina concludes that colliculectomy is a simple operation for the removal of the verumontanum. It is less liable to untoward complications and sequelæ than strong applications of silver nitrate or the thermocautery. The study of the pathology of the verumontanum is made easy, in consequence of which a therapy may be devised, based on science rather than on empiricism. Surface applications of mild antiseptic solutions seem to be irrational. Strong penetrative cauterant substances may have great therapeutic value in curing infections, but may do more harm than good, on account of the production of untoward complications or sequelæ. A straight-beaked colliculectotome lends itself to the removal of vegetations and polypi from any part of the anterior urethra.

The Lancet.

December 26, 1914.

1. Modern Aspects of Certain Problems in the Pathology of Mental Disorders. E. Goodall.
2. A Case of Intestinal Obstruction, with Some Notes on Operative Technique. A. Webb Jones.
3. Stretchers for the Wounded in the Trenches. G. K. Aubrey.

1. **Problems in Mental Pathology.**—E. Goodall in the fourth of the Croonian Lectures discusses the application of the method of complement deviation in psychiatry, and also the study of the cerebrospinal fluid in this branch of medicine. He calls attention to the fact that the Wassermann reaction may be negative at a given test in both the serum and cerebrospinal fluid in certain cases of paresis. With the use of increasing strengths of cerebrospinal fluid amboceptor a positive Wassermann with 0.2 c.c. of a 1 in 10 solution indicates paresis, but a negative reaction with any strength up to even 1 c.c. of the pure fluid does not exclude this disease if only once obtained. Negative reactions with large amounts of fluid are not infrequently obtained in, at any rate, the more quiescent periods of the disease, or in slowly progressive cases. In such periods and cases the complement deviation method cannot be relied upon for diagnosis between paresis and cerebrospinal syphilis. As regards the value of the Nonne-Apelt test: in cases of undoubted paresis it is more often positive than the Wassermann test with the cerebrospinal fluid; it is obtained more consistently throughout the course of the disease; and it is more reliable as revealing the persistence of the disease in remissions. On the other hand, it is less reliable in diagnosis, occurring more frequently in cases of insanity which are not cases of either paresis or cerebrospinal syphilis. There is an absence or deficiency of complement in the cerebrospinal fluid in paresis and there is sometimes a deficiency, at any rate, of amboceptor. In these respects the fluid resembles that of non-paretics. In paresis complement is absent from the cerebrospinal fluid, which resembles that of normal persons in having no hemolytic properties.

British Medical Journal.

December 26, 1914.

1. Color Vision and Tests for Color Blindness. C. Devereux Marshall.
2. Colectomy for Intestinal Stasis. A. W. Sheen.
3. An Operation for Movable Kidney. G. S. Thompson.
4. Cockroaches. H. E. Shipley.
5. A Case of Tetanus Treated by Injections of Carbolic Acid P. Stewart and J. T. C. Laing.

1. **Color Vision and Color Blindness.**—C. Devereux Marshall calls attention to the fact that, although physiologists in general now regard the Edridge-Green lantern test as vastly superior to the so-called wool test as a means of detecting color-blindness, the latter test is still the one favored by the English Board of Trade. The wool test even in its improved form allows 50 per cent. of dangerous cases of color-blindness to pass. The essential merits of the Edridge-Green test are described by Halliburton as follows: "The Edridge-Green lantern is one of the best to employ; in it the intensity and color of the light and the order in which the colors are shown can be easily varied."

2. **Colectomy for Intestinal Stasis.**—A. W. Sheen reports four cases in which this operation was performed with one fatality. The operation is a serious one, requiring careful preparation of the patient and careful technique. It should be reserved for cases with marked signs and symptoms of stasis. In the author's experience it contrasts with many cases in which various lesser measures have brought about cure. In all these abdominal cases which can be grouped under no short title but which present symptoms suggesting trouble now in one region, now in another, it should not be the practice to approach and expose simply the part where the trouble is thought most likely to be, but by a wide incision to investigate the whole of the abdominal contents and to recognize and as far as possible to remedy the various abnormalities. As regards end results, while great improvement may be expected, a perfect condition of health is not necessarily attained.

3. **An Operation for Movable Kidney.**—G. S. Thompson describes a new operation for movable kidney the principle of which consists in the insertion of the kidney into and its suspension by a sling and the fixation of the latter to the posterior abdominal wall. The sling consists of a net made from chromicized catgut or preferably floss silk. The netting by its presence provokes a celluloplastic exudation which surrounds and infiltrates the meshwork and in time forms by organization a firm adventitious tissue capsule in addition to the extraneous capsule already present.

5. **Tetanus Treated by Injections of Carbolic Acid.**—P. Stewart and J. T. C. Laing report the case of an English officer who manifested the symptoms of tet-

anus seven days after the receipt of several shell wounds. Despite the use of repeated and large doses of tetanus antitoxin and of full doses of chloral and bromides the condition grew steadily worse. At this stage it was decided to commence treatment by means of carbolic acid. Accordingly 2 c.c. of a 5 per cent. solution were injected hypodermically into the abdominal wall every two hours. Improvement commenced on the same day; the tetanic spasms diminished in frequency, and the patient was completely cured one month after the first signs of tetanus appeared.

Berliner klinische Wochenschrift.

November 30, 1914.

War Neurology.—Oppenheim states that neurological ailments furnish an enormous contingent in war morbidity. At the very beginning of the war the author obtained permission to open neurological wards in a public museum. The beds were soon filled with 100 sufferers. Thus far it is too soon for complete reports, but certain types of affections may easily be isolated. Neuroses and psychoses are very common, especially the physico-psychic trauma. Overexertion, hardships, mental excitement due to the horrors and cruelty of warfare! — our chief surprise is that psychoneuroses are not much more frequent than they actually are. The author has found that the psychoneuroses almost always occur in the predisposed. Patients with hysterioneurasthenia, neurasthenia, psychasthenia, were by their own admission neuro- and psychopaths and generally recognized as such long before the war. A few had been injured by chronic alcohol consumption, and others, mostly officers, had suffered in the past from concussion of the brain. Of cases with sound *anlage* the author recalls some in which the first explosion of a shell close by caused an exogenous neurasthenia. There are no essential differences between war and peace neuroses. In war, dreams have very largely a content of war scenes. One even who takes his nap at noon may reenact the scenes of battle in his dreams and the author recalls a case under these conditions of somnambulism or sleep drunkenness. Cardiovascular disturbances often accompany these emotional affections and as a result various vasomotor complexes are seen. The sound of heavy projectiles as they pass the ear, or the nearby bursting of shells cause states which bear some resemblance to lightning stroke, in that both functional and organic lesions may result. In certain mild cases of epilepsy warfare may increase the number of the attacks. To what extent heat stroke may act in this connection we do not at present know. A case of Graves' disease seems to have developed under extraordinary privation and overexertion. Of quite another class are the organic diseases due to injuries of the head and spine. These are not of common occurrence and may be passed over here as may also the lesions of nerves and plexuses. In certain cases, however, we see intense neuritic pains associated with psychoneurotic and vasomotor disturbances. The pains cause attacks of mania, in the midst of excitement and confusion. There is a marked periodicity and in the intervals the patient is quiet with mind clear. These attacks of pain seem to depend on exogenous causes, for they are precipitated by the slightest noises and the patients may require complete isolation. A careful analysis of all the symptoms shows that these cases have their analogues in traumatic psychoneurosis after railway accidents. The author gives much space to the discussion of this affection.

Injuries a Frigore in War.—Melchior discusses this subject with special reference to the winter campaign on the Eastern frontier. In several wars of the last century the number of troops placed hors du combat from cold injuries was in the vicinity of 2 per cent. Actual freezing of the tissues is not implied, for the latter are only cooled to a certain point and the cooling must be long continued and as a rule be due to dampness. Prolonged moisture seems more deadly than dry cold ice contact. "Moisture gangrene" is in fact a term often used for these lesions. In dry cold weather, aside from foot lesions, we see frostbites of the fingers, nose, ears, and penis. Individual predisposition to these injuries in war is very variable. In times of peace we see certain classes suffer, as the anemic and alcoholic. In warfare we have to add the coincidence of certain constitutional diseases which greatly involve the nutrition—typhoid, scurvy, dysentery and cholera. One author has ascribed gangrene in these cases chiefly as the parent disease rather than to the contributory cold. An important factor in producing these lesions is tight clothing, especially in overtight lacing of shoes and overgaiters.

Münchener medizinische Wochenschrift.

December 1, 1914

Tetanus.—This number of the *Wochenschrift* contains four more articles on this subject. Siemon finds the incidence of tetanus in his wounded to be 1.66 per cent. This figure is five-fold that of the warfare of the past century. As the morbidity of the French from this disease is "normal" (*i.e.* about one-third of one per cent.) the author suggests that the German figures must be due to a special factor. No tetanus spores were found in the German uniforms, and no explanation is at present available. Of the author's 26 cases the first ten were treated with serum and but one survived. Since then magnesium has been used invariably, in part without serum. Since October 1 all subjects have been subjected to a matured plan of treatment, and of 11 cases treated with serum, magnesium, etc., not one was lost. Nothing is said definitely of five other cases, which may still be under treatment. The remarkable "inversion of percentages" seen to exist between the first and second series (90 per cent. mortality and 100 per cent. recovery) must have been due in part to the systematic use of magnesium. Narcotics other than the latter were as good as absent in the treatment; a little chloral was given in the evening to secure sleep. Among other measures the hot bath and high noon solar radiation (artificial?) were practised. In twenty-eight hospitals under the direction of the author the latter's technique will be strictly carried out. Usener seeks to fix the precise indications for the exhibition of magnesium sulphate. Given subcutaneously it is indicated for the overexcitability of tetanus and is also a marked antispastic. It is therefore to be pushed in conditions which directly threaten life such as severe spasm of the oesophagus, tetanic dyspnea, etc. It should also lessen the number and severity of individual convulsions. Under a favorable nexus of conditions the drug when urgently indicated may be injected intradurally. Jacobsthal and Tamm believe that they can prevent infection of the system by radiating wounds with ultraviolet rays. Kromayer's lamp and the artificial high solar light may be used. Further, in a letter from Cologne, where so many wounded are interned, Professor Hochhaus is quoted in regard to 60 cases of tetanus received from the front, in which serum treatment was said to have been much inferior in results to the magnesium and Baccelli treatment. Martin had 5 recoveries in 8 cases (treatment chiefly magnesium). Geuer had 6

recoveries in 10 cases, treated chiefly with serum. Wette on the other hand had but 3 recoveries in 13 cases. Other small series were reported with variable results under a plethora of remedies of all kinds. These small series came from various scattered hospitals. Only one thing is certain, that despite the high mortality of some individual series, the old wholesale mortality of 80 to 90 per cent. no longer exists. To give serum rightly, as a parallel to animal experiment, it should be injected by the quart, a possibility quite impracticable. Nevertheless its use has been a marked factor in reducing mortality.

Puerperal Infection with Fraenkel's Gas Bacillus.—Schüler seeks to describe the disease picture due to puerperal infection with the *Bacillus aerogenes capsulatus*. Of special interest is a case of "eclampsia" complicated with puerperal infection. While sewing, a woman who should have been about four months pregnant fell from her chair in convulsions and was admitted unconscious into the clinic. The urine was quite normal. Blood serum hemolytic. Fetus expelled spontaneously, but placenta could not be delivered save by manual extraction. It was found to be a so-called hemolytic placenta. From the blood a pure culture of Fraenkel's bacillus was cultivated. The woman never recovered consciousness, dying about 9 hours after admission. At autopsy there was sufficient evidence of a general and local infection with a gas bacillus. The problem is then to show whether or not eclampsia had ever existed. This must be answered in the negative. There were metastases of infection in the cerebrum to account for the convulsions of cholemia or nephritis—there was no evidence at all. One might of course style the affliction clinical eclampsia—puerperal eclampsia even. But it is evident that such a designation is purely symptomatic and could be so stretched as to indicate a variety of conditions. One thing asserts itself persistently, to wit: some cases of socalled "toxemia of pregnancy" could be brought within the compass suggested by this observation. Some authorities have suggested that puerperal sepsis will be found to depend largely on previous toxemia of pregnancy. In all alleged cases of toxemia of pregnancy, when hepatitis or nephritis is absent, and perhaps even when present, the systemic blood, placenta, etc., should be tested for evidences of gas bacillus infection.

Deutsche medizinische Wochenschrift.

December 3, 1914.

Dysenteriform Affections.—Leschke states that a military surgeon can hardly do otherwise than to regard every diarrhea with bloody and mucoid stools as dysentery. In the majority of these cases bacteriological study confirms the diagnosis; but there occurs a typical clinical dysentery in which none of the dysentery bacilli are to be found. Such cases are usually benign and it is highly important that they be separated from the true dysenterics. The pseudo cases simply represent any diarrhea in which blood and mucus may chance to appear in the stools from causes in no wise connected with dysentery. Of the various conditions under which in theory such cases can develop, no one has as yet been shown to predominate strongly. Of a number of cases cited by the author, one appeared to be an enteritis due perhaps to parasites, another represented the results of food poisoning, a third may have been due to parenteral infection or an infectious metastasis, a fourth may have been an example of anaphylactic enteritis, etc. A strong predisposition appears in the lymphatic constitution. Pseudodysentery ought to heal in a few days under simple hygienic measures, which include rest in bed. Inwardly it may be necessary to combat the presence of a toxic or irritating substance in the bowel, and the author gives animal charcoal in large doses. As to a preliminary dose of castor oil in such cases the author makes no mention. Semi-solid food is given until all diarrhea ceases.

Treatment of Tetanus Solely with Magnesium Sulphate.—Syring reports a single case of tetanus in which no serum was given. The incubation period was twenty days and the case was correspondingly mild, the chief symptoms mentioned being trismus and local spasms in the infected and opposite arm. The mild course might well be attributed in part to the prompt and vigorous use of the magnesium. Patient was ill but eight days, and during this period he received 25 injections of 10 c.c. each of a 10 per cent. solution. The mode was doubtless intramuscular throughout, but nothing is said of it. Indeed, from the careless use of the language one might receive the impression that the remedy was given *per os*. So striking a fact should surely have been emphasized decisively. Dyspnea developed on the fourth day of treatment and calcium chlorate was twice injected. It was on this day that the magnesium first showed control of the disease. The dose was now markedly decreased and improvement became steady. The author at the close of his very brief article states that the magnesium was tolerated "without reaction," which seems somewhat to antagonize his account of injecting calcium as a result of dyspnea. It is therefore likely that he regards the dyspnea as simply marking the limits of tolerance.

Dangers from the Use of Histamin.—According to Sieburg the protein cleavage product known as histamin (literally B-imidoazolethylamin) is now suitable for medical usage. It has been studied extensively in animal experiment, and is known to be a severe poison. It causes uterine contractions, bronchial spasms which may cause death, and other severe phenomena. Tested on women in labor in 6-8 mgm. doses it caused marked contractions of the uterus, but also so many untoward symptoms (headache, palpitation, vomiting, rash, etc.) that its use as an oxytocic is not to be thought of seriously. It may of course be possible to combine it with correctives, with or without true synthesis. It may not be known to all our readers that B-imidoazolethylamin is a natural constituent of the secale cornutum and some of the oxytocic action of the latter is evidently due to the subject under consideration. Substances closely related, if not identical with it, are known to appear in the body at times when they seem to be the part cause of anaphylaxis. Some authors regard the substance as only potentially toxic, the toxicity being elicited by concentration differences between the substance and medium.

The Meningeal Reactions in Scarlet Fever.—P. Mauriac and P. Philip state that Hutinel has recently called attention to the meningeal reactions frequently accompanying uremia. The complexity of this subject is further increased by the fact that during scarlet fever there may be various types of meningeal involvement. These types may be associated with aural, nasal, or uremic complications, or there may be simple meningeal reactions without the existence of any true meningitis. If during the eruptive or convalescent periods of scarlet fever uremia develops, the meningeal symptoms may readily be explained on the basis of the nitrogen retention. If, however, in such a case, convulsions suddenly arise in association with a high temperature and other signs of meningeal irritation, one is justified in thinking of an acute infection of the meninges superadded on the meningeal intoxication. In one of the authors' cases a pneumococcic meningitis was grafted on a simple uremic irritation of the meninges.—*Journal de Médecine de Bordeaux*.

Insurance Medicine.

The Importance of Examination of the Mouth and Teeth from a Life Insurance Standpoint.—Dr. George V. I. Brown says that the very strong point in favor of some form of mouth examination, and particularly from a life insurance standpoint, is that often it is not the neglected mouths, even though the teeth be uncleanly and full of cavities, that are so likely to harbor sinister possibilities, as the mouths of persons of wealth who have all their lives paid for the highest and best dental service, and whose mouths are quite commonly shining evidences of the skillful manipulative abilities of their dentist. The reason, after all, is quite simple. Teeth receiving little or no care as to their preservation are removed when through pain or swelling they offend; whereas the misguided efforts of the conscientious, high-class dentist whose code of practice demands that every effort shall be made to save every tooth only succeed in masking the trouble. Under artificial tooth crowns and bridges and above and below roots of teeth that have been treated for long periods there exist to-day almost everywhere bone cysts or other pus formations. These assume a much more serious rôle than is usually appreciated. These are the factors it is difficult to uncover, and they exist where least looked for. Naturally it is among individuals of this class that one would expect to find applicants for large amounts of insurance. Chronically inflamed gums, or pyorrhea pockets, or loose teeth indicate almost invariably a tendency to indicanuria. Often diabetes and other similar affections accompany the same symptoms. Infections from these sources, in addition to the ill effects upon the gastrointestinal tract of the constant swallowing of the pus microorganisms may also cause Ludwig's angina or edema of the glottis with fatal results, and may be indirectly accountable for septicemia or pyemia. One of the earliest symptoms of acute leukemia is sloughing of the gums about the necks of the teeth. There are certain mouth infections which are almost invariably fatal. Whether because of increased virulence acquired by the organism, or because of weakened resistance of the individual, due to other disorders, it is difficult to say with accuracy. Malposed teeth, with the aid of the *x*-ray, are found in the mouths of many people who never previously suspected their existence. They are frequent causes of nervous disturbance, particularly neuralgic pain, and have been found at the site of beginning sarcoma and carcinoma. An unaccounted for tooth may, therefore, be considered a menace. Malposed, impacted third molars have been responsible for many deaths. Discolored teeth without cavities, or with roots which have been improperly filled, and perhaps with a history of previous serious suppurative processes in their treatment, are most important from a life insurance standpoint. Teeth that have large carious cavities or diseased roots which discharge through fistulæ upon the gum surface are easily discovered, but seldom dangerous. The most serious results come from teeth giving no outward evidence of being affected by any unusual condition except a more or less dark appearance when compared with adjoining teeth. Upon inquiry there can usually be elicited a history of a fall or some traumatic injury which has happened years before, yet was sufficient to injure the little nerve filaments that form the connection between the tooth pulp and the main nerve at the apical end of the root. This devitalized pulp may supply a more or less constant infection which is forced up through the apical end of the root by the gases formed within the pulp chamber, and is doubly dangerous because of the likelihood of direct absorption into the general system or distribution through the bone circulation. Teeth of this character are much more common than is generally supposed, and give greater, far-reaching pathologic effects than easily diagnosed, serious looking tooth conditions. The tongue as an index of disturbed intestinal and general conditions has long been recognized. A person suffering from cancer of the tongue in its early stages could successfully pass an examination for life insurance unless the mouth were examined. Leukoplakia is so often a precursor of cancer, and so frequently found in leutic cases, while other evidences of syphilis and also of tuberculosis may be noted in the region of the mouth, and particularly the tongue; and there may be no other marked outward symptoms of these affections, so that the report of such a tongue surface would certainly warrant a more than ordinarily careful examination of the individual. A complete picture of the actual physical condition of an applicant with regard to his life prospects cannot be prepared without at least a cursory examination of the mouth and its immediately associated anatomical parts. The following questions might be included in a regular form of examination blank: (1) Describe the general appearance of the teeth, mucous membrane of the mouth and pharynx. (2) Does the mouth contain the full number of teeth, according to the age of the individual? (3) Are there any discolored teeth in the mouth? (4) Is there an irregular, contracted upper dental arch with a high, narrow palatal vault? (5) What is the general appearance of the tongue? The replies would enable the central examiner to decide whether there was any reasonable ground for suspicion of the existence of any condition which might become a serious menace to life. If a doubt should exist the Röntgen ray, electrical mouth lamps for transillumination and other modern methods of determining actual conditions would make the findings as complete and definite as possible. In many instances the disadvantageous conditions could be promptly corrected, thus converting an unfavorable risk into a good one.—Medical Section, American Life Convention.

Presumption of Examining Physician's Good Faith.—It is held that an association which has insured a person, after a medical examination, cannot attack the statements of its physician in an action on such policy, and it will be presumed that the physician acted in good faith and in the full discharge of his duties when he made the examination and report.—Wyman v. Manufacturers & Merchants' Life Assn., 182 Ill. App. 511.

Warranty — Receipt of Medical Advice.—A breach of warranty that the insured has not had medical advice during the last five years will render void a contract of life insurance conditioned thereon. The burden of proof is on the insurer to show untrue the insured's warranty in this respect.—National Union v. Kelley, Oklahoma Supreme Court, 140 Pac. 1157.

Book Reviews.

THE LIFE AND LETTERS OF NATHAN SMITH, M.B., M.D. By EMILY A. SMITH. With an introduction by WILLIAM H. WELCH, M.D., LL.D. Price $2.50 net. New Haven: Yale University Press; London: Humphrey Milford, Oxford University Press, 1914.

No medical man in America has better deserved that his memory should be kept green than Nathan Smith. He was probably the greatest factor in the advance of medical education this country has ever known. He was concerned in the foundation of several New England medical schools and actually founded the medical school of Dartmouth, New Hampshire, and that of the University of Vermont. Nathan Smith's ancestors came from Norfolk, England. His letters comprise the greater part of the book and provide fascinating reading. In them are depicted the earnestness and thirst for knowledge of the man. The editor of the work is to be sincerely thanked for having given to the world an intimate sketch of one of the greatest of American medical educators.

THE SCIENCE AND PRACTICE OF DENTAL SURGERY. Edited by NORMAN G. BENNETT, M.A., M.B., B.C. (Cantab.), L.D.S. (Eng.) Dental Surgeon to St. George's Hospital and the Royal Dental Hospital, London; Member of the Board of Examiners in Dental Surgery, Royal College of Surgeons of England. With an appendix on Dental Jurisprudence by P. B. HENDERSON, B.A. (Oxon). With nine hundred and ninety-three illustrations. Price $9.00 net. New York: William Wood & Co., 1914.

THIS one volume cyclopedia of dentistry, with its forty-four subjects covered by thirty-five distinguished British dentists, is a somewhat venturesome undertaking, but one which has succeeded remarkably well. The risk lay in the selection of matter which could best be spared to make a one-volume work, and one of a size not too bulky for easy handling. The editor has omitted all the old prosthetic dentistry—plate teeth and entire dentures—and private laboratory activities no longer demand the attention which they once enjoyed. Again the historical method of developing subjects has been abandoned and the only literature quoted is of relatively recent origin. In the interest of further concentration the editor has succeeded brilliantly in making theory and practice go hand in hand throughout the work, thus saving a vast amount of duplication. We cannot refrain from citing a couple of instances which illustrate this point. The work begins straightway with the development of the teeth, this subject leading promptly to abnormities of development and implantation. Before we realize it we are in the midst of orthodontia, with its numerous springs and braces. Further, the editor having the belief that wisdom teeth are not entirely normal formations, we find the second chapter of the work devoted to the pathology and treatment of the third molars A little further on we come to the physiology and chemistry of the saliva, calculous deposit, and the technique for cleaning the teeth. The principles and practice of dentistry proper, orthodontia, caries, and pulp disease and filling, periodontitis, prosthesis (crown and bridge work) are discussed with extraordinary thoroughness. Of course, much that belongs under stomatology and oral surgery would be out of place in a work of this scope, which must necessarily omit borderland subjects. But progress in all science which bears directly upon dentistry is very fully considered—local anesthetics, dental radiography, dental electrotherapeutics, the bacteriology of the mouth, progress in juvenile dentistry, and dental jurisprudence.

HANDBOOK OF PHARMACOLOGY. By CHARLES WILSON GREENE, A.B., A.M., Ph.D., Professor of Physiology and Pharmacology, University of Missouri; Member American Association of Anatomists, American Physiological Society, Society of Pharmacology and Experimental Therapeutics; Fellow of the American Association for the Advancement of Science; Associate of the American Medical Association, etc., etc. With Seventy Illustrations, Including many new and in Colors. Price, $3.50. New York: William Wood & Company, 1914.

THIS new book on Pharmacology has much to recommend it. It is absolutely new, the arrangement of the subject matter is good, the chapters are short, and the author adheres strictly to his subject and does not wander into the neighboring fields of materia medica and therapeutics. As a rule each group or series of drugs is prefaced with a brief historical and chemical introduction; this is followed by an outline of the actions; these actions are then discussed in detail; and the chapter closes with a comparison of the drug with related drugs. The bibliographical references are brief but sufficient, and are particularly well selected. The dose table at the end of the volume is the least satisfactory part of the work. It gives the *average* dose and the *maximum* dose of the more important drugs, and a comparison of these doses shows some startling results; thus in some cases the average dose is the same as the maximum dose, and in some cases the maximum dose is less than the average dose. The book is well written and well printed, and should prove popular with students.

THE VACCINATION QUESTION IN THE LIGHT OF MODERN EXPERIENCE. An Appeal for Reconsideration. By C. KILLICK MILLARD, M.D., D.Sc., Medical Officer of Health for Leicester; Medical Superintendent of the Insolation Smallpox Hospitals, Leicester; Formerly Medical Officer of Health for Burton on Trent; Medical Superintendent of the Birmingham City Hospitals. Price, 6 shillings. London: H. K. Lewis, 1914.

THE author believes that there are two sides to the question of compulsory vaccination against smallpox and attempts to bridge over the great gulf that is fixed between the pro-vaccinist and the anti-vaccinist. He suggests that perhaps the whole truth does not lie with either side but will be found in an intermediate position lying somewhere between them. The book is valuable as a statistical study of smallpox in Great Britain in recent years. The author believes the situation at the present time is different from that at the time that infantile vaccination was made compulsory and that it is recent vaccinatin and not infantile vaccination that protects those exposed to smallpox. He gives interesting proof of the effect of vaccination in modifying smallpox and emphasizes the danger to the community of unrecognized cases of smallpox modified by vaccination. He prophesies that general vaccination will gradually be abandoned but that it will always continue to render invaluable service in protecting smallpox nurses and others especially exposed to the disease. This is the fairest and most consistent exposition of this subject that has come to our notice.

THE PROBLEM OF THE NATIONS—A Study in the Causes, Symptoms, and Effects of Sexual Disease, and the Education of the Individual Therein. By A. CORBETT-SMITH, M. A. (Oxon.); Barrister-at-Law; Captain (formerly R.F.A.); F.R.G.S.; "Officier de l'Instruc-Publique"; Editor of *The Journal of State Medicine;* Lecturer on Public Health Law at the Royal Institute of Public Health. Price $1.00 net. New York: Paul B. Hoeber, 1914.

THE proofs of this pamphlet on venereal diseases have been read by Prof. Sir Thomas Oliver. It purports to be a plain and straightforward account of such diseases and is intended for undergraduates at the English universities. A glossary of medical terms and a great amount of emotional fervor are included.

ATMOSPHERIC AIR IN RELATION TO TUBERCULOSIS. By GUY HINSDALE, A.M., M.D., Hot Springs, Va. Washington: Smithsonian Institution, 1914.

THE author of this interesting essay concludes that climate may be utilized as an adjuvant of great value for carrying out the hygienic dietetic treatment of all forms of tuberculosis and of many other diseases. Altitude *per se* has probably not any great influence. Florida and South Carolina in the winter, the Adirondacks in the winter as well as Arizona and New Mexico (except at 5,000, 6,000, and 7,000 feet) produce good results. The southern coast of California is as beneficial in the summer as in the winter. Redlands, Riverside, Monrovia or Altadena are all better than Los Angeles.

OESTERREICHISCHES BÄDERBUCH. Offizielles Handbuch der Bäder, Kurorte und Heilanstatten Oesterreichs. Verfasst und herausgegeben von Kais. Rat. Dr. KARL DIEM. Price 40 Mks. Berlin: Urban & Schwarzenberg; New York: Rebman Company, 1914.

THE 1914 official handbook of the Austrian baths contains an article on the chemical composition of mineral waters and their classification by Kofrat Prof. Dr. Ernst Ludwig; an article on the radioactivity of the healing springs and the technic of their use by Prof. Dr. Josef Tuma, and other similar discussions. There is an alphabetical list of the places and a map in the appendix.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held November 17, 1914.

DR. JOSEPH C. ROPER IN THE CHAIR.

Advertised Remedies for Cancer.—Prof. JAMES EWING considered the worthless remedies that were exploited by worthless persons who were without any standing in the profession, and the most worthless and most harmful person was the local quack. He knew nothing regarding the diagnosis of these cases, but pretended to be able to cure cancer, relying upon medication only. Such persons were found in almost every town in the country. The harm they did was by dealing with what they knew absolutely nothing about. But these people were not so serious from a commercial standpoint as were the institutional quacks. Then again there was an entirely different group of men who exploited the so-called curative remedies for cancer, members of the medical profession and in fairly good standing. This group of men belonged to an extremely dangerous class. They were injudicious and unethical, but they dealt with the more intelligent people. With regard to surgery, this was the great cure for cancer, but not in those cases where the disease had progressed far.

The Damage to Tuberculous Patients by Self-Administered Proprietary Remedies.—Dr. ALFRED MEYER presented this paper. He stated that the patient suffering from tuberculosis illustrated to a marked degree the truth of Pope's lines: "Hope springs eternal in the human breast." This psychological state and the long duration of the disease made him an easy prey for all who advertised their unholy wares. In a general way the objections to the self-administering of proprietary medicines by tuberculous patients were: First, such action presupposed the belief that each disease had a specific remedy. This belief was erroneous. Second, because logically, diagnosis comes first, and many of these patients treated their disease without a diagnosis by a physician. In a more special way the damage done was often because of the presence of large amounts of alcohol and opium in the supposed cure, and the false sense of improvement excited by the stimulant action of the one or the sedative influence of the other. Moreover, this self-treatment with nostrums bred a false sense of security and led to neglect of all the other valuable aids, which could only come from professional or institutional care and supervision. Perhaps the most serious handicap lay in the fact that tuberculosis was par excellence a disease in which early diagnosis and treatment were half the battle; hence, by deluding himself with a variety of cough medicines, tonics, and so on, the patient delayed his correct treatment, lessed his chances of recovery, and was relegated to the class of chronic, hopeless cases. The history of medicine from the days of Hippocrates, Celsus, and Aretæus, down to the present time, had with few modifications marked out the most hopeful course of treatment. Even if no direct harm were proven in an individual case from any particular advertised remedy, the lying statements in regard to most of them and the type of men responsible for others, would justify suspicion, antagonism, and public agitation against them. Fortunately for our multitudes of tuberculous and poverty-stricken people, this agitation had been carried on with increasing vigor for ten years, and during this time the American Medical Association, *Collier's Weekly*, and the *Journal of the Outdoor Life* had exposed many "cures" and many men. The author read a few of these exposures and said that this list of fraudulent advertisements, objectionable characters, and usurious profits from worthless remedies could be multiplied many times. An estimate made by the National Association for the Study and Prevention of Tuberculosis for the five years ending July, 1913, showed that five hundred fraudulent cures for consumption had been tried in the United States during that period, yielding a clear profit to the exploiters of $50,000,000. It was also estimated that $20,000,000 were invested in manufacture; that the annual income was $15,000,000; that one-third of the income was spent in advertising, leaving $10,000,000 a year of "blood money," taken from ignorant consumptives. In spite of laws, whether National, State, or municipal, the sordid work went on. Only a few days ago the speaker received a clipping from one of the great metropolitan journals, containing the announcement, in large letters: "TUBERCULOSIS CURABLE," and then, in smaller letters, the words "with new remedy which received the gold medal at the last International Medical Congress for Tuberculosis. Write for full information, etc." A pamphlet circulated from the address given mentioned London as the place of the last International Medical Congress. The tuberculosis Congress, however, was held at Rome in 1912, and no prize gold medal was awarded to any sort of remedy at the meeting of the British National Association in 1913, according to the published transactions. In controlling this great evil, so aptly called "The Great American Fraud," some check on cupidity would be realized from the various pure food and drug laws, but credulity, like the poor, "we will always have with us." The greatest help, in its reduction, in the author's judgment, might be anticipated by the education of the public, even that part of it which resented any attempt to "limit the freedom of eating what it might choose to eat and of taking such remedy as it might wish to take." This educational influence was being exerted steadily and effectively by the work of the National Tuberculosis Association, traveling tuberculosis exhibits, moving picture shows, educational leaflets, and, in this community, by the work of the Health Department, the public and private tuberculosis clinics, the Charity Organization Society, the State Charities Aid Association, the United Hebrews' Charities, the Association for Improving the Condition of the Poor, St. Vincent de Paul, and others. They should not neglect to emphasize the educational value of the many city and county sanatoria for tuberculosis, scattered throughout the State and country. The press of the country had also been of great value in spreading the educational campaign. About twenty-six bulletins annually, in regard to tuberculosis, are published in between eight and ten thousand newspapers, and it was figured that from three to five million readers were reached weekly by this publicity service. An investigation recently made by Dr. Meyer at the Bedford Sanitarium of the Montefiore Home led him to believe that this educational work was showing results. Less than half of the cases took proprietary medicines before admission and only in a relatively small number of cases were objectionable things used. In conclusion, let them say that they have not discovered a specific for tuberculosis, and they were honest enough to admit it. But with early recognition, hyperalimentation, hydrotherapy, and climatotherapy, regulation of the daily life down to the minutest detail, by controlling or removing a multitude of the complications which might arise in the course of the disease, they could arrest many of the cases and return multitudes to the wage earning class. Admission of his own limitations was the physician's first step in knowledge. Untruthful proclamation of the cures was the fakir's first step in developing a bank account.

The Evil for So-Called Cures for Narcotic and Drug Addictions.—Dr. ERNEST S. BISHOP presented this paper, which was read by Dr. Orrin S. Wightman. He said that when he was resident physician of the alcoholic and prison wards of Bellevue Hospital he first became aware of the existence of the many so-called cures for narcotic conditions which were supplied from a local office or by correspondence, and which were supposed to be carried out by the patient without further supervision, and he was surprised at the extent to which they had been patronized by the patients. So far as he had been able to learn these cures had been uniformly unsuccessful. Probably here and there would be found an exceptional case in which the patient was taken in the early stage of his addiction or was possessed of superhuman power to endure suffering, and through such a cure had escaped from his disease, but such a person was worthy of study as an unusual individual. As a result of careful inquiry into the experiences of various patients who had taken these cures, he had learned that the patient was furnished with a number of bottles of medicine to be taken in sequence, and in the dosage indicated. At first there was no discomfort. There might be even an effect of overdosage of the drug from which the patient sought escape. As the treatment proceeded, however, the patient got to a point where he experienced the discomfort and symptomatology of insufficient supply of the narcotic drug. He adhered to the schedule as long as was humanly possible and then adopted the simple expedient of increasing the dosage for relief. He might attempt this several times, but in the end found

it impossible and gave up the struggle. He had never had any of these cures analyzed, but there was no doubt in his mind as to their principal content. It was the drug of the patient's addiction in diminishing doses, and whatever other drugs were present their effect was negligible. These "cures" were therefore nothing but unscientific and unsupervised administration of the timeworn method of gradual reduction. It was almost certain to fail without constant watching and control. The sanatoria where it was practised demanded for its carrying out months of residence, close supervision, observation, and restraint, and the attendance of a skilled physician with experience in this work. Even under the best conditions there would be months of nagging, nerve wearing, suffering through a slow convalescence and readjustment, and even then a high percentage of relapses. It had been, however, in the state of previous ignorance of the disease, the only fairly efficacious method in general use. An interesting sidelight on these "cures" and on the character of the remedies they dispensed came from the frequent statements of patients that they purchased these remedies not with any hope of cure or belief in their efficacy, but to obtain the opiates, without which they could not exist. He had been told that this practice had increased since the passage of the Boylan law. The men using these cures were usually not the well-to-do, but those compelled to stay at home and continue their work and who had but a small amount of money at one time. There was no relief for these individuals at the charity hospitals and they could not afford the more expensive sanatoria. The evil results of these cures were that the sufferers would have expended their money which they could ill afford and would have added despair to previous discouragement. A second class were not so desperately harmed; they had simply secured in the way that seemed most available and least dangerous the drug upon which they depended. The dealers in these so-called "cures" were simply furnishing opiates at extortionate prices. Perhaps they could point to cures and bring some of them in to support their procedure, but every method from Christian Science up could do this. The sufferers should be protected from these dangers, but the question was how to do it. The method was by investigation and legislation and the main and most reliable help should come from the medical profession. There should be some means of instructing the public along legitimate lines concerning narcotic drug use and its remedy. The stigma of mental and moral weakness should be removed and the case presented as that of a definite disease condition. The sufferer should be warned that it was better for him to use his drug in moderation until he could obtain adequate relief than to attempt unvouched for methods, that inefficient treatment was worse than no treatment at all. There should be means provided for the victim to procure sufficient of his narcotic to enable him to live until he could take adequate treatment and he should be instructed in a few simple facts which would enable him to continue its use with least harm until such time arrived. Narcotic drug disease was and would before long be recognized as one of the most definite clinical conditions in its fundamentals, basically a clean-cut disease condition. The obstacle was that they had studied complications of autotoxemia and anxiety psychoses instead of intrinsic narcotic effect, and labeled the patients as mentally diseased and degenerate. This obstacle must be removed and unbiased, competent clinical study substituted. A committee should be appointed connected with their medical organization or with the Board of Health for searching out and disseminating real facts. Hitherto the public had received its information on this subject from laymen, but it was a medical problem of great importance and the instruction should come through duly established medical and health organizations.

A Survey of the Proprietary Remedy Question.—Dr. W. A. Bastedo read this paper. He said he would not discuss the relation of proprietary remedies to the patient, the physician, the retailer, the wholesaler, the manufacturer, the advertising agent, or the one who published the advertisements, though he stated that each was important, for the patent-medicine business was a large one, paid well, and represented immense vested interests. Nor would he stop to discuss the statement that the people of the United States were the largest drug consumers on earth, using more drugs per capita than any other nation; but would proceed to speak of the proprietary remedies themselves. It must be recognized at the outset that proprietary rights were not of necessity wrong rights. As instances of simple chemical drugs which had been proprietary the writer mentioned acetanilid under the name of antifebrine; acetphenetidine, under the name of phenacetine; theobromine sodiosalicylate, under the name of diuretin. In the countries in which these drugs were manufactured, where patents might be granted for processes of manufacture but not for the chemical itself, the drugs were sold with only the usual profit to the manufacturer; but through the laws of the United States the patents granted for them not only forbade that any but the proprietor should manufacture such chemicals by any process whatever but even went to the length of forbidding that any but the proprietor should import them or place them upon the American market. For those remedies, however, the patent had expired, and if physicians would prescribe them under their chemical names the price would be much less to the patient. Of the galenical that bore its formula on the label little was to be said. What was needed here was such regulation as would prevent the placing of untruths upon the label or in advertisements. Of the galenicals with secret formulas, the cancer cures, the consumption cures, and the drug-habit cures had been reviewed, but the field was large indeed. If the question was asked whether there was anything fraudulent in the secret nostrum business, and, if there was, whether the proprietors knew about it, one had only to observe the change in labels when the Food and Drugs Act was passed. To emphasize the harmful effect of self-medication Dr. Bastedo called attention to some of the preparations whose chief ingredients were alcohol, cocaine, morphine, or acetanilide. According to statistics collected by the Department of Agriculture there were in the United States 911 cases of acetanilide poisoning, with thirty deaths, in the year 1909. Another way in which the unwary were captured was through the "beauty hints" and "health hints" in the newspapers. Even some of the metropolitan papers lent themselves to this reprehensible practice. The manufacturers were not alone responsible for the harm that their preparations did. The layman had been shown the facts over and over again and the physician had not been without responsibility in the distribution of the secret nostrum. In concluding, Dr. Bastedo said he had attempted to show that proprietary rights in medicines might be used for the exploitation of the public; that in spite of many honest manufacturers the proprietary secret formula was the one that especially lent itself to fraud of the worst possible kind, since it dealt with human life and health, and to emphasize his belief that a law which in addition to forbidding untrue statements in advertisements and on the label also forbade secrecy in the formula would prove to be greatly in the interest of the public health.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 24, 1914.

Dr. Asa B. Davis in the Chair.

A Preliminary Report of a New Method of Painless Childbirth.—Dr. Alfred M. Hellman presented this communication. He referred briefly to the various efforts that had been made to attain a painless childbirth and stated that on July 21, 1914, Professor Ribemont Dessaignes of the French Academy of Medicine delivered before that body a lengthy address on this subject. In 112 labors he had used a drug obtained by the action of hydrochloride of morphine on living ferments resembling beer leaven. By this special method of treatment the toxicity of opium became about one-fifteenth that of morphine and the entire morphine was transformed into a substance that crystallized in the regular way. Professor Ponchet, who further examined the drug, said it resembled the oxydimorphine of Marne. This agent made the organism more susceptible to such drugs as strychnine and digitalis, accentuated the vasomotor reflexes, exaggerated the general reflexes, and increased salivary, intestinal, and renal secretions. Toxic doses were reached only when two or three centigrams were injected for each kilogram of body weight, and were evidenced by bloody and mucous diarrhea. The first toxic cerebral symptoms resembled inebriation. Professor Dessaignes found that the drug acted on the brain and sympathetic centers without noticeable effect on the spinal cord. It was probably carried there by the blood stream. Its action was most prompt; a pricking sensation was felt within two or three minutes. The patient became drowsy after ten to twenty minutes, and

there was no further sensation of pain. Professor Dessaignes had obtained complete analgesia in 84 cases, marked but not complete analgesia in 24, and four claimed that they had no relief, but their cries became less violent. The analgesia lasted from thirty minutes to twelve hours. In 63 cases but one injection was used; nine patients received three, and one, five injections. There was no effect on the uterine contractions as tested by the hysterograph of Professor Fabre of Lyons. There was one case of postoperative hemorrhage. The placenta came away on an average thirty-two minutes after birth. There was no mental anxiety, no physical exhaustion, no disturbance of temperature or pulse, and no after pains until the analgesia had worn off. The involution was normal and nursing was not affected. The result of 112 labors was 115 babies, of whom 77 cried out at once, 28 seemed dazed, and were oligpneic, but after a few minutes breathed with perfect freedom and were comparable to cesarean babies. There was one fetal death where the fetus was doing poorly at the time the mother was admitted to the hospital. Two babies had convulsions shortly after birth, the autopsy showing meningeal hemorrhage. Three premature children died at the end of one, two, and eleven days after birth; all the others left the hospital in perfect health. The drug was given hypodermically, 1.5 c.c. for the first dose and 0.5 c.c. for succeeding doses. Dr. Hellman said this report had encouraged him to try this drug, but owing to the failure of a promised shipment from Paris he had but three cases to report in which it was used by the house gynecologist at the Lebanon Hospital. These were three normal primiparæ and the administration of the drug was commenced when the pains were about five minutes apart and the os dilated two fingers in the first and third cases and four in the second. Pain ceased in from fifteen to thirty minutes after the first injection of the drug. A second injection was given in each of the cases, and in each instance one c.c. pituitrin was given when the head was on the perineum. While the cases were too few to warrant the drawing of any real conclusions, the author said that the drug certainly relieved the pain of labor and caused a certain amount of amnesia. It would probably be found to lengthen the second stage of labor. It was harmless to mother and child and had no effect on the puerperium. There would be a certain number of babies born oligpneic. He did not know whether this would be serious enough to discredit the use of the drug or not. It must, in order to be proved safe, allow the woman to deliver herself without the addition of another poison, pituitrin, in any appreciable number of cases. The work was sufficiently encouraging to warrant further experimentation.

The Physiology and Pharmacology of the Excised Human Uterus.—Dr. CHARLES LIEB read this paper. He said he had recently demonstrated the pharmacodynamics of some ecbolic drugs on the isolated uterus of the guinea pig and drew some broad conclusions as to the action of these drugs on the human uterus. Objections were raised based on the physical differences between the human uterus and that of the guinea pig, and this had led him to investigate the physiology and pharmacology of the surviving human uterus and tubes. He first discussed the results reported by those who had studied the movements of the human uterus *in situ*, and then described his method of investigating the movements of excised segments of the human uterus and tubes. As soon as the organs had been excised segments were cut from them and transferred to a large jar of oxygenated Ringer's solution. If the segment was to be studied immediately the temperature of the solution was maintained at 38° C.; if the tissues were to be preserved for later experiments the solution was kept at 5° C. to 10° C. and placed in the ice-box. At least once in twenty-four hours the tissues were transferred to freshly prepared oxygenated Ringer's solution. Such treatment was not deleterious to contractile tissue as had been shown by Gunn for the heart and Herz for the intestine. The author had preserved guinea-pig uteri for 196 hours at such low temperatures and then when suspended in warm Ringer's fluid the movements were found to be identical in type with those made by the segment after its removal from the body of the animal. Nearly all the experiments were carried out on the longitudinally disposed outer layer, the segments being taken from the anterior surface of the uterus near the fundus. The presence of two well-defined layers of smooth muscle in the tubes made it possible to study the longitudinal as well as the circular fibers. The movements of the muscle were recorded by a lever of the first order on the smoked paper of a slowly turning kymograph. The author then illustrated the results of his experiments with charts. In the non-pregnant uterus the contractions of the external coat were slow but powerful. There was a considerable variation in the completeness of the individual contractions as well as in the extent of the relaxation. The movements might be regular in their rhythm or the intervals between successive contractions might differ greatly. Usually the contraction was followed promptly by relaxation, but sometimes the fibers remained contracted for a considerable period. In some tracings the rate of the movements was very slow. This was due to the long pause which intervened between successive cycles. The external longitudinal coat contracted at the rate of 10 to 60 times per hour. The development of the movements was interesting when the experiment was set up. There was a progressive loss of tonus from 20 to 60 minutes and then quite suddenly there was an enormous increase in the tonus and spontaneous contractions made their first appearance or they became larger than they were during the stage of low tonus. The contractions having once begun continued for hours with little change in rate or strength. The level of tonus was subject to considerable variation, the exact explanation of which was not at hand. In the parturient uterus the movements of the external longitudinal coat were of two types. In the first they were simple waves. The contractions usually began and ended slowly. In this type there was but little change in tonus. In the second type there were large coarse waves on which were superimposed smaller contractions. The rate of the small contractions was subject to considerable variation, but it was probably not far from 60 to 75 per hour. In one case in which the movements of the oblique fibers were recorded the waves corresponded to type one. In studying the movements of the Fallopian tubes, he found that in the non-pregnant state the longitudinal fibers had a much faster rate of contraction than those of the body of the uterus. In the non-pregnant tubes the rate had been found to vary between 120 and 200 per hour. The contractions were usually small, the height varying inversely as the rate. They might be quite regular in rhythm and strength. Occasionally there was an ill-defined tonus wave on which the small contractions were superimposed. The movements of the inner layer of muscle resembled closely that of the outer layer. In the parturient tubes the contractions assumed a new character. The movements of both the circular and the longitudinal fibers became slower but much stronger. The tonus changes became very pronounced. Usually the ascending limb of the curve was smooth and unbroken, but the descending limb was interrupted by numerous small contractions, not infrequently following one another without marked pause, while occasionally these small contractions were separated by strikingly long periods of inactivity during which the tube remained in decided relaxation.

Dr. Lieb then discussed the origin of uterine movements and stated that inasmuch as the movements were not due to impulses derived from the central nervous system nor from the adjoining nerve plexuses, they must originate in the organ itself. They might be due to an inherent rhythmic function of the muscle cells themselves, or they might be the result of impulses formed in the nerve cells found within the walls of the tubes and uterus. Each of these views had its supporters. The absence of a well-defined nerve plexus, corresponding to Auerbach's plexus, in the wall of the intestine, led him to believe that the stimuli arose within the muscle fibers. The writer then described and illustrated by charts the action of some of the ecbolic drugs on the excised human uterus. With the addition of suprarenal extract sufficient to make a 1-2,000,000 solution, the uterus at once contracted powerfully and there was a great increase in the rate of movements. The tonus was markedly increased. These effects were of comparatively short duration, probably because of the conversion of the suprarenal extract into a less active oxidation product. From these experiments the conclusion was probably justified that the sympathetic innervation of the human uterus was always motor in quality. The beneficial effects of a suprarenal extract douche could now be explained. In addition to the constriction of the bleeding vessels, suprarenal extract produced a contraction of the uterus itself. Thus the flow of blood to the ruptured vessels was diminished and the hemorrhage stopped. The effect on the uterine muscle was probably at least

as important as that on the vessels. The question arose, could postpartum hemorrhage be controlled by the systemic administration of suprarenal extract? It probably could not.

When the drug was administered by mouth, subcutaneously or intramuscularly, the absorption was so slow and oxidation at the point of application so rapid that but little of the drug entered the circulation. The intravenous administration would undeniably produce a marked stimulation of the uterus, but the sudden rise in blood pressure and the redistribution of the blood would more than counterbalance this effect and the hemorrhage would be increased. Suprarenal extract should not be used as an ecbolic. The intravenous administration would probably be dangerous and the other methods of administering it would be worthless. Dr. Lieb then outlined his experiments with ergotoxin, parahydroxyphenylethylamine, one of the amines present in ergot and closely related to suprarenal extract, imidoazolylethylamine, a third active constituent of ergot, and the fluid extract of ergot. The effect of the latter drug on the isolated uterus was on the whole distinctly disappointing. A number of different samples had been tried, usually after distilling off the alcohol and replacing it with Ringer's solution. This was necessary because the addition of alcohol to the isolated uterus resulted in more or less marked depression. There occurred a very slight increase in tonus, but a considerable augmentation of the rate and strength of the individual movements. An artificial fluid extract had a similar but more striking effect. The author finally described his experiments with pituitary extract. He found its effect on the non-pregnant uterus or tubes surprising. Small doses usually had no effect; large doses, such as produced marked stimulation of the pregnant uterus, might cause a definite depression or they might not influence the movements at all. It had been suggested that beta-imidoazolylethylamine was the active constituent of pituitary extract. It was evident from his experiments that such was not the case. The non-pregnant and parturient uterus reacted very differently to pituitary. The non-pregnant uterus was unaffected or depressed; the parturient uterus was stimulated. The simplest explanation of this was that the human organ, like that of the cat, changed its innervation, or, rather, during pregnancy, its motor innervation became predominant. Such, however, was not the case, for epinephrine produced stimulation of the human uterus whether it was pregnant or not, nor did the parturient organ appear to be more sensitive to epinephrine. The only explanation was that some substance sensitized the uterus to pituitary. What this substance was Dr. Lieb did not know, but it was not epinephrine. From his experiments it seemed that the uterus might become sensititzed to pituitary as early as six weeks after conception. It was true that during pregnancy the pituitary gland hypertrophied and that after the expulsion of the fetus retrograde changes occurred. The hypertrophy was limited to the true glandular lobes, the anterior and middle divisions. The posterior lobe showed no increase in activity. But it was from the posterior lobe alone that the ecbolic principle could be obtained. This indicated that the posterior lobe was not concerned with normal labor; it was not necessary to life. Oddly enough extracts of this lobe had not been shown to have a demonstrable pharmacological activity. But this was the lobe that hypertrophied during pregnancy. It was apparent that if the pituitary gland was to be regarded as intimately concerned with the onset of labor, Dr. Lieb said, the hormone should be sought not in the posterior lobe but in the anterior portion of the gland.

Dr. JOHN O. POLAK said that such a paper as that presented by Dr. Lieb should not go without some discussion. It was a very valuable contribution in correcting erroneous conceptions of the action of drugs. He had been particularly impressed by the diagram showing the effect of pituitary extract on the uterine muscle and he could not see why, if that showed the physiological action, they should continue to use it to check hemorrhage. Professor Fabre of Lyons had done some work along these lines in the study of the effect of certain drugs on uterine contractions in the pregnant state which was very similar to this. It was very interesting to see the force, and especially the very high force, of the contraction. Such work could not help being of the greatest advantage; it gave much valuable information and pointed the way to a more intelligent use of drugs in the treatment of pathological uterine conditions.

SECTION ON SURGERY.

Stated Meeting, Held December 4, 1914.

DR. CLARENCE A. MCWILLIAMS IN THE CHAIR.

Gangrene of Gall-Bladder from Twisted Cystic Duct.—Dr. WALTER C. CRAMP presented this patient, a man who had been admitted to Bellevue Hospital suffering from pain in the abdomen, nausea, and vomiting. From the history it was supposed that his trouble was due to indiscretion in diet and he was placed in the medical division. A tentative diagnosis of gastritis was made. The following day he was transferred to the surgical division. There was rigidity over the right upper quadrant, a temperature of 99° F. but no symptoms indicative of obstruction. There was a high leucocyte and polymorphonuclear count, and an epigastric tumor. Immediately, on making the incision, the gall bladder protruded through the opening. It was black in color and twisted one and one-half times from right to left on its pedicle. There was no communication with the liver except toward the common duct. Dr. Cramp presented the specimen removed, which bore no resemblance whatever to a gall bladder.

Removal of Tongue for Carcinoma.—Dr. CRAMP presented this patient. This man was admitted to the service of Dr. George Stewart at Bellevue Hospital on August 13, 1913. There was an ulcer on the left side of the tongue involving a small portion of the base of the tongue and having all the appearances clinically of an epithelioma. A section was sent to the pathologist, who pronounced it carcinoma. At the primary operation both lingual arteries were ligated and the tongue removed through the mouth. There was not a great deal of hemorrhage. The patient did not do well for a time after the operation because he could not swallow and his nutrition was thus interfered with. At a later operation several glands in the neck were removed, but according to the pathologist these were not involved in the malignant process. The first operation was performed on August 27, 1913, and up to the present time there were no evidences of recurrence.

Abscess of the Liver.—Dr. CRAMP presented this patient, who was admitted to Bellevue Hospital on October 23, 1913. He had been suffering from chills, chilly sensations, and pain all over the body, and had been ill for a week at the time of his admission to the hospital. He complained of pain in the right epigastric region, but no nausea, vomiting, or sweats. His temperature was 105° F. The local signs were not definite, though there was considerable resistance in the upper part of the abdomen. The leucocyte count was 23,000 and the polymorphonuclears 84 per cent. He was transferred to the surgical division and the following day the leucocyte count was 19,000 and polymorphonuclears 96 per cent. At operation a small protrusion was found at the right of the gall bladder containing pus. This was evacuated and found to contain staphylococcus aureus. The patient left the hospital on November 15, 1913, and had returned occasionally for observation, but up to the present time there had been no further trouble.

Hemorrhage from the Middle Meningeal Artery Due to Traumatism; Hemiplegia, Motor Aphasia; Osteoplastic Flap for Ligation of Vessel; Recovery.—Dr. M. S. KAKELS presented this patient. He stated that a violent injury to the skull sufficient to cause laceration of the intracranial vessels was generally followed by symptoms depending upon the situation and extent of the extravasation. In intracerebral injuries important centers might be involved and rapid death follow without giving the symptoms of compression. In extracerebral due to extravasation from the middle meningeal artery or its branches a peculiar and characteristic sequence of symptoms followed the traumatism to the cranium. These were (1) concussion, (2) a free conscious interval, (3) focal symptoms, and finally (4) symptoms indicative of general pressure, such as stupor, unconsciousness, slow pulse, rise in blood pressure and respiratory symptoms. The focal ymptoms were at first irritative and might progress to those of local paralysis of the same centers and if the clot was large enough to extend to the centers of the lower extremities, which were situated higher up on the hemisphere, hemiplegia might result. This, however, was extremely uncommon. The fact that the patient here presented had a lesion of this type, of which there were not many recorded, had prompted Dr. Kakels to report the case. This man, 45 years of age, was admitted to the Lebanon Hospital on October 11, 1914,

with the history of having been accidentally struck with a baseball while watching the game. After being struck he felt dizzy, but quickly recovered therefrom and walked to his home, where after an hour he became unconscious, and the whole right half of his body, including his face, was found completely paralyzed. When brought to the hospital there was a small hematoma over the left parietal region, but no depression could be felt. The right half of his face was smooth and lifeless. The left pupil was markedly dilated and did not react to light or accommodation. The right upper and lower extremities were paralyzed. The knee jerks, Babinski and ankle clonus were present on the right side. The left upper extremity was negative, while the left lower extremity exhibited knee jerks, but only slight ankle clonus. The patient was unconscious. Lumbar puncture revealed sanguinous cerebrospinal fluid under increased pressure. The pulse was slow and irregular, respiration was stertorous, and blood pressure 220 mm. The history and classical train of symptoms, namely, traumatism, concussion, free interval, and then compression, was typical of a rapid and large extradural hemorrhage, probably due to laceration of the middle meningeal artery or one of its branches. A horseshoe incision was made in the left temporal region. An osteoplastic flap was dislocated downward and an extensive clot, larger than the palm of the hand and over an inch in thickness, was found. The clot was so large and thick that when removed one could plainly see the depression in the region of the brain occupied by the hematoma. A fissure fracture of the temporal lobe was found close to the base of the skull. Active hemorrhage was coming from the middle meningeal trunk and from a small vessel on the dura. They were both ligated. The brain was seen to pulsate. There was no subdural hemorrhage over the exposed area, still there was some blood welling up from beneath, probably from laceration of some emissary vein. The brain was gently lifted and a considerable amount of clots were removed from the base of the skull. The space was gently packed with iodoform gauze to check the persistent oozing, the osteoplastic flap replaced and the scalp loosely sutured. The blood pressure had dropped during the operative procedure from 220 mm. to 110 mm. when the operation was completed. Forty-eight hours later, under narcosis, the old incision was laid open, the osteoplastic flap reflected and the packing carefully removed. There was no more oozing. A small rubber tissue drain was inserted through one of the trephine openings, which was removed on the seventh day when the wound was found perfectly healed. On coming out of his stupor the motor aphasia and hemiplegia were markedly in evidence. These manifestations gradually disappeared until at the end of two weeks they were hardly noticeable. The patient was then discharged fully recovered. The quick operative interference, about six hours after his injury, no doubt was the most important factor in his recovery. The speaker said that there were some conditions in which the exact place to open the skull baffled the operator. In such cases, as cited above, the making of a large osteoplastic flap with its center over the main trunk of the middle meningeal seemed quite advantageous and rational, as one thus obtained an excellent exposure of the main trunk and its branches. Beside, with such an opening one could lift the brain and thereby expose the middle fossa of the skull, giving a good view for basilar inspection and the removal of clots.

Operative Relief of Subacromial Bursitis with Calcareous Deposit.—Dr. Walter M. Brickner made this presentation.

Case I.—This patient was seen on July 24, 1913. He had been suffering from pain in the left shoulder for four months. Abduction was not possible and external rotation was limited. There was marked tenderness over the subcoracoid process. The *x*-ray showed a small shadow. In this case the bursa was aspirated.

Case II.—In this case there was no history of trauma, but the man was a builder and the probabilities were that he had sustained some slight injury. Abduction and rotation were impossible because of the pain. Operation gave prompt relief from the pain and abduction was helped, but it would take quite a while to restore the internal rotation. Before the operation the arm was absolutely useless because of the adhesions. This man's condition had been greatly improved by the operation.

Case III.—This patient was seen May 19, 1914. He was a paper hanger and gave a history of a dislocation four months previously. The pain was very severe, radiating up to the neck and down to the elbow. Internal and external rotation were limited and there was tenderness over the lesser tuberosity. He was operated on at Mount Sinai Hospital by the method described later. He had now been working for ten weeks; abduction was restored, and internal rotation restored for all practical purposes if not entirely so.

Case IV.—This patient was seen on October 4, 1914. He had sustained a fall, striking on the shoulder, but did not feel any ill effects until he raised the arm to strike when he had severe pain radiating to the forearm. Motion was most painful, internal rotation considerably limited, and there was atrophy of the deltoid and infraspinatus and supraspinatus muscles. The *x*-ray showed a calcareous deposit. The patient was operated upon on October 6th. The pain was relieved before the dressings were removed. He had not acquired normal motion as yet, but was using Indian clubs to restore internal and external rotation. This patient was not as bad as the other two had been and would probably make a complete recovery.

Case V.—This patient had sustained an injury, while lifting a hind quarter of beef and swinging it over his shoulder to a hook, five days before presenting himself. The pain in his shoulder was very severe, and there was practically complete scapulo-humeral fixation. The *x*-ray showed a deposit. He was much improved by treatment, but refused operation for the present. As long as the deposit remained he would continue to have pain.

Case VI.—This patient was a lady who presented herself in July last, suffering with intense pain in her shoulder. Abduction was *nil* and there was no rotation. The patient at first gave no history of trauma, but on further questioning admitted having hung to a car strap and while in this position slipping. When she got off the car she had severe pain in the shoulder. This had happened ten days previously. Three days after receiving the injury the pain became very severe. Both active and passive motion were very difficult. There was tenderness over the great tuberosity. The *x*-ray showed a typical deposit. She was operated upon and made an excellent recovery. She now had perfect motion with perhaps a little limitation of external rotation.

Prevalent Fallacies Concerning Subacromial Bursitis: Its Pathogenesis and Rational Operative Treatment.—Dr. Brickner presented this paper. He stated that all the articles on this subject presented misconceptions and gross fallacies. Among these fallacies was the idea that the thickened walls of the bursa cast the shadow on the *x*-ray plate; that the calcareous deposit was within the bursa; that the condition arose from a bacterium or a toxic product; that there was marked swelling over the tuberosity, and that excision of the bursa was a practical method of treatment. The writer had had nineteen cases with six operations and these had served to call attention to these fallacies. The thickened wall of the bursa cast no shadow, as was demonstrated by the fact that the bursa showed no shadow after the deposit was removed. Again, the calcareous deposit was not within the bursa but beneath it, on the supraspinatus tendon. In the fifth case reported the deposit was imbedded in the infraspinatus tendon near its tuberosity. In the sixth case it was around and in the supraspinatus tendon. It might be deposited in a tear in the tendon, but the tendon itself was not involved. This deposit resembled shad roe or yellow tartar, and, according to the analysis of S. Bookman, contained calcium oxylate, magnesium carbonate, blood fibrin, and serum albumin. These deposits had no sac or limiting membrane. The deposit might be semifluid. It had been stated that if the process was tuberculous the deposit was cheesy, but this was also an error. Again, these deposits were sometimes single and sometimes multiple and the fluid ones were larger than the shadow cast. The lime formation was not always slow, but might be apparently rapid, as in the one case in which it was observed four days after the accident. In all these cases operated on within a year and a half the calcareous deposit was in or on the tendon but not of it. The assumption of a bacterial or toxic origin had not been substantiated by any evidence. Traumatism between the acromion and the greater tuberosity was usually the cause of the injury, and it was furthermore frequently a mild injury, so light that the pain in the shoulder was not associated with it. It had occurred from falling on the outstretched arm or the deltoid. Many instances were not typical regarding the classical symptom of

tenderness over the acromion. The tenderness might be over the lesser tuberosity or interiorly. The diagnosis of these cases was not at all typical, and the *x*-ray was of the greatest importance in assisting in the differential diagnosis from brachial neuritis, arthritis, etc. In the acute cases with loss of function an open operation gave prompt relief; in less severe cases rest in bed, with the head of the bed elevated slightly and the hand tied to the head of the bed, so that the patient would very gradually slip down and the hand be gradually drawn upward, had been found very effective. Some had advised the excision of the entire bursa, but when one considered its size this was rather an extensive undertaking, and tuberculosis was the only indication for such a procedure. The writer said his method of operating was, with the patient on his back, to make an incision from the edge of the acromion directly down toward the elbow. The deltoid was split and, partly by blunt and partly by sharp dissection, the bursa was exposed and separated from the floor. If there were adhesions over the greater tuberosity they were divided with the scissors. The bursa was incised in the same line and if the calcareous deposit was found it was evacuated. Often there was a small tear in the tendon containing the deposit. If this was found to be the case it was washed out with salt solution. If the deposit was not found under the bursa the infraspinatus was opened and any deposit found there was removed. A very thin layer of vaseline was spread inside the bursa, which was helpful in preventing the formation of adhesions. The arm was put up in the abduction position in a light plaster cast at an angle of 120 degrees. This might be a little irksome to the patient, but was worth while. Dr. Brickner gave a lantern slide exhibit which showed the difference in the *x*-ray pictures between calcareous deposits and tuberculous and luetic processes.

Dr. Eli Moschcowitz showed lantern slides from three of the cases which Dr. Brickner had presented, and explained the findings. The central picture he said was first necrosis, then granulation tissue, and lastly calcification. The necrosis was easily explained by the small blood and lymph supply to the locality. Calcium formation occurred easily in dead or inert tissue. It was difficult to explain the calcareous deposit found in the one case a week after the injury. The calcium deposit might be due not only to the necrosed tissue, for which it had a predilection, but to defective metabolism. There were two conditions that might be compared with this, and these were gouty infiltration and myositis ossificans. In bone formation there was a preliminary calcification and it was probable that they should some days find bone in these deposits.

Dr. Reginald H. Sayre said he wished to emphasize the necessity of taking the *x*-ray photographs with the arm everted. He showed two *x*-ray pictures taken of the same arm within a few moments of each other; the one showed the calcium deposits and in the other there were apparently no such masses.

Dr. R. H. M. Dawbarn said that in connection with the diagnosis of tuberculous disease one author stated that when the *x*-ray photograph was poor and the edges of the bone looked woolly it was pretty definite evidence of tuberculosis.

Dr. George D. Stewart made preliminary report on a case in which he had recently operated, removing 181 calcareous bodies from the bursæ of the shoulder joint. As the patient was still in the hospital the full report would be presented later.

Dr. R. H. M. Dawbarn said he had never seen anything like the case just reported, but he had seen an analogous condition of the knee joint, although the masses were not so smooth and regular as these which Dr. Stewart had just shown.

Dr. William H. Stewart said he wished to emphasize the importance of taking radiographs of the patient in more than one position; they should be taken with the joint, at rest, in the abduction position, and the position of internal rotation, and then if calcareous deposits were present they would be seen. He expressed surprise that Dr. Brickner had said what he did of a calcareous deposit having taken place in four days; this scarcely seemed possible, and he regretted that an *x*-ray had not been taken before the injury occurred.

Dr. Edwin Beer observed that Jellinghaus had shown that calcium was deposited along the suture line of a wound in five or six days. As to Dr. Brickner's indications for removal of the bursa, he would like to add sarcoma.

Dr. A. J. Brown said that it appeared a little difficult to understand that a tissue could pass through the stages of necrosis, repair by granulation, and subsequent calcification, as described by Dr. Moschcowitz, and the entire process be completed in four days. Four years ago a series of cases was reported by Dr. Haenisch of Hamburg, in which the findings, both radiographically and operatively coincided with those of Dr. Brickner. Several cases cured by non-operative means presented no pain, though the calcareous mass shown by *x*-ray was still present. This led him to radiograph both shoulders in acute cases and in two he found the shadow of a calcareous mass present in both shoulders, which would make it appear that the prominent symptom, pain, is due rather to the grafting of an acute process on a chronic one than to the presence of a calcareous mass *per se*.

Dr. A. Ernest Gallant asked Dr. Brickner why he kept the shoulder immobile for ten days. Would not function be restored much earlier if massage and passive motion were begun earlier? He also asked whether Dr. Brickner used the abduction position in these cases.

Dr. Brickner said that Dr. Sayre's point was well taken; the *x*-ray pictures should certainly be taken in different positions. With reference to the case in which the deposit was noticed after four days, he had been careful not to say that it had occurred within the four days, but that it was found at that time. He would like to ask if anyone had seen a case with such a deposit in which the patient had no symptoms referable to the shoulder. Slight causes were apt to result in the crushing of the tendon between the two bones, and, as had been pointed out, the region was prone to such deposits. In reference to Dr. Gallant's question as to whether he used abduction position in treating these cases, he had replied in the affirmative in his paper.

A New Operation for Stricture of the Rectum or Sigmoid.—Dr. Joseph Wiener presented this communication. After reviewing the varieties of stricture, he stated that, with the exception of the neoplastic and congenital, they might all be included under the general term inflammatory. He then reviewed the seven methods of treatment hitherto employed for the treatment of strictures of the rectum and pointed out their disadvantages. None of them seemed to him the ideal procedure in the following case. This patient came under Dr. Wiener's care in Dr. Lilienthal's service at Mount Sinai Hospital. He was sixty-three years of age and had complained of gradually increasing asthma for the past twelve years. He had had a reducible hernia for fourteen years and had been operated on five years previously for vesical calculi. Four months before admission he had resorted to a hot enema for constipation and produced a severe burn. A few weeks later he noticed small frequent bowel movements, which soon became painful. They were no doubt the result of the formation of the inflammatory stricture. A proctitis developed. The man's general condition was not good. He had extensive emphysema, chronic bronchitis, an enlarged heart with systolic murmur at the apex, marked arterio-sclerosis, and was somewhat cyanotic and dyspneic. On recital examination, five inches from the anus a hard circular infiltration was felt, which would not admit the tip of the index finger. The tip of the smallest bougie could not be passed through it. All rectal manipulation was very painful. The stricture was too high up to make linear incisions, any attempt at dilation would probably have resulted in perforation of the rectum and an external proctotomy with resection of the coccyx would have been far too serious an operation for this debilitated man. They finally decided to open the abdomen and to be guided in their operative procedure by the pathological condition present. The abdomen was opened by a left rectus incision. A Wales bougie was inserted by an assistant and found to be obstructed about five inches from the anus. At the site of the stricture a white scar about one inch wide was seen, completely encircling the bowel. The assistant was instructed to make considerable upward pressure on the bougie, which the writer made to engage in the stricture by manipulation from the inside of the abdomen. This was at first not successful, but it occurred to Dr. Wiener that by forcing the bowel downward towards the anus from within the abdomen, he might overcome the stricture. After a few minutes manipulation he felt the stricture begin to dilate and soon felt the tip of the bougie in the bowel above the stricture. Larger bougies were then successively passed, the bowel being milked over them as with the first, until the largest Wale bougie lay in the rectum above the stricture, where it was

allowed to remain and the abdomen was closed. Eighteen hours after the operation the bougie was removed on account of pain. Convalescence was uninterrupted. The man was requested to return every few weeks to have bougies passed, but this he neglected to do; nevertheless the largest Wale bougie could be passed without difficulty four months after the operation. This operation was applicable to all strictures more than three or four inches from the anus. Its advantages were: (1) ease and certainty, the work being done under the guidance of the eye; (2) absence of shock; (3) rapid recovery; (4) little or no danger of perforating the rectum.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NEW YORK STATE BOARD OF MEDICAL EXAMINERS.

May, 1914.

(*Continued from page* 42.)

CHEMISTRY.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. Give an example of each of the following: normal salt, acid salt, basic salt, double salt.
2. Give the formula, the physical properties and the chemical properties of nitric acid.
3. In what various forms does carbon occur?
4. Give the chemical distinction between hard water and soft water.
5. Give the occurrence in nature, properties, compounds and uses of sodium.
6. Describe the preparation of diastase. What is its action on starch?
7. What are the properties of glycogen and where is it found?
8. Define (*a*) pasteurization, (*b*) modified milk.
9. Describe the urinometer.
10. Define (*a*) mixture, (*b*) compound, (*c*) atomic weight, (*d*) base, (*e*) salt.
11. Write the symbol of each of twenty elements and the formula of each of ten compounds, giving the name in each case.
12. Give in detail a method of estimating the amount of sugar in urine.

HYGIENE AND SANITATION.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. What is an antiseptic? Give two examples.
2. What are the important objects of the registration of vital statistics?
3. What means may be taken to prevent the spread of tuberculosis?
4. What are the principles of a proper system of ventilation?
5. What infectious diseases may be communicated by drinking water?
6. To what diseases does the habitual use of alcohol cause a predisposition? What effect has the use of alcohol on longevity?
7. Describe in detail the septic tank method of purification of sewage.
8. What are the objections to hot air furnaces and how may these objections be overcome?
9. How is the spreading of infectious diseases among school children guarded against?
10. In what occupations is lead poisoning liable to occur?
11. What are the arguments in favor of public baths in large cities?
12. What have been the benefits to mankind of vaccination in preventing smallpox?

SURGERY.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. Describe a dislocation of the hip and give directions for its reduction.
2. What special precautions should be taken in the case of burns about joints to prevent contractions?
3. Give the surgical treatment of incipient tuberculosis of the knee joint.
4. Give the symptoms of deep stitch abscess following laparotomy.
5. Give the symptoms of duodenal ulcer. What is its most frequent location?
6. Give the symptoms of fracture-dislocation of the second lumbar vertebra.
7. Describe a method of skin-grafting for extensive denudation (omit details of aseptic technique).
8. Describe the steps of an operation for indirect inguinal hernia (omit details of aseptic technique).
9. Describe three methods of opening the abdomen to remove the vermiform appendix (omit details of aseptic technique).
10. Give directions for the measurement of both femurs for discovering shortening by fracture or by disease.
11. Describe ectropion and an operation for its relief.
12. Name the important sequelæ of purulent otitis media.

ANSWERS.

CHEMISTRY.

1. A *normal salt*, Na_3PO_4; an *acid salt*, Na_2HPO_4; a *basic salt*, PbOHNO$_3$; a *double salt*, $Mg.NH_4.PO_4$.

2. NITRIC ACID. *Formula*, HNO_3. *Physical properties:* A colorless liquid which boils at 186° F. and solidifies at 40° F.; it gives off white fumes in damp air, and has a strong acid taste and reaction. *Chemical properties:* a strong oxidizing agent; is decomposed on exposure to heat, light, or air; with most of the metals it forms nitrates; it oxidizes and destroys most organic substances.

3. *Carbon occurs:* (1) as diamond; (2) as graphite; (3) as charcoal.

4. *Hard water* contains excess of calcareous salts; *soft water* does not. If the hardness is due to a bicarbonate, it is said to be *temporary;* if to a *sulphate*, it is called *permanently hard.*

5. *Sodium* occurs chiefly as the chloride; also as carbonate, sulphate, nitrate, and in borax. *Properties:* A soft, silver-white, waxy metal; it tarnishes readily on exposure to air; it burns with a yellow flame, and is a strong reducing agent; at the ordinary temperature it decomposes water, with evolution of hydrogen. *Compounds:* oxide, dioxide, hydroxide, chloride, bromide, iodide, nitrate, sulphite, two sulphates, thiosulphate, three phosphates, tetraborate, chlorate, manganate, permanganate, acetate, two carbonates. *Uses:* It is used as a reducing agent; also in the manufacture of sodium dioxide and of cyanides.

6. *Diastase* is produced during the germination of grain. Pancreatic diastase may be extracted from the pancreas by salicylated water or glycerol. It converts starches into sugar.

7. *Glycogen* is found in the liver, placenta, leucocytes, cartilage, muscle, pus cells, and some embryonic tissues. Glycogen is a white powder, amorphous, odorless, and tasteless; soluble in water; insoluble in alcohol or ether; its solutions are dextrogyrous.

8. *Pasteurizing* milk consists in heating it to a temperature of 167° F. for a period of twenty minutes.

Modified milk is cow's milk that is any way changed so as to make the proportion of the ingredients more closely resemble what is found in mother's milk.

9. The *urinometer* is a hydrometer used for the purpose of obtaining the specific gravity of the urine. It consists of a hollow glass vessel weighted at the body and furnished at the top with a long graduated stem, and is so adjusted that the instrument floats at the required level. A cylinder to hold the urine (in which the hydrometer is floated) is also required. The temperature of the urine should be 15.5° C.

10. A *mixture* is the product obtained by uniting into a more or less homogeneous whole two or more substances, whether elements or compounds.

A *compound* is a substance made up of two or more elements, chemically united, in definite proportions.

Atomic weight is the weight of an atom of an element as compared with the weight of an atom of hydrogen.

A *base* is a ternary compound capable of entering into double decomposition with an acid to produce a salt and water.

A *salt* is a substance formed by the substitution of an electropositive element or radical for part or all of the replaceable hydrogen of an acid.

11. Hydrogen, H; oxygen, O; nitrogen, N; carbon, C; silver, Ag; chlorine, Cl; potassium, K; sodium, Na; sulphur, S; bromine, Br; iodine, I; phosphorus, P; arsenic, As; antimony, Sb; gold, Au; iron, Fe; manganese, Mn; lead, Pb; mercury, Hg; tin, Sn.

H_2O, hydrogen monoxide; H_2O_2, hydrogen dioxide; H_2SO_4, sulphuric acid; $KHSO_4$, monopotassic sulphate; K_2SO_4, dipotassic sulphate; HNO_3, nitric acid; H_3PO_4, phosphoric acid; NaCl, sodium chloride; $CHCl_3$, chloroform; $(C_2H_5)_2O$, ether.

12. *To estimate the amount of sugar in urine:* The specific gravity of the urine (at 77° F.) is taken; some yeast is then added, and the mixture is kept at 77° F. till fermentation is complete; the specific gravity is again taken, and it will be found lower than before. Each degree of diminution in the specific gravity denotes 0.22 gram of sugar in 100 c.c. of urine.

HYGIENE AND SANITATION.

1. *Antiseptics* are agents which prevent the growth and activity of microorganisms; *examples:* bichloride of mercury (in weak solution) and salicylic acid.

2. *The important objects of the registration of vital statistics* are: To point out where and to what extent disease and death are on the increase; to suggest suitable sanitary measures; to furnish a basis for the study of many social problems; to furnish the necessary data for life insurance.

3. "The preventive measures which may be taken to reduce tuberculosis may be summarized as follows: (1) The compulsory notification of phthisis. (2) The removal of those conditions of domicile and of occupation which are known to promote the incidence of the disease, including the regulation of certain dusty trades. (3) The diffusion of knowledge (by medical men, leaflets, etc.) regarding the nature and modes of spread of the disease, and the precautions which should be taken in order to prevent its extension. (4) The testing of sputum and other suspected discharges, and of milk, meat, etc., supposed to be tuberculous—reports to be furnished free of charge. (5) Local authorities to undertake, without charge, the disinfection of houses recently occupied by phthisical persons. (6) The establishment of sanatoria and isolation accommodation for the cure of phthisical patients, and the isolation of those who are a distinct source of danger to fellow lodgers or workers. (7) The enforcement of measures against spitting in public conveyances and in places of public resort. (8) The efficient sanitary supervision of dairy farms, dairies, and milkshops. The periodical veterinary inspection and testing (by tuberculin) of milch cows, and the slaughter of tuberculous animals. The prohibition of the sale of milk of cows affected with tuberculosis. (9) The proper inspection of meat in public abattoirs, and the adoption of due precautions for the control of imported meat and milk."—(Parkes' *Practical Hygiene.*)

Further, the patient should be duly impressed with the communicability of his disease; he should be particularly warned about the disposal of sputum, the use of handkerchiefs, etc.; he should cover his face when sneezing or coughing; kissing should be prohibited. Rooms should be well ventilated and frequently cleansed. Clothes and bedclothes should be boiled or disinfected before being sent to the laundry.

4. *Principles of ventilation:* (1) There must be a constant stream of pure air admitted into the room. (2) The inlets and outlets should be placed as far apart as possible, so as to allow of proper diffusion throughout the room. If possible they should be placed on opposite sides of the room with natural ventilation, but on the same side with artificial ventilation. (3) The inlets for cold air must discharge some five or six feet above the level of the floor, and the outlets for vitiated air must be near the ceiling. (4) The admission of warm air can be permitted near the floor. (5) The incoming air should be itself pure and of sufficient quantity. (6) The inlets for each person in the room must equal in total area 24 square inches, and the outlets should contain the same area. (7) The incoming air must not produce a draught. (8) The ventilation of a large room is always easier than that of a small one. (9) A large room will not compensate after the first hour for a proper system of ventilation. (10) If proper inlets and outlets are constructed, all other means for the admission of air should be closed. (11) The windows of all unoccupied rooms should be opened wide so that they may be flushed with a stream of pure air.—(From Evans' *Student's Hygiene.*)

5. *Infectious diseases which may be communicated by drinking water:* cholera, typhoid, dysentery, paratyphoid.

6. *The habitual use of alcohol predisposes to:* Arteriosclerosis, chronic nephritis, cirrhosis of liver and kidneys; it lowers the resisting power against bacterial invasion, hence pneumonia, tuberculosis, etc., may be included in this list. The excessive use of alcohol shortens life; the moderate use probably has no effect on longevity, but much depends on the constitution and habits of the individual.

7. *A septic tank* is a specially constructed tank for the treatment of sewage; in it the sewage as such is destroyed, and new substances are built up in its place. In *Cameron's septic tank* system "the sewage is first led into a tank from which air and light are excluded. Digestive changes take place in the sewage within this tank as the result of anaerobic bacterial action, which is favored by the darkness, the absence of air, and the perfect stillness at which the sewage is maintained. Under these circumstances much of the solid matter is rendered soluble and dissolved."—(Notter and Firth.)

8. *Objections to hot air furnaces:* The objection to cast-iron furnaces and stoves is that carbon monoxide is believed to escape through invisible fissures in the plates and joints, while the heaters are red hot; hence they should be lined with fire clay; this precaution may not be necessary for the escape of CO, but it will improve at least the quality of the heat. Since all heaters are liable to render the air too hot and dry, they should be provided with evaporating pans, or, what is even preferable, a larger heater should be chosen which will not have to be raised to red heat and at the same time furnishes a larger volume of warmed air. If the air is superheated it acquires a peculiar odor, probably due to charring of organic dust; it also becomes very dry and irritating owing to the rapid evaporation of moisture from the skin and mucous surfaces of the inmates and in consequence is apt to produce catarrhal affections, conditions which do not prevail when the temperature of the air delivered does not exceed 90°. Dampers in the smoke flues of heaters are always objectionable; the joints of the draft doors should be so good that opening and closing of the lower door or slides is sufficient, but as long as these joints are imperfect dampers are a necessary evil.—(From *Reference Handbook.*)

9. *The principal means of preventing the spread of infectious diseases in schools* are: Regular and efficient inspection by physicians; prompt exclusion and isolation of anyone suffering from an infectious disease, or coming from a house where such disease is; compulsory vaccination; compulsory notification of all infectious and contagious diseases; individual towels, drinking vessels, and other implements; children who have had a contagious or infectious disease, or who have come from a house where such disease prevailed, should not be readmitted to school until sufficient time has elapsed since the occurrence of the last case to insure safety.

10. *Lead poisoning is liable to occur in the following occupations:* Lead smelting, making and handling lead carbonate, making electric accumulators, special printing and electrotyping processes, removing dry paint by sandpapering or chiseling, and painting in general; lead mining and refining, plumbing, and soldering, paint manufacture, shot making, polishing cannon balls and shot, making lead coffins.—(From Thompson's *Occupational Diseases.*)

11. Public baths are necessary when private baths do not exist or are not available. It is better to take a public bath than not to bathe at all.

12. "The beneficent results of the introduction of vaccination into this country are well shown by a comparison of the conditions obtaining in the early part of the eighteenth century and in the corresponding period of the nineteenth in Boston. In 1721, Boston, with a population of about 11,000, had 5,989 cases of smallpox with 850 deaths. In 1730, in a population of about 15,000, there were about 4,000 cases with 509 deaths; but between 1811 and 1830, in a very much larger population, there were but 14 cases of the disease. In London, during the third quarter of the seventeenth century, the average annual mortality from smallpox per million was 4,000. A hundred years later, between 1,770 and 1,780, it was more than 5,000; in the first years of vaccination, it was more than 2,000; by the middle of the nineteenth century it fell to about 500, and in the last decade of the century to less than 75. In the whole of England, during the period of optional vaccination, the mortality rate fell from about 2,000 to 417, and after the practice was made compulsory in 1850 it fell to 53."—(Harrington's *Hygiene.*)

SURGERY.

1. *Dislocation of the hip on to the dorsum ilii:* "The head of the bone may be felt on the dorsum ilii, unless the patient is very fat or very muscular. The leg is in a position of flexion, adduction, and inversion, and the ball of the toe rests on the other instep. The great trochanter lies above Nélaton's line, and is nearer to the anterior superior spine than that of the sound side. The limb is shortened two or three inches, and there is a marked hollow over the front of the joint. *Treatment.*—The patient is placed on a mattress on the floor and anesthetized. The leg and thigh are flexed in the position of adduction. This rolls the head down to the lower part of the acetabulum. The leg is then circumducted outward and brought down straight; this carries the head through the rent into the acetabulum. Failing success by this method, the body must be fixed and direct upward traction must be exercised upon the flexed thigh. As a rule these maneuvres are successful; if not, extension by pulleys must be made use of." —(*Aids to Surgery.*)

2. In case of *burns about joints* special care must be taken to prevent subsequent contractions which may interfere with the movements of the joint. This is accomplished by Thiersch's method of skin grafting.

3. *Incipient tuberculosis of the knee joint* requires rest, with application of splints, extension, and the application of a plaster of Paris bandage. Bier's method of hyperemia may be tried, and tuberculin (after the opsonic index has proved suitable) has been recommended.

4. *Symptoms of deep stitch abscess:* At first there is a slight but persistent rise of temperature accompanied by an increased pulse rate; later on, the presence of pus may give rise to the symptoms of septicemia or peritonitis with collapse.

5. *Symptoms of duodenal ulcer:* Pain of a dull aching character, felt to the right of the midline, and coming on about three or four hours after meals; vomiting; blood may be passed with the feces, or hematemesis may occur. It is most frequently located in the first part of the duodenum, being that part which is acted on by the acid chyme from the stomach.

6. *Fracture-dislocation of the second lumbar vertebra:* There will be motor paralysis of both lower extremities; anesthesia of both lower extremities, and gluteal, and perineal regions; incontinence or dribbling of urine; incontinence of feces.

7. The *Ollier-Thiersch method of skin grafting* is performed as follows: "Thoroughly asepticize the ulcer, the surrounding skin, and the site from which the graft is to come (the inner side of the arm or the thigh), and wash away the mercurial preparation with normal salt solution. Apply dressings wet with salt solution. On bringing the patient into the operating room remove the dressings from the ulcer, scrape the ulcer and its edges, irrigate with salt solution, and compress to arrest hemorrhage. Grafts are then obtained by putting the prepared skin upon the stretch and cutting strips with a razor. While the razor is being used the part is constantly irrigated with salt solution. Mixter's apparatus enables one to perform this operation with great neatness and speed. This apparatus consists of a knife and an open square with sharp points on the under surface. The square is forced down upon the front of the thigh, the epidermis mounts up in the opening to above the level of the metal sides and the grafts may be cut with ease. The graft contains the epidermis, the rete, and part of the true skin. In Halsted's clinic the skin of the thigh is made tense by pressing upon it with a piece of ascepticized wood, the wood is drawn slowly along, and is followed closely by the sharp catlin, with which the surgeon cuts long grafts. The grafts are pressed into place upon the raw surface, and each graft overlaps a little the edges of the wound and the adjacent grafts. The skin wound is dressed antiseptically. Recently it has been suggested that a ring of aseptic gauze be made to encircle the limb below the grafted area, and another ring above the grafted area; on these pads little strips of wood wrapped in aseptic gauze are so laid as to make a cage, and around this cage the dressings are applied (moist chamber plan)."—(Da Costa's *Modern Surgery.*)

8. *Bassini's operation for the radical cure of oblique inguinal hernia:* "The incision begins at a point to the inner side of the anterior superior iliac spine, and about one-half inch above Poupart's ligament, passes obliquely downward parallel with and about one-half inch above Poupart's ligament, and ends over the middle of the external abdominal ring, being about three to three and one half inches long. Divide skin and superficial fascia, clamping bleeding vessels, and retract edges of wound, exposing aponeurosis of external oblique. Demonstrate the external abdominal ring and pass a grooved director through its opening and carry it obliquely upward in the line of the fibers of the external oblique aponeurosis, and immediately beneath its surface, for a distance of about two and one-half inches, the instrument showing through its thin texture. Slit up the fibers of the aponeurosis of the external oblique upon the grooved director with a scalpel, traveling in the cleavage line of the fibers. Dissect, by blunt separation, the upper edge of the cut aponeurosis inward and upward nearly to the outer edge of the rectus sheath. Similarly dissect, by blunt separation, the lower edge of the cut aponeurosis of the external oblique downward and outward to the shelving portion of Poupart's ligament. The inguinal canal, except that part covered by the internal oblique, is thus exposed. Grasp, with forceps, aided by the fingers, the mass of soft tissues just within, or emerging from the external abdominal ring, composed of cord and hernial sac, and, pushing aside the muscle-fibers with a blunt dissector or closed ends of blunt, curved scissors, lift upward and outward the hernial sac and cord, drawing them partly from the direction of the inguinal canal, and partly from the direction of the scrotum, the hernia lying anteriorly, surrounded by the infundibuliform fascia, and the cord posteriorly, the sac and cord being more or less intimately adherent. Isolate the sac from the cord by blunt dissection and carry on the freeing of the sac upward, retracting the internal oblique muscle outward to expose the outer aspect of the inguinal canal, until the sac begins to open out into the general peritoneum. If it be certain that the sac contains no adherent intestines or omentum, it need not be opened. If there be any question, and it is probably better in all cases to do so, whether question or not, the sac should be opened at some distance below the point of intended closure and examined. The contents of the sac, if any, are returned to the abdominal cavity. The sac is then to be treated in one of two ways: If it be small, a double chromic gut ligature is carried through the center of that portion which is to form the line of occlusion; these two ligatures are crossed and are firmly tied on each side, and the sac cut off a safe distance from the ligatures. If the sac be large (so that ligating would cause too much puckering and probably slip off), its surfaces are to be sutured with chromic gut on a level with the site of division, and then cut off with scissors at a safe distance distal to the suture line. The sac is thus disposed of and returned to the abdominal cavity. The cord is now taken up in the left thumb and index and isolated from external to internal ring, *en masse*, without disturbing its component structures, and a strip of gauze is passed beneath it—whereby it is held up by an assistant well out of the way, until its new bed is made for it. The lower borders of the internal oblique and transversalis muscles are now sutured to the shelving portion, or border of Poupart's ligament, with interrupted sutures of kangaroo tendon or chromic gut, taking a good hold of both structures, using a curved needle, preferably of the Hagedorn type. Prior to the insertion of the sutures uniting internal oblique and transversalis above to Poupart's ligament below, the lower borders of the internal oblique and transversalis should be isolated by the surgeon's fingers from the transversalis fascia, beginning at the conjoint tendon and extending outward to the internal abdominal ring. While passing the sutures, the surgeon's left index finger should be carried behind the conjoint tendon and also behind the lower borders of the internal oblique and transversalis muscles, so as to guide the needle-point. The first suture, near the upper end of the wound, pierces the internal oblique almost as far outward as the external border of the rectus muscle. It should just come in contact with the inner aspect of the cord when the latter is held at a right angle to the plane of the internal oblique muscle as it emerges from opposite the internal ring. A second suture is placed just above the cord, to strengthen the internal ring, the cord thus emerging between two sutures. As many similar sutures as are indicated (generally six or seven altogether) are thus placed. The last, lowest, suture passes through the conjoint tendon of the internal oblique and transversalis above, and the shelving portion of Poupart's ligament below. The cord is now dropped down upon its new bed made by suturing the conjoint tendon and the internal oblique and transversalis muscle to

the shelving border of Poupart's ligament. The separated edges of the aponeurosis of the external oblique are now sutured directly over the cord with continuous kangaroo or chromic gut sutures, carefully avoiding too tightly suturing the edges over the cord at the lower end, the new external ring, where the cord escapes into the scrotum. The skin is closed throughout with interrupted sutures of fine catgut. No drainage is used. The first dressing usually comes off at the end of a week."—(Bickham's *Operative Surgery.*)

9. *Three methods of opening the abdomen to remove the vermiform appendix:* (1) *McBurney's intramuscular ("gridiron") incision.* Having divided skin and fascia, the various musculoaponeurotic planes of the abdominal wall are divided in the order encountered and in a line with the muscular and tendinous fibers composing those planes, thus avoiding the division of any important nerves, the transverse division of any of the component muscular fibers, the retraction of transversely cut muscular and tendinous fibers, and,therefore, avoiding the consequent paralysis of parts supplied by several nerves, and weakening of cut muscles. (2) *The Battle-Jalaguier-Kammerer method* consists, after a vertical incision of skin and fascia, in the vertical division of the anterior layer of the sheath of the rectus, with the retraction of the entire rectus inward, followed by the vertical division of the posterior layer of the rectal sheath, somewhat nearer the median line, together with the subserous areolar tissue and peritoneum. At the end of the operation the rectus is allowed to resume its normal position, and the divided rectal sheath is repaired. (3) *Meyer's "Hockey-stiek" incision.* A method of entering the lower anterolateral abdominal cavity, partly by intramuscular separation, partly by transverse division of muscle, by means of an incision shaped somewhat like a "hockey-stick." Resorted to for the purpose of gaining a greater degree of exposure of the abdominopelvic cavity than afforded by the simple McBurney incision.—(Bickham's *Operative Surgery.*)

10. "The degree of shortening can be determined by measurement of the limbs from the anterior superior spine of the ilium to the lower border of the inner malleolus, and comparison with that of the opposite limb. Both limbs should form the same angle with the pelvis when the measurements are made and should be brought as close to the median line of the body as possible."—(Eisendrath's *Surgical Diagnosis.*)

11. "*Ectropion* is an eversion of the lid with exposure of more or less conjunctival surface. It may affect the upper or the lower lid, or both. *Symptoms.*—Epiphora (from eversion of punctum) causing excoriations and eczema of the lower lid, which, in turn, through contraction, increase the deformity. The exposed conjunctiva becomes reddened and hypertrophied. In marked cases the cornea may suffer, as a result of imperfect closure of the lids. *The V-Y operation (Wharton Jones).*—A V-shaped incision is made with the apex directed away from the palpebral margin, the incision including the cicatrix. The skin is freed from underlying parts, not only in the V-shaped area, but also to either side. The V-shaped area is slid upward until slight inversion of the lid margin is produced. The margins of the incisions are then brought together by sutures in such a manner that the figure Y results."—(May's *Diseases of the Eye.*)

12. *Important sequelæ of purulent otitis media:* Meningitis, subcranial abscess, thrombosis of lateral sinus, abscess of cerebrum or cerebellum.

(*To be continued.*)

Frontal Sinusitis in a Girl Aged Seven.—D. McKenzie reports this case. About three months before the child was brought to the hospital she was overturned by a bicycle and thrown on her face. A fortnight later pain and swelling in the left supraorbital region and around the left eye set in, together with headache and pyrexia. After about ten days of fever and headache, the patient being confined to bed, a sudden gush of pus from the left nostril took place. Thereupon the pain ceased, the fever left her, and the child was able to be up and about, but the discharge from the nose continued. When she came to the hospital pus was seen to be oozing freely from under the left middle turbinal. A skiagram showed well marked frontal sinuses on both sides, and the left frontal sinus, together with the left antrum, threw shadows. Treatment was confined to nasal drainage; the left middle turbinal was removed and nasal antrostomy performed, and the discharge gradually ceased.—*Proceedings of the Royal Society of Medicine.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Indispensable Orthopedics. By F. Calot, M.D. Sixth Edition. Cloth; illustrated; 1,175 pages. Published by Balliere, Tindall & Cox.

Fifteenth Annual Report of the State Board of Insanity. 1913. Cloth; 367 pages.

Contributions from the Psychopathic Hospital at Boston. Paper; 177 pages.

Mental Medicine and Nursing. By Robert Howland Chase, M.D. Cloth; illustrated; 244 pages; price, $1.50.

Optic Projection. By S. H. Gage and H. P. Gage. Cloth; illustrated; 731 pages; price $3.00 net. Published by the Comstock Publishing Co.

Differential Diagnosis. By Richard C. Cabot, M.D. Cloth; illustrated; Vol. II; 709 pages; price $5.50 net. Published by W. B. Saunders Co.

Der Röntgendiagnostik in der inneren Medizin. Teil 1; Cloth; illustrated; 518 pages. Published by J. F. Lehmann's Verlag.

Der Röntgendiagnostik in der inneren Medizin. Teil II; cloth; illustrated; 140 pages. Published by J. F. Lehmann's Verlag.

Glaucoma, a Symposium. By Drs. Willis O. Nance and Wesley Hamilton Peck. Cloth; 150 pages; price $1.50 net. Published by Geo. W. Jacobs & Co.

The Clinics of John B. Murphy. Vol. III, Number VI; paper; illustrated; 176 pages; price $8.00 net per year. Published by W. B. Saunders Co.

International Clinics. By Leading Members of the Medical Profession Throughout the World. Cloth; illustrated; 314 pages; price $2.00. Published by J. V. Lippincott Co.

Verhandlunger des Vereins Deutscher Laryngologen 1914. By Dr. Otto Kahler. Illustrated; price M. 7. Published by Curt Kabitzsch.

Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung. By Dr. L. Brauer. Paper; price M. 20.

Augenpflege. By Dr. Elschnig. Paper; illustrated; 56 pages. Published by August Hirschwald.

Report of the Department of Health and Medical Examiners for the State of S. Dakota. Paper; 293 pages.

Ergebnisse der Immunitätsforschung, experimentellen Therapie, Bakteriologie und Hygiene. By Dr. W. Weichardt. Paper; 470 pages; Erster Band.

Therapeutics of the Circulation. By Sir Lauder Brunton. Second edition; cloth; illustrated; 536 pages; price $2.50 net. Published by Paul B. Hoeber.

Fever, Its Thermotaxis and Metabolism. By Dr. Isaac Ott. Cloth; illustrated; 166 pages; price $1.50 net. Published by Paul B. Hoeber.

Public Health Laboratory Work. By Henry R. Kenwood, M.D. Cloth; illustrated; sixth edition; 418 pages; price $4.00 net. Published by Paul B. Hoeber.

Gonorrhoea and Its Complications in the Male and Female. By Dr. David Watson. Cloth; illustrated; 375 pages; price $3.75 net. Published by Paul B. Hoeber.

Lead Poisoning. By Sir Thomas Oliver. Cloth; 294 pages; price $2.00 net. Published by Paul B. Hoeber.

Text-Book of Massage. By L. L. Despard. Second edition; cloth; illustrated; 413 pages; price $4.50 net. Published by the Oxford University Press.

Treasury, Annual Reports 1914, U. S. Public Health Service. Cloth; 357 pages. Published by the Government.

Selected Addresses. By Dr. James Tyson. Cloth; 366 pages; price $.75 net. Published by P. Blakiston's Son & Co.

Transactions of the 36th Annual Meeting of the American Laryngological Association. Cloth; illustrated; 333 pages. Published by the Association.

Detection of Poisons. By W. Autentieth and W. H. Warren. Cloth; 320 pages; price $2.00 net. Published by P. Blakiston's Sons & Co.

Transactions of the American Otological Society, Forty-seventh Annual Meeting, May, 1914. Published by the Society.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 4.
Whole No. 2307.

NEW YORK, JANUARY 23, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE SYMPATHETIC NERVOUS SYSTEM AND THE GASTROENTERIC FUNCTIONS

BY CHARLES SUMNER FISCHER, PH.D., M.D.,

NEW YORK.

THE influence of the vegetative nervous system upon all organic functions has received such impetus from the investigations of the last decade that its importance as an etiological factor in the production of disturbed alimentary functions should command greater attention than at present exhibited. The tendency of gastrological effort during recent years to devote itself almost exclusively to the determination of the anatomical aspects of the subject has resulted in a neglect of interest in the functions as such. Whereas the vagaries of the latter have oftentimes been exploited *ad absurdum*, their finer discrepancies unduly emphasized as clinical entities, very little attempt has been made to attack these discrepancies in the light of etiological relationship. The fundamental principles here involved have seemed sufficiently explained provided the distinction was made between the organic and the functional aspects of a given case, generally with a slight stigma attached to the latter. The preference given to either of these aspects was oftentimes not determined by the facts, but rather by the psychological setting of the investigator. If he were a practical individual the theoretical necessities of purely functional disturbance could not satisfy his scientific craving for truth. In short, all truth could only appeal to him in a structural or tangible form. On the other hand, he, whose interest stimulated him to seek for causes beyond the concrete local evidence, was forced to admit that he was handicapped by lack of proof of contentions for whose justification he could offer only certain vague conceptions of nervous control.

Nevertheless, it must have been evident to all those whose interest in the subject of gastroenterology is not exclusively and immediately practical, that certain influences exist, certain constitutional trends, out and beyond definite physical and chemical forces, which have a direct bearing upon the production of organic disease. The great mass of chronic digestive disturbances exhibit fairly well defined tendencies of functional activity, certain fairly constant organic changes, possible of classification, which must receive their impetus from common influences conditioned by daily habit and environment. Furthermore, it is well established that identical assaults upon the alimentary health of different individuals will oftentimes result in opposite types of secretory and motor disturbances. It is also possible to assume that the great majority of the ordinary digestive diseases start as functional defects, either diminished or exaggerated, and reach to the dignity of organic change only as the result of the protracted existence of these. Hence it is, that the pertinent need in gastroenterology, for the time being at least, is a return to a more thorough consideration of the functions, not in the sense of finer subdivision of manifest activity, but with a view to a more intimate knowledge of the relation existing between functional change and the etiological factors bearing upon this. Of paramount importance in this connection have always been those operating through the nervous system.

The connection of the latter with the functional defects observed in the various local conditions has always been tacitly admitted, being forced upon us by Pavlov's work, but the practical spirit of the times has rendered the subject somewhat taboo. Too assiduous appeal to this phase of the work has undeservedly created the suspicion of personal ignorance or of evasion, with the result, that many have been afraid to grant it anything but scant courtesy. Notwithstanding that fifty per cent. of the acid gastric secretion is psychic, at least dependent upon hedonistic approach, the tendency has been to neglect this factor as an influence worthy of consideration. The literature upon this subject is comparatively sparse, and that which has appeared from time to time has come from sources non-gastrological. The appeal has generally fallen upon deaf ears, not because an adequate basis for the same has not been admitted, but because the insistent demand for a material and tangible causation of all digestive diseases has obscured a proper and comprehensive perspective of the whole field. The philosophical tendency of the times is one of pragmatism and mechanical construction and gastroenterology has responded very generously to this conception.

The intimate relationship between man's emotional state and the operation of his primitive instincts is axiomatic. In the domain of sex this has been overdetermined in recent years. In the field of self-preservation, that is, nutrition, it has been neglected, this notwithstanding certain very good evidence that the proper selection of nutritional elements is a matter of inherent protoplasmic activity of the original cell. However this may be, it is evident that psychic and nervous influences are oftentimes the controlling factors in the determination not only of the character but of the organic development of digestive diseases. Should anyone doubt this, let him subject the average run of cases in our gastric clinics, without selection as to physical examination or chemical analysis, to a vigorous course of treatment directed solely to the nervous system. The percentage of improvement will be surprising; or, given an average case of chronic dyspepsia, why does it improve under the treatment of one and not of the other? The physical and

chemical facts are plain. It does not require extraordinary skill to elicit these. The methods for doing this are monotonously exploited in every textbook and are common property. Treatment, medical, dietetic, physical, does not admit of much choice. It is determined by the facts in the case. Hence, the difference in the results obtained must be due to other factors. In truth, success will attend those efforts which go beyond the ordinary methods of procedure, and accrue to him whose conception is broad enough to comprehend the case in its broadest non-gastrological aspects. This is a personal matter, both for the investigator and the investigated. Generalization is impossible for it comprises an analysis of the individual's life, his habits, both of body and mind, the unavoidable insults of daily life calculated to influence his affectivity, the reactional trend of his nervous system, its inherent weakness and defects, and, having determined all these facts, to reveal the particular incidents of daily life and enforced environment which have a direct bearing upon the production of these conditions and defects. Most people are subjected to the same insults. Why does this particular individual succumb? Success will come to him who possesses the patience, interest, and ability to ferret out the secret and whose personality is such that he can control the situation.

Much of the lack of confidence and interest in the various phenomena associated with nervous influences in connection with digestive disturbances has been due in large measure to want of knowledge of the channels through which these influences operate. There has been no means by which the chasm between the insult and the effect could be bridged. The connection has been keenly noted and described by such writers as Rosenbach, Dubois, Dejerine, Gauckler, and Zbinden, but was of such hypothetical nature as to beg for confidence. It remained for later anatomists and physiologists to produce the actual physical basis for acceptation and confirmation of these observations. The anatomical and physiological investigations of the sympathetic nervous system by Langley and his coworkers, its pharmacological and clinical aspects, as developed by Eppinger and Hess, are matters of such far reaching importance for gastroenterologists in general that any neglect, misconception, or aloofness pertaining to this phase of the subject can only be condemned. The time for a vague diagnosis of neurasthenical or hysterical functional disturbances of the alimentary processes is past. By the now possible determination of the reactional trend of the sympathetic nervous system in each individual case, the intelligent gastrologist is in position to harmonize the eccentricities of function with the heretofore illusory influences bearing upon function. Nor does this apply to functional conditions alone,—it applies very acutely oftentimes to well-defined organic conditions, those demanding surgical interference. Many of these have started as simple functional defects. Given certain of such functional defects, knowing the reactional trend of the nervous mechanism controlling the functions, and fully cognizant of the daily avoidable or unavoidable insults of the individual's life and environment, renders it possible not only to trace the development of a lesion to its origin, but more important still, to be able to predict with a certain degree of assurance to what limits such functional defects will go, provided their tendency is not controlled. It is in the latter field that the most hopeful work lies, in the adjustment of the daily life of the individual to the inherent defects and weaknesses of the mechanism controlling the functions. In this regard, to determine assiduously the degree of functional change is unimportant. The hyperchlorhydria of one individual may be the normal acidity of another. Far more important is it to determine why a certain quantity of acid constitutes a hyperchlorhydria for one individual and not for another. This is the real problem and it is in the possibility of its solution that the real value of the most recent advancement of our knowledge lies.

In the present article the writer simply attempts to focus attention upon this phase of gastroenterology, to beat, as it were, a shapeless mass of literature into some sort of utilizable form, to reduce, if possible, the already known and given facts to a practical working basis. To be of any service these facts should be as accessible to and as ingrained in the mind as, for instance, the much exploited size, shape, position, and acidity of the stomach. It should be possible for every examiner in the course of the routine investigation of a given case, to be able to determine the reactional trend of the sympathetic nervous system by the evidence at hand. Such evidence is always present, oftentimes it is paramount, usually it is neglected in the mad desire to spot some absorbingly interesting local phenomenon. It should be part of the equipment of every gastrologist not only to recognize this evidence as a matter of routine, but also to place upon it its proper valuation, to adjust it scientifically to the general scheme. Its recognition should leap into consciousness coincidentally with that of organic imperfections, if for no other purpose than to curb impetuous judgment.

It is duly appreciated that in a field so comparatively new, many points are still under discussion, many questions still muted, many problems unsolved. Enough has been accomplished, however, to warrant the attempt to make practical that which has already been done. Such an attempt must of necessity be more or less schematic and apologies are offered in advance to anatomists, physiologists, and neurologists for any flaws in the evidence. The literature appended may be of service to those who wish to pursue the subject further. The main object here is to present it in as concise and practical a manner as possible, so that it may constitute a part of routine examination.

The visceral nervous system comprises that portion of the general nervous system which regulates those organic functions that are not under voluntary control. It is the sympathetic system of the older writers. In recent years it has been variously called the vegetative system or the autonomic system. The latter designation, however, is misleading in that it is especially reserved for a specific portion of the general sympathetic system. The whole sympathetic system then is primarily divided according to its functional activity into (1) the sympathetic system proper and (2) the autonomic system. These two subsystems are antagonistic in their directing influence upon the structures which they control in so far as they endeavor to establish a normal balance of function by respectively increased or diminished activity according to individual requirements at any given time.

The systematic system proper (called also the vertebral sympathetic) may be said to arise from the cervical, dorsal, and lumbar ganglia located on

each side of the spinal column. These are connected with the spinal cord from the second dorsal to the third or fourth lumbar segments by roots designated rami communicantes. The rami communicantes are composed of respectively white and gray fibers. The white fibers arise in the intermediolateral columns of the cord and emerge from the latter with the cerebrospinal nerve roots. These fibers are medullated. The gray fibers, which are non-medullated, arise in the ganglia themselves and pass back to join the cerebro-spinal nerves. By these two sets of fibers the sympathetic system is circularly joined to the central nervous system.

The course of the sympathetic fibers from the vertebral or lateral ganglia to the structures innervated is interrupted by a second system of ganglia, the colateral ganglia. Those of immediate interest in gastroenterology would be in order of descent from cervical region to pelvis, the superior and inferior cervical, stellate (upper three thoracic), celiac, or epigastric, superior and inferior mesenteric. As to the location of these, it will suffice to indicate here that the first three are situated close to the cervical vertebræ in relation with the sheaths of the internal carotid and superior intercostal arteries, the epigastric situated behind the stomach in front of the aorta, the superior and inferior mesenteric in near relation to the superior and inferior mesenteric arteries. The superior and inferior cervical and stellate ganglia interrupt those sympathetic fibers coming from the first and second dorsal roots. The epigastric and superior mesenteric interrupt the fibers from the remaining dorsal roots. Of these fibers those from the third to sixth roots constitute the major splanchnic nerve, while those from the remaining dorsal roots constitute the lesser splanchnic nerve. The inferior mesenteric ganglion interrupts the fibers from the lowest dorsal and the lumbar roots. Thus, any impulses passing either to or from the abdominal viscera must be interrupted by this system of ganglia. It is the determination of the possibility of this interruption which constitutes the crowning and masterful work of Langley. Its importance for physiological conception has been far reaching and has rendered the differentiation between sympathetic and autonomic systems possible.

The course of the sympathetic fibers from the colateral ganglia to the viscera which they control is an uninterrupted one. The immediate nature of the termination in the viscera themselves is still controversial. There may or may not be an intermediate myoneural substance interposed for purposes of chemical reaction to stimulation. Our interest here is limited to the gross anatomy, to that part of this which is directly concerned with the digestive functions. In this connection, it can be said that the fibers derived from the cervical ganglia supply the parotid, submaxillary and sublingual glands, also the involuntary muscles of the upper part of the esophagus. Fibers from the stellate ganglion supply the muscles of the heart. Fibers from the epigastric ganglia (solar plexus) supply the lower esophagus, cardiac sphincter, liver, and pancreas with their ducts, and the small intestines. These fibers also control the vasomotor apparatus of the stomach and intestines. Fibers from the superior and inferior mesenteric ganglia supply the colon and rectum.

The whole sympathetic structure then can, to a certain extent, for practical purposes, be visualized into a system with four stations. First, the central station, consisting of brain and spinal cord; second, the station consisting of the lateral or vertebral ganglia; third, the station consisting of the collateral ganglia; fourth, the terminal station in the viscera. Any impulse originating in the central station and passing peripherally to the terminal stations in the organs may be interrupted and diverted either in the lateral or collateral stations. Provided the central stimulus is powerful enough, there should be organic reaction from salivary glands to anal ring. That the impulses should be unevenly distributed, that one organ alone should be affected at times, may be due either to interruption as indicated, or to individual organic special susceptibility.

On the other hand, an impulse coming from the periphery need never reach the central station. It may be diverted either at the colateral or lateral stations. Thus, an impulse originating in the colon and reaching the stomach would pass first to the superior mesenteric ganglion, thence to the epigastric ganglion, from this to the stomach. In this case the circuit is a short one, the lateral ganglia remaining uninfluenced. The readiness with which colonic affections react upon the gastric secretions is hereby at least partially explained. This is especially important in the clinical consideration of the remote effects of such conditions as chronic appendicitis, ascending colonic stasis, etc. By means of the colateral ganglia all parts of the alimentary tract are so intimately connected that almost any reflex is possible, and the most surprising combination may result. A fair example would be the distant and yet distinct connection between hemorrhoidal pressure and abnormally increased gastric acid secretion.

Impulses from structures not directly connected with the alimentary tract must pass by a more circuitous route. Thus, a reflex from the genital organs to the stomach would be transmitted first to the inferior mesenteric ganglion, thence to the vertebral ganglia, from these by way of the major and minor splanchnic nerves to the coeliac ganglion and from the last directly to the stomach. Or, impulses from the gastrointestinal tract itself to other organs must pass through two or three stations at least. A reflex from the intestines to the heart encounters the collateral, vertebral, and stellate ganglia, in the order named. A reflex from the same source to the skin (Head's zones) would pass by way of the collateral and vertebral ganglia.

The importance of these conceptions, schematic as they are, must be evident to all. With a proper working knowledge of these routes, etiologically obscure local abnormalities of function will often be explained by tracing the same to some distant focal point of unsuspected importance. This is especially true if at the same time there exists a hyperexcitability of the sympathetic system together with a habit of life or occupation and an environment calculated to react unfavorably upon it. Common observation of the ordinary run of gastric cases must have revealed to any close observer that many phenomena are beyond explanation, except upon the basis of some influence beyond direct physical or chemical insult bearing upon the organ.

In a general way, it may be said that any influence which stimulates this system inhibits and depresses the secretary and motor activities of the gastrointestinal tract from mouth to anal ring. It places a uniform inhibition upon hyperactivity of all degrees and kinds. Assuming for purposes of

demonstration that this influence could be exerted uncontrolled and unopposed to its maximum extent, there would necessarily result a cessation of all secretion and motion, a general paralysis of the tract. On the other hand, any influence conducive toward depression of this system would have the effect of stimulation upon all secretory and motor function. Alimentary health depends upon a normal mean.

Given a state of hyperstimulation or hypersensitiveness to ordinary stimulation of the sympathetic system proper, what would be the effect upon the digestive tract? In this regard let us pose an extreme cast. Beginning with the mouth there would result cessation of secretion of all the salivary glands resulting in deficient ptyalin activity (the common dry mouth). Proceeding downward there would be paralysis of the muscular structures of the esophagus resulting in difficult deglutition, impaired passage of food, tendency to relaxation (idiopathic dilatation). The cardiac orifice of the stomach would be in a continuous state of relaxation (rumination), eructation, regurgitation, fictitious vomiting). The secretory and motor functions of the stomach would be in abeyance (subacidity, achylia, constitutional atony, atonic dilatation with all the attendant symptoms of bloating and pressure). The pyloric sphincter would be in a state of constant relaxation (pyloric insufficiency with back flow of bile and pancreatic secretion). Lack of tone in the common duct would result in a constant discharge of bile into the duodenum with increased absorption (urobilinurea). In the small intestines deficient secretory and motor activity would produce delayed passage and digestion of chyme (fermentation) flatulency, deficient absorption, general malnutrition). The whole large intestine would be atonic. In the ascending portion this would add to the difficulty of the up-hill work already incumbent upon this portion of the tract (increased churning, stasis, fermentation, and decomposition, autointoxication, possible pseudo-appendicitis, real chronic appendicitis). In the descending portion there would follow the usual train of symptoms of deficient evacuation (stasis, fecal impaction, possible mucous colitis, rectal pressure). As the vasomotor apparatus of the tract is under control of this system we should expect various circulatory disturbances, usually of the nature of constriction resulting in general or localized anemia (interference with return circulation causing hemorrhoids, general visceral anemia resulting in unequal blood distribution, head pressure symptoms, insomnia, vertigo).

While the above array of local conditions is but a schematization for purposes of demonstration, and that ordinarily such an extreme state of sympathetic stimulation cannot exist, it is evident that these conditions are encountered daily in routine gastrological work, either singly or in a certain combination. The object here is to emphasize the point, that in judging these conditions etiologically it is always necessary to be aware of this sympathetic factor, not especially as an immediate determinant, but as that influence which directs the development of the local conditions, once they have been started by either local relation or extrinsic causes. It is the ability to recognize the possibility of this sympathetic influence as an etiological factor which will guard against many false diagnoses. Hence, in casting about for the cause of any of these conditions in a given case, it is necessary to determine not only the immediate relationship producing the condition, but also to determine why in this particular individual the sequence of development should have assumed this particular trend. In other words, what is the directing influence in the constitutional composition of the individual which would cause the effects of local insult to assume this particular phase. The proper conception of the case and especially its treatment will depend upon this, and success will attend him who has the ability and patience to master the situation in its entirety.

Fortunately, we are in a position today to accomplish this with some assurance of success. The investigations in regard to the physiological activities of the vegetative nervous system have emancipated us from the old and vague conceptions of hysteria and neurasthenia. Except as generalization they have lost gastrological interest. We pass beyond these to the determination of the specific facts of the nervous system. The ability to connect the various signs and symptoms referable to the sympathetic system should form part of the equipment of every examiner. These signs and symptoms are present in most cases, and in most cases they are consistently neglected. To intelligently appreciate these phenomena involves at least some knowledge of the reactions dependent upon the sympathetic system. It is this practical aspect which interests us here.

Briefly stated, the essential facts would appear to be the following: the dominating native stimulant for the sympathetic system proper is adrenalin. The cells of the sympathetic ganglia are derived from the same embryological source as the adrenalin producing cells of the suprarenal capsules. It is possible to speak of a sympathico-chromaphil tissue. Chromaphil tissue is found in every ganglion, in the sympathetic plexuses, in the paraganglia of Kohn. Hence this tissue closely follows the sympathetic. It is found also in the kidney, prostate, and ovary. The normal quantity of adrenalin in the blood is one to one-hundred million parts. This quantity is essential to life. In a dilution of one to five-hundred million parts, it will experimentally arrest the rhythmic contractions of the involuntary muscles of the intestines. The normal tone of this system is maintained by the constant secretion of this substance into the circulating medium. Diminution of the normal quantity will result in muscular weakness, loss of tone of the blood vessels, contracted pupil, and bronzed skin (Addison's disease). Excess of the normal quantity produces constriction of all blood vessels, increased contractile force of the heart, dilated pupil, decreased gastrointestinal motility (Renaud's disease). The influences which increase or diminish the quantity of adrenalin in the blood are not well understood. Extirpation of the pancreas leads to excessive activity of the chromaphil system. Thyroid injection raises blood pressure and adrenalin excess is constantly present in Basedow's disease. It is very likely also that intense emotional disturbance acts as a stimulant to adrenalin secretion. Cannon demonstrated its increase in the blood of the vena cava near the liver under this condition. It has further been shown that the secretory nerves for adrenalin are incorporated in the splanchnics.

As our interest here is largely practical the employment of adrenalin as a diagnostic measure for the determination of sympathetic hypersensitiveness naturally suggests itself. It has so been used. Memmeter proposes the hypodermic injection of

0.0005 gram for this purpose. This quantity in the average case will produce pronounced symptoms of sympathetic stimulation. In cases of hypersensitive sympathetic systems 0.00015 gm. will give the same result. There is some dispute as to the point of attack, the sympathetic system itself or the subcortical brain centers. It is needless to say that the method should be used with caution and the consent of the patient obtained. It is more suitable for hospital work. If employed in general practice it should be done only under the closest supervision, and then only as a last resource to confirm other indications. In comparatively safe form it can be employed as the Loewi test, intense mydriasis following instillation of one drop of a one to one-thousand solution. Fortunately its use is not necessary in the average case as there are usually sufficient other physical signs to warrant a conclusion. These may be elicited without difficulty in the course of any routine examination. They can be roughly classified into cutaneous, circulatory, and organ manifestations.

As the whole vasomotor apparatus appears to be under the control of the sympathetic system proper, the cutaneous manifestations assume an important diagnostic significance, especially as they are easily observed. They are largely in the nature of constriction of the vessels. Thus we may have the frequent defective circulation in the extremities (cold and clammy hands and feet, mottling, red nose). In the sensory sphere there would be hyperesthesia, susceptibility to heat and cold, feeling of numbness, pins and needles so-called, and dead fingers. Other signs are deficiency of perspiration (excessively dry skin), perverse skin reaction (responsive to emotional shock by extreme pallor), excessive pilomotor reflex (goose-flesh), factitious urticaria.

Among the gross circulatory manifestations may be mentioned easily produced cardiac palpitation (paroxysmal tachycardia), a rapid, intermittent, irregular pulse, transitory high blood pressure, visible severe pulsation of the abdominal aorta, extreme contraction of all abdominal vasomotor structures resulting in head pressure sensations, momentary vertiginous attacks, tendencies to hemorrhage from exposed mucous surfaces (excessive nasal hemorrhage), fleeting congestion of the latter (susceptibility to nasal catarrh), extreme fullness of the hemorrhoidal vessels (bearing down sensation in the rectum, hemorrhoids), exaggerated circulatory disturbances of the climacterium.

Some of the phenomena connected with the organs have already been indicated. Of special interest to the gastrologist are the excessively dry mouth, an exaggerated gag reflex, extreme facility for the passage of the stomach tube, pronounced relaxation of the cardia resulting in excessive regurgitation, pyrosis, and persistent tasting of food after meals, excessive relaxation of the gastric musculature with easily induced succussion sounds or fictitious sensations of gas accumulation, a tendency to epigastric shock as a result of emotional disturbances, and hypersensitiveness to deep abdominal palpation (irritability of the sympathetic plexuses).

The various phenomena just enumerated may be present individually in almost any case. As such they have small value. Their importance lies in group presentation. The existence of one should lead to the search for others and, if others are found, to a correlation and systematization of all in order to determine their bearing upon immediate local conditions in the organs under examination. In other words, the search for these evidences should involuntarily form part of every routine examination. While the condition which has been given the name of sympathicotonia may be nonexistent in such distinct sense as this name would imply, enough evidence has been produced to warrant the assumption that the sympathetic system proper can possess at times a reactional sensibility which must and has an important influence, not only upon the production of local functional defects, but also—and this is most important—upon shaping their development along fixed lines. Whatever may be the differences of opinion as to details of operation in the local sphere, one fact stands forth undisputed, and that is that the sympathetic system proper is the great inhibitor of excessive functional visceral activity and, as such, its reactional trend should be established in every case. Ultimate decision as to points of differential diagnosis may well depend upon the correct recognition of a tendency in one direction or the other. Were the importance of such knowledge more thoroughly appreciated, it is safe to assume that many popular fads and fancies of diagnosis would find scant soil for development.

As the emotional life of the individual exerts such important influence upon all gastrointestinal activity, and as the impulses directing this activity operate in large measure through the splanchnics, a consideration of this phase of the subject demands some evaluation. There is present in every case of chronic dyspepsia such a strong affective tone, closely associated with daily life and habit, operative only through the sympathetic or autonomous nervous systems, that to neglect it may determine failure for treatment in advance. The resistance which the individual is able to offer to the oftentimes unavoidable psychic insults of his environment, will depend largely upon the stability and reactional trends of these two systems. One can even go further and state with some assurance that in the non-resistant individual the condition of these two systems will determine in advance the particular character and course of development of the local lesions, once they have been started. Hence it is that some inhibit excessive functional activity, others deficient functional activity, under precisely the same provocative circumstances. This has always been more or less of a gastrological mystery. To some extent at least it is cleared, and whatever may be the outcome of future investigations we are at present in a position to determine intelligently why in some cases certain results are as they are. Given the incidents of the daily life of the individual, given his psychological setting as to affectivity, given the reactional trend of his impulse conducting sympathetic system—we may be able to forge a chain of evidence bearing very directly upon diagnosis, prognosis, and treatment. This applies especially to the constant irritation of the lesser emotional states, those operating over long periods of time, it being well understood that great psychic shocks must necessarily always result in total cessation of functional activity at the time. It is in the domain of gastroenterology that the wear and tear of the continuous minor mental irritations count for much. Added to this there is the exceeding prevalence of the now well understood anxiety states. It will be suggested that these are not digestive conditions. They might just as well be so considered, for in the large majority of cases

there is a very decided functional reaction in the digestive organs. This fixes the attention of the individual. The days for imaginary pains are passed. Organic distress is real, whether it be imaginary or not, and must be dealt with as such. Very few people will acknowledge any nervous weakness. They resent the imputation because for such it always carries with it a suspicion of mental inferiority. This hurts their pride, wounds their vanity. Who has not seen the individual in whom at the merest suggestion of nervousness there is aroused an instant antagonism? Yet to the practised observer the whole surface of the body may actually present a map of unstable sympathetic equilibrium. Popular notions of nervousness and real pathological nervousness may be as far apart as the poles. That which the layman calls nervousness is very apt to be a simple physiological excess of spirits. It is true that within recent years a certain popular notion of neurasthenia has become ingrained. It has taken its place with malaria, uric acid, more recently blood pressure, and autointoxication. In the near future it probably will be goiter, due to the extensive exploitation of hyperthyroidism. One already finds the women regarding their necks critically. If the prevalent idea of neurasthenia could be made to contain the possibility of gastroenterological involvement, it would serve the purpose, at least, of making the individual receptive for rational treatment in this field. The great majority of the cases in our gastrological clinics are the indefinite cases with either hyper- or hypofunctional activity. Beyond this there is not much to be found. It is often very difficult to determine where the trouble started and what keeps it up. It is in these cases that the slightest sign, symptom, chance remark or hint will often make the diagnosis. These are not to be found, as a rule, by complicated and ingenious local explorations, but by a keen and thorough comprehension of the broader issues involved.

If the incidents of the daily life of the individual can have such a patent bearing upon the functional activity of the digestive tract, with all its evil portent, and if this influence can only be operative through the sympathetic, it would be natural to expect that there should exist some demonstrable anatomical connection between this system and the higher nerve centers. It must be admitted that anatomical efforts in this direction have been unavailing up to the present time, but the clinical evidence of such connection is not only strong but compelling. Of the centers themselves very little is known. From these, wherever they may be, the efferent impulses must pass by way of the intermediolateral tracts in the cord, the anterior dorsal roots, and white rami communicantes to the vertebral ganglia, thence to be distributed to the various viscera. Beyond this nothing is definite. As the spinal tracts, however, reach to the bulbar region of the cord, it is inconceivable that there should be no connection with the higher centers. The functions of the sweat glands, alimentary canal, and blood vessels may not be directly associated with cerebration, but there can be no doubt that they are under the influence of the emotions through the sympathetic. Anger, fear, shame, express themselves by pallor, blushing, perspiration, and tears. The impulses inducing these must pass by way of the basal ganglia. The distance of the latter from the cerebrum is short. On the other hand, afferent visceral sympathetic impulses cannot reach consciousness without cerebrospinal intervention. The route taken is often a circuitous one as in the case of Head's zones. The condition known as cenesthesia, in which consciousness is cognizant of the harmonious action of all the internal organs, is another illustration. Examples of psychic participation in disturbed functional activity could be multiplied indefinitely. They are the common property of every one. Why in so many individuals the stomach or intestines are the organs selected may be explained by what Hemmeter has designated "psychic facilitation by attention." That the attention itself should so often be directed to the stomach is a psychological problem. This organ stands very close to the individual's primitive instincts, and in its functional activity may very well interfere with contentment. Of all the organs, its behavior is most closely connected with consciousness. Hence it is that, through it, what the psychologists call free floating fear becomes operative. This commodity, as typified in the anxiety neuroses, is very widely distributed under present conditions of life, so that there need be small wonder at its potent influence in the causation and maintenance of stomach diseases. If it does not actually cause the disease, it constitutes a powerful factor in maintaining it, once it has been started. Given the proper mental conditions and almost any foodstuff will disagree at times, however harmless it may be in itself. This momentary disagreement can very well be perpetuated indefinitely by psychic attention which operates through the sympathetic. It would be an interesting clinical problem to determine whether in any such concrete instance, there does actually occur in the stomach a physicochemical disturbance.

In view of these indisputable clinical facts, it seems reasonable to assume that there must be an uninterrupted material connection between the sympathetic system proper and the highest brain centers through which alone consciousness can operate. The actual location of these whether, for example, in the hypothalamus or the pituitary body, on account of its close connection with the chromaffin system, is of minor practical importance. In line with these conceptions, attempts have been made to connect the postulated sympathicotonic disposition with certain concrete mental states. Such connection has been assumed to exist in melancholia during the menopause on account of the strong adrenalin reaction obtaining at this period, also in the self-depreciative phases of paranoia, and the variable manifestations of the anxiety states. In the writer's experience there is no direct relationship between the actual qualitative and quantitative characteristics of the gastric functions in any emotional state. A condition such as melancholia may produce hypo- or hyperacidity, depending entirely upon the reactional trend of the sympathetic system through which the mental state must operate. Hence, it would be unsafe to assume that because an individual may be suffering from a condition of general depression, he must necessarily present an analogous condition in his local functional activity. He will do so only provided the sympathetic system proper is in sufficient excess of excitation to control those functions.

Enough has been said to indicate that the time has passed when nervous manifestations in gastric disease may be regarded in the light of epiphenomena. The work done upon the whole sympathetic complex during the past decade has raised

these manifestations to the dignity of an integral part of gastroenterology. A working knowledge and appreciation of the anatomy, physiology and pharmacology of this system is eminently desirable. Its defects, if present, should leap to consciousness with the same alacrity as do local functional or organic changes. Having established the latter in every case by the proper physico-chemical methods, judgment as to causation should be suspended until this system has been completely investigated. In order to do this quickly in the course of any routine examination is merely a matter of training and habit. Watch the regular work upon the ordinary run of cases in any gastric clinic, and the neglect of this phase of the subject will be only too apparent. The most compelling evidence of unstable sympathetic equilibrium will fail of appreciation, if not of recognition, because the habit for such recognition is lacking, or begins and ends in the vague diagnosis of a neurosis.

It is to stimulate interest in this direction that the present article has been written. The schematic presentation has been conceived for purposes of demonstration. From present knowledge it would be unsafe to assume the existence of such a clinical entity as sympathicotonia. Nevertheless, the sympathetic proper part of the vegetative nervous system undoubtedly presents certain reactional characteristics, evidenced in clinical and pharmacological manifestations, which should be thoroughly mastered in order that they may be compared with the also distinct manifestations of the autonomous system for the purpose of determining the state of equilibrium of the whole vegetative organization. In casting about for the causes of a depressed functional activity in the alimentary canal, it will be necessary to thoroughly appreciate any defects in this system, in order that such findings may be compared with the prevalent assumption of congenital asthenia, defective metabolism, or definite neurosis. At best, these are but unsatisfactory generalizations. Stated in the broadest terms, the sympathetic system proper is the great inhibitor of gastrointestinal functional activity, and as such its importance cannot be underestimated in any case, for whatever may be the local findings, whether of hypo- or hyperactivity, the ultimate cause of these may be found to be either a constitutional increase or decrease of this inhibitory power, rendering the individual peculiarly susceptible to the unavoidable insults of his enforced existence.

LITERATURE.

1. Elliott: *Journal of Physiology*, 1905, XXXII. Epinephrin and Sympathetic Stimulation.
2. Starling: Physiology, pp. 377-380, 1912. New Conception of Tonus.
3. Hemmeter: *Interstate Medical Journal*, 1912, No. 3. Splanchnoptosis, Vagotonia and Sympathicotonia.
4. Wiesel: Virchow Archiv, Vol. 176. Status Thymolymphaticus.
5. Massini: *Münchener med. Wochenschrift*, 1913, p. 2460. Nervous System and Gastric Motor Functions.
6. Eisler and Lenk: *Münchener med. Wochenschrift*, 1913, p. 2048.
7. Verworn: *Zeitschrift für Allgemeine Physiologie*, 1913, p. 413-448. Reciprocal Innervation.
8. Kreuzfuchs: *Deutsche Zeitschrift für Nervenheilkunde*, 1913, p. 207-214. Organ Neuroses and X-Ray.
9. Gerstman: Jahrbuch für Psychiatrie u. Neurologie, 1913, p. 287-321. Sympathetic Central Routes.
10. Sherrington: *Journal of Physiology*, 1913, pp. 196-214. Inhibition and Reflex Excitation.
11. Flatau: *Berliner med. Klinik*, 1913, p. 1284. Anxiety Neurosis and Vasomotor Disturbance.
12. Halzknecht: *Mittheilungen a. d. Grenzgebieten*, 1913, pp. 669-694. Gastrospasm.
13. Heubner: *Zentralblat für Physiologie*, 1913, pp. 635-640. Nomenclature of Vegetative Nervous System.
14. Pavlov: *British Medical Journal*, 1913, pp. 973-978. Address upon Higher Nervous Functions.
15. Pearse: *Zeitschrift für Biologie*, 1913, pp. 243-294. Antagonistic Nerves.
16. Jonesen: *Archiv für experimentelle Pathologie*, 1909, Vol. 60. Sympathetic Central Organ.
17. Meyer and Gottlieb: Experimental Pharmacology (translated Halsey, p. 136). Sympathetic System in Diagram.
18. Hemmeter: Manual of Physiology, 1912, p. 160. Effect of Adrenalin on Viscera.
19. Meltzer and Joseph: American Physiological Association, December, 1911. Splanchnic Stimulation.
20. Brubaker: Physiology, 1912, p. 613. Central Nervous Connection of Sympathetic System.
21. Wolfsohn: *Journal Amer. Med. Assoc.*, 1914, May 16. Visceral Nervous System.
22. Herz: Neurosen des peripherischen Krieslaufapparat, Berlin, 1902.
23. Grünwald: *Archiv für experim. Pathologie*, 1909, pp. 60 and 249. Pikrotoxin as Stimulant.
24. Frankl-Hochwart: *Wiener klin. Wochenschrift*, 1909, pp. 37, 982. Pituitrin as Stimulant.
25. Frölich & Loewi: *Archiv. für exper. Pathologie*, 1908, pp. 34, 59. Atropin as Sedative.
26. Dale: *Journal of Physiology*, 1906, pp. 34, 163. Ergotoxin Action.
27. Falta, Eppinger and Rudinger: *Zeitschrift für klin. Medizin*, 1908, 1909, 1910, also *Wiener klin. Wochenschrift*, 1908, No. 21. Internal Secretions and Sympathetic Tone.
28. Bertulli, Falta and Schweger: *Zeitschrift für klin. Medizin*, 1910, Vol. 71. Chemotaxis.
29. Van Noorden: Charité Annalen. Vol. 18, p. 249. Hysterical Vague Neurosis.
30. Kostlivy: *Mittheilungen a. d. Grenzgebieten*, 1910, pp. 21, 671. Thyreotoxicosis.
31. von Noorden: *Wiener klin. Woch.*, 1909, pp. 50, 1769.
32. Eppinger, Hess and Potzl: *Wiener klin. Wochenschrift*, 1910, p. 51. Vegetative Nervous System and Psychoses.
33. Kreidl and Karpus: *Wiener med. Wochenschrift*, 1910, p. 2282. Sympathetic Centres in Brain.
34. Bergman: *Münchener med. Wochenschrift*, No. 4, 1913, also Berliner Klin. Wochenschrift, No. 15, 1913. Gastric Ulcer and Vagotonia.
35. Polousky: Charité Annalen. Dermographism.
36. Eppinger and Hess: Vagotonia.
37. Hemmeter: *N. Y. Med. Journal*, 1914, Jan. 17. Hypertonicity and Hypotonicity, etc.
38. Wilson: *British Med. Journal*, 1913, p. 1257. General Consideration of Sympathetic System.
40. Solis-Cohen: Transactions Assoc. American Physicians, 1902, Vol. 17, p. 644. Vasomotor Ataxia.
41. Solis-Cohen: International Clinics, Vol. III. Tests for Loss of Vasomotor Tone.
42. Solis-Cohen: Transactions Amer. Physicians, 1909, p. 527. Constitutional Liability with Regard to Sympathetic System.
43. Sajous: Internal Secretions, 1914, p. 271. Adrenalemia.
44. Eppinger and Hess: *Zeitschrift für klin. Medizin*, Vol. 67 and 68. Pathologie of Vegetative Nervous System.
45. Aschner: *Zeitschrift für klin. Medizin*, 1910, Vol. 70. Eyeball Pressure Test.
46. Herring: *Münchener med. Wochenschrift*, 1910, No. 37. Inspiratory Acceleration of Pulse as Test.
47. Falta, Newburgh and Nobel: *Zeitschrift für klin. Medizin*, 1911, Vol. 72. Antagonistic Action of Adrenalin and Pilocarpin.
48. Petren and Thorling: *Zeitschrift für klin. Medizin*, Vol. 73. Gastric Ulcer, Hyperacidity, and Vagotonia.
49. von Noordan, Jr.: Dissertation, Kiel, 1911. Pharmalogical Tests for Vegetative System.
50. Barker and Sladen: Transactions Assoc. Amer. Physicians, 1912, p. 471. General Sympathetic Considerations.
51. Ewald: *Berliner klin. Wochenschrift*, 1913, Sept. 29. Duodenal Ulcer.
52. Loewi: *Archiv für exper. Pathologie*, 1909, Vol. 60. Adrenalin Mydriasis Test.
53. Dubois: *Revue de Médecine*, 1900, No. 7. Neurotic Gastrointestinal Affections.
54. Dejerine and Gauckler: *Presse Médicale*, 1908. Reduction of Gastropaths.

55. Zbinden: Translated from Russian by Dr. Aszhanazy. Les affections du système digestif en neuropathologie.

Note.—The literature upon this subject is enormous and widely scattered. This much is here given for the purpose of survey rather than specific reference. The content of the articles is liberally interpreted into English in most cases for the purpose of facilitation.

144 East Thirty-eighth Street.

SURGERY OF THE SEMINAL VESICLES:

REMARKS IN REPLY TO CRITICISMS.*

By EUGENE FULLER, M.D.,

NEW YORK CITY.

Coincident with the call of the Chairman of the Section inviting me to make some remarks on the surgery of the seminal vesicles, I received from the New England Branch of the American Urological Association its report of the symposium held under its auspices last February in Boston, devoted largely to the seminal vesicles. As numerous references in the papers read at that meeting and in the discussions, were made to my work, it has occurred to me that perhaps a few remarks in reply to the criticisms raised would be of interest to the section. Personally I am always glad to be criticised, and feel that those who criticise should be honored by a reply. It is only through criticism that one is able to determine how the profession has been impressed by one's efforts. There is, of course, a wide range of criticism. Some of it may be very much to the point and show a line of weakness in an author's work, while some may show that the one making the thrust is himself the vulnerable party.

The chief paper of the symposium was read by Dr. J. Bentley Squier of New York, the invited guest. Its title was "Indications for Operation on the Seminal Vesicles." From this paper, which was of much interest—and I take occasion here to thank Dr. Squier for the kind allusion therein made to my work—there occurs the following remark: "I believe one of the main reasons why surgery of these organs has remained undeveloped for so long a period has been largely due to the current opinion that the vesicles were of such difficult surgical access. One American surgeon has for the past ten years devoted a large amount of his time to surgery of these organs and has contributed much to the literature. He has apparently not aroused the interest of the profession proportionately to the importance of the subject. Needless to say I refer to the work of Dr. Eugene Fuller of New York."

I feel that Dr. Squier's remark is very true as to the current professional opinion regarding the surgical accessibility of the seminal vesicles. In fact I am rather inclined to go perhaps farther than he does, and to state that the surgery is in my opinion technical, requiring skill and practice before one can expect to become proficient. Few in the profession think it worth while to perfect themselves in a new procedure which requires much study and practice until they are, as it were, forced to do so by the consensus of professional opinion. Only until a comparatively recent period did more than a few attempt prostatectomy, and those few were then the objects of much adverse criticism from the great majority; but now apparently most genitourinary as well as general surgeons try prostatectomy, and one no longer hears the procedure condemned. Seminal vesiculotomy is more technical and difficult than prostatectomy, consequently it will go through a longer period of probation, as it were, than did prostatectomy, and when it is finally through its period of initiation far fewer will try it than do now try prostatectomy. Although I have worked for a considerable number of years on surgery of the seminal vesicles without, as Dr. Squier states, "having apparently aroused the interest of the profession proportionately to the importance of the subject," I do not feel in the least disheartened; for having had this deserted field in great measure to myself, I have in that time been able to relieve a very large number of patients, and after all it is the gratitude of those one has cured which lends the chief charm to professional life.

In this symposium Dr. J. Dellinger Barney of Boston read a paper from which I take the following quotation: "The rôle of the seminal vesicles in chronic infection of the genital tract and in certain types of arthritis was long ago demonstrated by Belfield and by Fuller. . . . It remained for Fuller to wade boldly into the perineum and attack under cover of darkness a foe which might far better be vanquished in the light." Although I have a high regard for Dr. Belfield and for what he has accomplished, the original demonstration that arthritis can be dependent on systemic absorption from infected seminal vesicles belongs to me alone, as well as does the fact that chronic urethral discharges are often dependent on chronic seminal vesiculitis. I suppose Dr. Barney felt that I ought not to go about alone without a chaperone. As for the latter part of the quotation, my mind after reading it instinctively reverted to the Æsop fable concerning the fox and the grapes. Any surgeon who wades into the perineum blindly, running amuck as it were, certainly invites disaster. That sort of work I have never done, as my results show and as Dr. Barney, for whose benefit I have carefully demonstrated the operative steps of my procedure, is fully aware. The operation, as I perform it, does depend to a considerable degree on the guidance afforded by a trained sense of touch. Such guidance is as certain and as accurate as that afforded by the eye. In fact much more accurate under certain conditions. Guyon used to remark that no one who could not see, as it were, with his fingers could be an efficient genito-urinary surgeon. The late Professor Henry J. Bigelow, one of the most distinguished surgeons this country has produced and to gainsay whose brilliant work on litholapaxy is even now in Boston considered little short of surgical heresy, developed his operation through a training of his sense of touch. I do not for a moment believe Dr. Barney would speak in connection with Bigelow's operation of "wading boldly into the bladder and attacking under cover of darkness a foe which might far better be vanquished in the light."

The following remarks of Dr. Hugh Cabot, of Boston, in connection with the discussion strike me as confusing and quite incomprehensible. They are as follows: "I believe that Dr. Fuller's operation has been unnecessarily radical and has frightened us." . . . "I have not believed that incision of these structures (the seminal vesicles) for the drainage of chronic suppuration was satisfactory. The condition of the patients is such that I have not thought it important to dodge the issue by a palliative operation. It seems to me their condition is so serious they are clearly entitled to an operation as radical as a removal of the vesicle. On the other hand, if we are to regard the radical operation as

*Read before the Section on Genito-Urinary Surgery of the Academy of Medicine, December 16, 1914.

appropriate to the acute cases, we must be prepared to go the distance; prepared to assure these patients of good results, and we must be prepared to advise them of certain sterility, which in comparatively young men is a serious business."

In the first place, what is there about my seminal vesiculotomy operation to frighten Dr. Cabot? I have to date performed the operation in excess of seven hundred times. This large number of operations has been attended by just one case of fatality, the fatal issue in that instance being superinduced by the coexistence of a chronic nephritis. Less than five per cent. of my cases have expressed any dissatisfaction with the operative result obtained. A surgeon frightened by such results must be too timid to be classed as such. So it must be that something aside from this has caused the fright. It may be that the operation has been attempted, that the dissection has gone wrong, the bowel or other part being opened or injured, and that the surgeon has thereby become himself frightened. That being the case, it hardly seems fair to saddle my operation with the fright. Or it may be that the term frightened is here used in the sense or having caused chagrin or discomfort. When any pioneer worker in a surgical specialty devises a technical operation which will free chronic and hitherto incurable sufferers, many of those coming for operation will have already been, as it were, the professional rounds. Such patients after being cured not unnaturally have little respect for the abilities of those who failed to relieve them, and their adverse criticisms naturally cause chagrin.

Dr. Cabot states that my operation is unnecessarily radical, and then in the next breath holds that drainage of the seminal vesicles, my procedure, is not radical enough and consequently advocates a far more radical and serious, besides being a disabilitating procedure, namely, the surgical removal of the seminal vesicles for the elimination of disease. Such an abrupt shift in argument I cannot follow. My results with drainage in a very large number of cases show that it is radical and curative if properly performed. If my writings are studied it will be found that my drainage operation is often performed to restore potency, and that it not only does not cause sterility but not infrequently results in virility in cases wherein previous to operation a sterile marriage had existed. Dr. Cabot mentions sterility as the only disagreeable result from his proposed otherwise radically curative operation of removal of the seminal vesicles. Although the unnecessary production of sterility would probably bar his procedure in the minds of many, still, had he made mention of another resulting effect, namely impotency, he would not in my humble opinion find a corporal's guard out of a regiment of sufferers who would submit to his operation. I never saw or heard of a person who expressed any gratitude toward a surgeon where impotency had seemed to him to have resulted from operation. In most instances such individuals are very vindictive when alluding to the surgeon in question. I feel very certain had my operative efforts been attended by such results, I would have been forced to quit the field and probably the country long ago. I have on the contrary cured through operation many cases of impotency where the loss of the function was due to a diseased condition of the seminal vesicles. Years ago in the barbaric age of gynecology ovaries were needlessly and wrongfully removed. No one does that now. With the picture before us of the misery which resulted from the ruthless removal of the ovaries, there is every reason why the genito-urinary surgeon should avoid a like pit-fall. The rule of surgery to-day is to conserve and not to needlessly destroy.

In conclusion I wish to say regarding my dissection in the performance of seminal vesiculotomy, that the muscular perineal body is not injured, neither are the rectal sphincter and its encircling blood vessels. In fact, the dissection is so bloodless that it is an exception to have to ligate a single vessel throughout the performance of the entire operation. The rectal function is not disturbed. Retention in the majority of cases is a post-operative feature, requiring the passage of a catheter often only once, and rarely for more than two or three times. There is no shock from the operation, and little more disturbance than the taking of the anesthetic would account for. Thus though the operation is technically more difficult than prostatectomy, its gravity is not to be compared with that procedure. Any operation which exposes the seminal vesicles to view would necessitate more disturbance of the muscular structure of the perineum, and consequently would be surgically a graver procedure.

252 Lexington Avenue.

WHAT DO WE MEAN BY "THE UNFIT"?*

By Robert T. Morris, M.D.,
New York.

The difference between the terms artificial selection and natural selection are after all like the difference between the terms spiritual and material, nothing more than conveniences in nomenclature for academic discussion. If nature instructs man to make artificial selection, he follows the plan of nature. Therefore, in making artificial selection, he is making natural selection of divine order.

We really march to the music of the grand diapason of nature's organ rather than to flute notes of individuals or of sects. Nature guides us, even though the heads of pins of our small personal affairs are held so closely before the eye that we cannot see nature as a grand whole.

When a family has stored up enough qualities to fill one member with genius, nature then burns him up in order to get his products, just as we wastefully smoke out a swarm of bees in order to get their honey.

A family is often proud when a genius appears in its midst. They should be sad rather, because it indicates beginning disintegration of the family. In response to a law of organic evolution the progeny of geniuses disappear commonly, or revert to primitive types, and have to begin the family all over again.

Curiously enough the word "descent" is used ambiguously by people who speak of descent from a famous ancestor. We note the word to be correctly applied by descendants of men who become great through activities that injured their health. We find children really descended, and in need of the doctor's care, much of the time.

The idea that remarkably fine parents will have remarkably fine children holds good only through the mean stages of development of a family. In the uncouth stage and in the decadent stage of a family, the child is not remarkably fine. At each end then

*Advance pages from a book entitled "Wayside Notes" to be published shortly by Doubleday Page & Company, New York.

of the cultural period of a family we have a parallel to what is found at each end of the cultural period of a nation or of a variety of plant.

It is the duty of sons of geniuses to look after their health very carefully and to avoid as far as possible trying to emulate their parents' example. People often mistake genius for strength when it may be weakness, allowing the mind to escape in excess at some point which other men would keep under control.

There is a careless tendency to blame the children of geniuses if they do not engage the thread of their screws in the social order sufficiently well to take them into good position. The situation is one calling for sympathy. The remittance man is a type; usually a good fellow, well-bred, knowing the refinements, but not trained to any useful occupation into which he can fit. As the social world develops day by day, he has no screw point or thread to engage in any definite hole in which he can remain fixed and moving in unison with the progressive world. He has not been trained to take the place that is to be vacated by his father, because the father by gradual and slow adaptation fitted himself into a position which would require similar experience on the part of a son for filling a similar position. The son having been furnished with comforts has learned no way for securing comforts. He often is handicapped by sensitized protoplasm, handed down to him by a father who has injured his own cells while obtaining and holding position—and this handicap is a long one. His good-fellowship, founded in freedom from responsibility, leads him into all the enjoyable companionship of good-fellowship, and that is far from work—far indeed from work. As a matter of fact, he has been admirably and systematically trained for elimination. Is it his fault? No! He represents the perfectly logical outcome of a system which is part of nature's plan for shedding the surplus. Are we not then to extend our sympathy? Indeed I have always had in the depths of my heart as great a pity for the remittance man as for the girl on the street. Are they not all human beings like ourselves, calling for our sympathy in their misery? We note great waste in the social shedding of the remittance man. He is often of aristocratic lineage or at least of lineage denoting capacity. The remittance man has knowledge of the graces, of the humanities, and theoretical knowledge at least of the essentials for sociability. He could play a little trick on nature if nature did not purposely obscure the way. If he were to dig in the ditch or actually carried the hod, and not take one cent that he did not earn with shovel or hod, he then would begin to cut a true thread on his screw, and to give it a point. The world would turn his screw rapidly enough toward a secure position, if he were able to face starvation by refusing to accept a cent not personally earned by himself.

Nature usually prevents the remittance man from doing this because she really planned to have him eliminated. She cramps him in the narrow V of Vanity, and tells him that honor consists in begging rather than in labor—in leaving unpaid bills, rather than developing a desire for meeting obligations like a good sport. Nature tells him that parents brought him into the world, and therefore they owe him a living. He understands this as meaning that they owe him money, when in fact they owe him theoretically nothing more than the physical gifts which they gave him to be used for developing personal earning capacity. Practically, however, we have to take as a parallel a hunting dog brought up in such a way that he is trained not to hunt. Under these circumstances the parents really do owe the remittance man money. They were at fault, and argument is confined to a question about the amount of money. That question is settled between individuals, or at least by one side. Theoretically they do not owe him money any more than the gardener is expected to hang pears on a tree. It is the gardener's responsibility, however, to train the tree which he has planted, and if the father and the gardener fail to train their respective charges, it is a fault to be sure—but one that is not to be remedied by hanging pears on a tree.

Ordinarily it is not a question of fault on either side, but is simply a response to nature's plan. I knew one remittance man, a fine wild fellow, whose source of income was absolutely cut off. He went to work in a factory at earning his own living, and told me that for the first time in his life he was really happy. He said further that he was prouder than he had ever been before, because he was doing what no one thought him capable of doing. Previously they had given him credit only for skilful construction of letters to his father, calling for money. Ordinarily the remittance man will not labor because of social pride, like a girl who refuses to do housework—preferring to become a prostitute. It is social pride that takes them both to where they find themselves.

The incentive to work in the case of a young man is usually punishment or reward. If he is born with money "reward" already at his disposal, nothing but fear of punishment is left for driving him into labor, as a rule. Experience soon teaches him that he need not worry greatly about punishment. Consequently, he fails to develop an appetite for work. The time will come when a system of pedagogy will take charge of this subject. It will show the youth certain things which are to be accomplished in natural science and which he probably cannot work out successfully. His vanity will then be aroused and turned to profitable account.

When Darwin presented his theory of the elimination of the unfit, many people who felt themselves to be targets became offended. When Osler said that the best constructive work was done by men under the age of forty, and jocosely added that men past sixty should be chloroformed, many who felt themselves to be targets were offended, but continued to live and to be busy nevertheless. Unfitness is a relative term and has application in relation to two separate and distinct utilities. The navel orange is unfit for survival in nature's plan, but is extremely valuable for man's uses. The man who could express the sentiment of Dorian Grey was unfit for survival in nature's plans, but was extremely valuable for cultivated man's uses. Before fitting the thorny crown of the word "unfit" to himself, a man must first stop to consider if he is not extremely valuable to his fellow men, even though he may not be destined for the survival of himself and his progeny in nature's plan.

616 Madison Avenue.

Pneumococcus Infection and Splenectomy.—U. Comelli performed this operation on rabbits into which he had injected pneumococci. He found that if the spleen is removed coincident with the beginning of the rise of the temperature, there would be a fall in the latter, but it would rise again during the terminal stages of the disease. If, however, the spleen is ablated after the temperature has risen, there is no recurrence of temperature following the fall.—*Il Policlinico.*

PROPHYLACTIC AND THERAPEUTIC IMMUNIZATION AGAINST TUBERCULOSIS; ITS POSSIBILITIES AND LIMITATIONS.

By SILVIO H. VON RUCK, M.D.,

ASHEVILLE, N. C.

When Sir A. E. Wright[1] wrote the epigram, as a motto for his "Studies on Immunization," "The Physician of the Future Will Be an Immunizator," he expressed a view which is shared, more or less exclusively, by most students and investigators of infectious diseases. In its practical aspect, however, the viewpoint of the clinician must be taken into consideration, who but rarely deals with conditions which are amenable to a comparatively simple procedure of immunization. In the struggle for existence, both macrocosmic and microcosmic, conditions are almost invariably complex, and, in disease processes which are manifestly dependent upon bacterial action, it is often difficult, if not impossible, to determine the particular microorganism which is responsible and which, in the form of a vaccine, may be employed as a means of immunization with the expectation of success. Yet, as soon as two or more of these vaccines are combined and administered with the hope of promoting a curative action, the field of positive teleological therapy is abandoned for that of empiricism.

If, however, we impute to Sir Almroth the view that the work of the physician of the future will be rather prophylactic than therapeutic, rather preventive than curative, then indeed the truth of his epigram will stand unchallenged, for it is in the prophylactic treatment of bacterial disease that immunization finds its most successful application.

Immunization against a bacterial disease is a process by which the organism is protected against the pathogenic action of the related bacterium, either by virtue of a successfully withstood attack of the disease or by the deliberate parenteral introduction of the bacterial substance, usually the virus itself in an attenuated form or in a form in which it is not capable of causing clinical disease. The result is a condition of hypersensitiveness by virtue of which the organism reacts more promptly to infection, with the formation of antibacterial substances which counteract the infection and prevent the infectious disease. The establishment of immunity by self-immunization, leading to recovery from disease and protecting against later attacks, has been observed clinically for centuries; the attempt to make use of the same principle for the purpose of prevention is likewise old and culminated in Edward Jenner's vaccination against smallpox. Since then, immunization has been made possible against a variety of diseases, notably rabies by Pasteur, against typhoid fever by Wright, against cholera and plague by Haffkine. Passive immunization, that is, the injection of serum from an actively immunized animal into the infected organism, has been proved highly useful in diseases with very short periods of incubation, *e. g.* diphtheria (v. Behring); tetanus, epidemic meningitis (Simon Flexner).

Prophylactic Immunization Against Tuberculosis.—In the case of prophylactic immunization against tuberculosis, the problem has presented many great difficulties which were not solved by the prophylactic vaccines, consisting of living tubercle bacilli, introduced for use in cattle by v. Behring, by Koch and Schuetz, Heymans, Klimmer, and others. In contrast to conditions in infection by other bacteria, where the virus is easily broken up by the tissue fluids and therefore promptly stimulates the formation of reaction-products, the tubercle bacillus is very resistant to the action of these fluids, and is known to persist in the clinically non-tuberculous organism for years. Yet, as Wright points out in the report on his researches on pneumonia in the Transvaal, before the organism can respond to the parenteral introduction of a vaccine, this must be disintegrated by the tissue fluids, and must be broken down. The injection of killed tubercle bacilli, with a view of securing an immunizing response, did not succeed because the dead bacilli were encapsulated in tubercles, in various organs, and failed to be absorbed. Attempts have been made to immunize human beings by means of living tubercle bacilli, either non-virulent or alleged to be so (F. F. Friedmann), or virulent but in minute numbers, from one organism up (Webb and Williams); but this mode of immunization, theoretically correct though it may be and in accordance with Koch's view that only the living tubercle bacillus could be depended upon to produce immunity, is too dangerous ever to gain any popularity.

It was therefore a distinct advance when Dr. Karl von Ruck[2] introduced a vaccine, for the purpose of prophylactic active immunization against tuberculosis, which contains all active constituents of the tubercle bacillus, chemically unaltered, in solution, and therefore in a form immediately available for absorption. He had for years successfully employed an extract containing the water-soluble substances of the tubercle bacillus, and had demonstrated the efficiency of this vaccine clinically and experimentally. With the introduction of his new vaccine, which also represents a complete antigen but is better balanced quantitatively, it became possible to produce a perfect immunity against the pathogenic action of the tubercle bacillus and to immunize normal persons against the disease.

It has been denied that it is possible to immunize normal animals and persons against the pathogenic action of the tubercle bacillus, because of the undisputed fact that immunity is dependent upon the sensitization of the organism by the virus against which it is engendered. This is maintained *e. g.* by P. H. Roemer[3] in an able discussion of the problems of specific hypersensitiveness and immunity to tuberculosis, by v. Pirquet[4] in his "Clinical Studies on Vaccination," and by other authors. It may be argued successfully that the introduction of a vaccine in solution, which contains all body substances of the tubercle bacillus and is, therefore, a complete antigen, is sufficient to produce the required sensitization of the organism; yet the question is, in human subjects, really an academic one, because it hardly ever happens, except in the case of very young children, that we find an organism which is entirely normal with respect to the tubercle bacillus. Post-mortem examinations and the application of the tuberculin tests in immense numbers of adults and children have shown that the infection of the human organism with the tubercle bacillus is practically a general one in all persons at the age of fourteen, and that, therefore, even healthy persons after that age are infected and sensitized. In other words, while they are not tuberculous, they are tuberculized, and any procedure undertaken with a view of immunizing them will build upon a certain degree of immunity which has already been acquired in consequence of the first infection.

Small children and infants also are often found to possess a degree of specific immunity, if they have been born of tuberculous mothers by whom the immunity is transmitted.[5] This immunity is perhaps not always lasting but will, in many instances, be sufficient to stimulate a prompt response to exogenic infection, when the infant or child is exposed to it. It may be mentioned in passing that it has actually been shown clinically[6] that a tuberculous heredity provides a somewhat better prognosis than a heredity free from tuberculosis. The various "scrofulous" stigmata of childhood also may be taken as symptoms of hypersensitiveness or as forms of relatively harmless disease by which immunity to tuberculosis is acquired; indeed v. Pirquet[4] has it that disease is but one stage in the production of immunity.

The prophylactic immunization against tuberculosis by means of a suitable antigen, such as the vaccine of Dr. Karl von Ruck, would therefore resolve itself, in many cases, in the stimulation of immunity, the basis for which has already been laid by an earlier infection.

There are, however, cases in which no family history of tuberculosis and no exposure to infection can be ascertained, in which there is no response to the tuberculin tests and all diagnostic laboratory tests are negative. That even these cases, in which the organism must be assumed to be normal, can be actively immunized by means of a proper antigen, is shown by our experience in at least four infants less than one month old, in whom the history was quite negative. Vaccination produced specific antibodies and bactericidal power in the serum of each one of them. One other normal child was immunized nine years ago, at the age of two, and the active immunity then produced still holds undiminished. Like experiences have been observed in experiment animals which were certainly not tuberculous and were successfully immunized with the vaccine.

Among 339 children who were treated with the vaccine,[2] and who had been subjected to careful clinical examination, including a search for enlarged lymph glands, physical signs in the lungs, the reaction to tuberculin tests, blood studies, and serum examinations before and after the administration of each dose, 85 had been found to be normal. In all of these normal children (as was the case in the suspect and the tuberculous individuals) the administration of the vaccine was followed by the appearance of complement-fixing substances in the serum; the blood alkalinity was increased from an average of 0.86 to one of 1.20 per cent.; the agglutinins, which had been present in only a few of these normal children in serum dilutions of 1:5 or 1:10, had increased to 1:100 from three to eight months after treatment.

This demonstration, which was also supported by animal experiments, that it is possible to stimulate the normal organism to the production of specific antibodies by treatment with a complete antigen in solution, should dispose of the view that only that organism can be immunized against the tubercle bacillus which is sensitized by an infection, *i.e.* by the living virus. This latter view is not justified by experience in smallpox, where the organism is "new" to the virus and yet elaborates specific reaction products in response to vaccination; nor is it justified by experience in typhoid fever against which immunization of the normal organism is done successfully, even by the killed virus. It is finally contradicted by the mechanism of autoimmunization in response to the first infection with tubercle bacilli, in which the normal organism acquires the power of forming antibodies.

The accepted prophylaxis against smallpox consists in the specific immunization against the smallpox virus by means of vaccination of all children before they are permitted to enter school. The immunity resulting from this vaccination is commonly accepted as lasting for a space of about seven years, after which revaccination should be practised. The results of this mode of prophylaxis are particularly obvious in the German army, as compared with the Austrian, French, and Italian armies, vaccination not being compulsory in the three latter as it is in the first. Simon[7] cites the following figures:

Army	Period	Per Annum			
		Morbidity	Average	Deaths	Average
German	1875–1892	13	0.7	1	0.05
Austrian	1875–1886	9864	896.7	595	54.0
French	1875–1892	8356	491.5	705	41.4
Italian	1875–1894	2565	135.0	193	10.1

The success of specific prophylactic immunization against typhoid fever in the Boer war and in our own experience in the U. S. army is present-day history and should hardly need proof. Suffice it to quote, also from Simon,[7] that in our concentration camps at the time of the Spanish war, in a body of 10,759 men, there were 1,729 cases of certain typhoid fever and 964 cases of probable typhoid fever, together 2,693; that is, 25.03 per cent. morbidity, with 248 deaths, or 9.2 per cent. of the morbidity. On the other hand, among the 12,801 men who were concentrated in 1911 at the maneuver camp at San Antonio, all of whom had been vaccinated either before their arrival or as soon thereafter as possible, there developed but a single very mild case, in a private who had not completed his immunization. During the same time period, there were reported in the city of San Antonio, 49 cases with 19 (38.7 per cent.) deaths.

The difference between these acute infectious diseases and the essentially chronic tuberculosis is one of degre only in so far as the question of prophylaxis is concerned. In both classes an immunity is developed in response to the sensitization of the organism with the bacterial substances, and in both classes the immunity affords protection against later infection, and prevents disease. The conclusion is obvious, that the logical method of preventing tuberculosis would be a general specific immunization, the same as it is practised against smallpox. Simon[7] says that, if the incubation period of a given malady is sufficiently long so as to permit of the active mobilization of the defensive forces before symptoms of disease actually develop, attempts at active immunization would, of course, be indicated. Chronic infections further would, theoretically at least, lend themselves to treatment of this order.

Hitherto the efforts of the world-wide crusade against tuberculosis as a disease of the masses consisted in ascertaining, and, as far as possible, rendering innocuous the sources of infection; in teaching tuberculous persons how to avoid infecting others, and in raising the general resistance, the "first line of defense" as it has been aptly called, against infection. Unfortunately all this is entirely inadequate to cope with the problem, the more so

as it is quite impossible to eliminate all possible sources of infection. This being the case, it remains as the only logical conclusion to be drawn that only specific immunization against tuberculosis can be expected to produce efficient results and to lower the morbidity and, eventually, the mortality of tuberculosis. This method of procedure would be the more reasonable because it would avoid the ultimate raising of a generation which is "new" to the tubercle bacillus and which would be absolutely defenseless against a sporadic infection; it would rather result in a tuberculosis-fast generation and would hasten the solution of the tuberculosis problem by centuries, in the same manner in which vaccination has solved the smallpox problem in less than a century.

Therapeutic Immunization.—"The treatment of tuberculosis stands in the sign of the theory of immunity," is the pithy manner in which van Calcar expresses himself in the introduction of his treatise on tuberculosis and immunity,[7] and it may be truly said that the treatment of tuberculosis is gradually, but none the less surely, developing in the direction of the means which nature employs for its arrestment and cure in those cases in which the disease either never becomes clinically manifest or in which it is recognized in a very early and uncomplicated stage and yields promptly to the so-called general methods of treatment, by climatic, hygienic, and dietetic measures.

It will be well to realize that these general measures are actually only a means to the end, that they do not accomplish the arrestment of tuberculous disease directly, but that they act indirectly by enabling the tuberculous organism to develop a sufficient degree of specific, antituberculous immunity to prevent the further multiplication of tubercle bacilli and the extension and dissemination of the tuberculous process. Under favorable conditions the body responds to the invasion of tubercle bacilli by removing or by destroying them before they have had time to exert their pathogenic action and to lead to tubercle formation which is, in itself, a form of defense of the organism, tending to localize and circumscribe the infection. If tubercles have been formed, they cause a connective tissue proliferation that is often sufficient to encapsulate them, and to exclude them from the circulation, making an extension of the tuberculous process by contiguity or by way of the circulation impossible and resulting in a latent or quiescent focus which, by becoming cretaceous or calcareous, in most cases loses much (although not necessarily all) of its infectivity. As far as tubercle bacilli have been absorbed in the circulation and have been destroyed, the resulting toxic products of bacteriolysis (endotoxins) are promptly neutralized and rendered harmless. This occurs in cases which may never present clinical symptoms of tuberculous disease.

The process of defense which is thus set in motion by the organism, under favorable conditions, becomes active in the first instance because of a sufficient natural resistance by which the invasion of large numbers of tubercle bacilli is prevented. The power of destroying the bacilli and of neutralizing their toxic products, however, depends upon the ability of the organism to respond to the bacillary irritation by the formation of specific protective substances which, when they are present in sufficient amounts, render the blood capable of destroying the virulence of the microorganisms, and antitoxic in so far as the endotoxins require neutralization; in other words, it depends upon a specific resistance or immunity.

The natural and the specific resistance of the organism are both exerted in the majority of cases of tuberculous infection; for, while practically everybody is subject to infection with the tubercle bacillus at some period or another, by the time the age of puberty is reached, only about 20 or 30 per cent. of all living show evidences of active tuberculous disease, *i.e.* evidences that the resistance was broken through; even then it becomes active again and a restoration to health becomes possible, for only about 10 per cent. of all deaths are due to tuberculosis.

In those instances in which the natural defenses were not capable of preventing a massive infection, and in which the organism failed to respond to it by developing an adequate specific resistance, where, in consequence of this deficient resistance, active tuberculosis has occurred, the question arises of increasing the resisting power of the organism, and then of stimulating its power of repair so as to, first, limit and arrest the tuberculous process and, then, cause its retrogression and healing. As we have seen, in many relatively early cases this can be accomplished by general methods by which the body is placed at rest and under the most favorable conditions of nutrition, so that its specific resistance, which presumably was insufficient owing to weakening influences like poor nutrition, unfavorable surroundings, overwork, etc., shall be increased and rendered capable of accomplishing the object sought. This result is illustrated in those early cases of tuberculosis in which the disease is recognized before its destructive stage has been reached and before it has exerted any deleterious effect upon the functioning power of the vital organs. In these, the general methods of treatment are frequently successful in improving the impaired nutrition and promoting the establishment of a specific resistance in a satisfactory degree.

Unfortunately this desirable result is, all too often, not obtained. Whether the disease has progressed too far for nature to arrest it without artificial aid, or whether other organs than the one primarily affected are incapable of normal function, whether intercurrent diseases tend to weaken the organism or whether it is not possible to induce and maintain ideal conditions under which nature could accomplish a cure; all this will have to be decided for each individual case. At any rate, very often nature does not prove herself an efficient physician and requires suitable assistance, for without it the tuberculous process would extend and progress toward the destructive stage. In such cases specific treatment offers the only effective means of arresting the tuberculous process, provided, of course, that the latter has not yet advanced too far in the phthisical stage and that the patient is not unduly weakened by fever and by toxemia.

It is unfortunate that, since the discovery of the tubercle bacillus, the term tuberculosis has been used unqualifiedly for all stages of the disease-processes for which the bacillus is directly or indirectly responsible, and that, not only in the minds of the laity but also in the minds of many physicians, it is synonymous and identical with phthisis or consumption. Before the days of bacteriology, which gave to the term tuberculosis an etiological significance, it had been pathological or descriptive, having been introduced by Schoenlein[8] to designate those affections for which the tubercle is the char-

acteristic anatomical lesion. Schoenlein differentiated sharply between tuberculous phthisis and other forms of consumption. With the recognition, however, of the fact that phthisis represents in the vast majority of cases the destructive and terminal stage of tuberculosis, the latter term was employed more and more, especially since the tubercle bacillus had been demonstrated as the cause of tuberculous disease.

The fact must not be lost sight of that something more is required in the genesis of phthisis than the tubercle bacillus, and that not every tubercle formation leads to consumption. The factors which may be responsible for such an outcome are manifold and have been comprised under the convenient term of predisposing causes. Yet we must not confound predisposition to tuberculosis with predisposition to phthisis. Tubercle formation follows almost invariably upon infection with the tubercle bacillus (leaving out of consideration the finding of "latent" tubercle bacilli without the characteristic lesions, as they have been studied especially by Bartel and Neumann—cf. K. v. Ruck[10]), if the bacillus succeeds in breaking through the first lines of defense and in passing through the skin and mucous membrane; but in the resistant organism the tubercle formation does not progress and does not lead to phthisis, the predisposition for it being absent. Tuberculosis in its uncomplicated form has a tendency to localization and to healing. When, however, the tuberculous lesion undergoes cascation and softening, *i.e.* when phthisis supervenes, the tendency to extension exists, in part because the process becomes complicated by mixed infection through which the destruction of tissue is encouraged and hastened, and because of the liberation and absorption of products of virulent tubercle bacilli, since the transition of "antigen" into the circulation tends to disseminate the infectious process.

It is evident, therefore, that the treatment of phthisis presents a far more difficult problem than that of uncomplicated tuberculosis. In fact, while the latter will yield to a specific remedy which stimulates the formation of all required antibodies, an active immunization does not usually suffice in phthisis.

The etiological or vaccine treatment of infectious diseases being specific and applied by means of the causal virus of the disease, the necessity that this latter be definitely determined is naturally a condition of success. In diseases in which the bacterial causes are multiple, the problem becomes more difficult because of the uncertainty regarding the relative importance of the various bacteria that are involved in the process or that are simply found as contaminations. Multiple vaccines are frequently used in the hope of overcoming thereby the results of multiple infection.

Ordinarily the cases of tuberculosis that present themselves for treatment are actually phthisical, and the clinical diagnosis of incipient tuberculosis is, in the majority of cases, a euphemism for incipient phthisis. This is an unfortunate consequence of the demonstration that the phthisical process almost always depends upon a tuberculous basis, and of the custom before mentioned of employing the terms tuberculosis and phthisis as interchangeable. Therefore, if we say that tuberculosis is communicable and preventable, this must not be applied to phthisis without qualification. The curability of tuberculosis should be insisted upon with the proviso that it comprises the uncomplicated and relatively early forms of the disease, and it should be understood that the advanced forms are by no means as easy to treat as the public has been taught to believe.

A phthisical process being a very complicated one its turberculous basis is only one of the many phases to be considered. In addition to it there is not only the complicating secondary infection which tends to hasten and to aggravate the destructive process, but there is also this process itself, the pathological lesion which impairs the functioning power of the affected organ; further, there is the extension of the process, either by continuity or contiguity, or by way of the circulation, through which new areas, hitherto normal, are involved in the disease; and finally there is the deleterious effect of the disease upon the general condition of the patient to be considered, because of which pulmonary consumption has been defined as a disease of all parts of the body (Richard Morton[11]). In all cases of tuberculous disease the treatment must take account of several aspects; it must be directed against the infection and also against the pathological process; it must further benefit or relieve the associated pathological conditions and the sequels engendered by the disease.

It is only the infection itself which can be influenced directly by specific treatment. By stimulating the specific immunity reaction of the organism, it can, in favorable cases, promote the arrestment of the tuberculous process, by securing the destruction of the infectious organisms. It can also relieve the body of the intoxication following the breaking up of the bacilli. It is, however, powerless directly to affect the pathological process itself or to induce its retrogression and healing. This depends upon the ability of the body cells to undertake the necessary reparative function and this in turn depends upon various factors among which are of primary importance the nutrition of the body and the extent of the pathological lesions. In the presence of mixed infection, especially by pyogenic bacteria, the arrestment of their deleterious activity also forms an important phase of treatment and one which, if it fails, may render the specific antituberculous immunization unavailing.

It is undoubtedly due to the multiple aspect of phthisis in its manifold clinical phases that so many different remedies have been advocated for its treatment while, since the etiology of the disease has been established, therapeutic endeavor has often been unduly restricted to its bacterial nature, except, indeed, in the case of the dominant general methods of treatment, which deliberately attempt to strengthen and restore the entire organism and all its vital functions. Nor are these general methods of treatment ever undervalued even by the most enthusiastic supporters of specific therapy; for, as was pointed out editorially in the *Journal of Tuberculosis* some years ago:[12] "there is no remedy for tuberculosis, nor will there ever be one, no matter how specific, that acts or will act in the absence of suitable conditions of hygiene and diet." The necessity of these general methods is therefore not questioned and it is even conceded that the scope of specific treatment is limited. In its beneficent working, however, the latter tends not only to arrest the further multiplication of tubercle bacilli and to lessen the absorption of toxic substances, but it also is excellently calculated to break up, by this action, the many vicious circles which are of such

immense and fateful clinical importance in the management of phthisis, as has been set forth clearly by Dr. Jamieson B. Hurry.[13]

The manifold aspect of phthisis or of clinical tuberculosis further renders it impossible that there ever should or could be offered a specific remedy for the treatment of tuberculous disease which could be designated as *the* tuberculosis cure κατ' ἐξοχήν and to which all cases of tuberculous disease could be expected to yield promptly. Such a remedy is possible and exists only for uncomplicated tuberculosis. It is not possible for advanced cases of the clinical disease or phthisis; that is, tuberculosis plus a variety of pathological conditions occurring in consequence of tuberculosis, and complicating it.

One may, therefore, never hope to cure a well established case of phthisis solely by periodical injections of a tuberculin or of an antituberculosis vaccine. The possibilties of the action of the latter will always be limited by the sums total of the clinical assets and liabilities of each individual case. In instances where considerable destruction of lung tissue has taken place and where the breaking down of a caseous focus causes a constant absorption of antigen and, therefore, a constant pyrexia; where the digestive organs are involved and the nutrition is greatly impaired, the administration of any vaccine, with the expectation of a clinical cure, would almost certainly be doomed to disappointment, unless steps had been taken to control the fever and to improve the nutrition. Where, however, the tuberculous focus is circumscribed and not very progressive, where digestion and elimination are good and the nutrition is satisfactory, where the temperature does not rise above normal or only slightly so, specific treatment with a suitable vaccine bids fair to arrest the tuberculous process within a relatively short time, after which the process of repair will be activated and become productive automatically.

In the ordinary run of cases of phthisis, as they are met with in private practice, in the clinic, and in sanatoria, the adoption of specific remedies can never render the other methods superfluous. It supplies an ancillary method of treatment which exerts its action against the underlying cause of the phthisis. Specific remedies must be considered as useful and valuable, even as indispensable aids in the management of these cases, but they must not be looked upon as the be-all and end-all of treatment; they must not be permitted to encourage carelessness or want of attention to the general factors and requirements of each individual case.

REFERENCES.

1. Wright, Sir A. E.: "Studies on Immunization," London, 1909.
2. von Ruck, Karl: *Journ. A. M. A.*, 1912, LVIII, 1504.
3. Roemer, P. H.: "Beitr. z. Klin. d. Tuberkulose," 1908, XI, 79, and following volumes.
4. v. Pirquet, C.: "Klinische Studien über Vakzination und vakzinale Allergie," Leipzig u. Wien, 1907.
5. v. Ruck, K., and Achard, H. J.: *Pediatrics*, 1913, XXV, 742.
6. von Ruck, Karl: *Amer. Jrn. Med. Sciences*, 1907, CXXXIV, 222.
7. Simon, Charles E.: "An Introduction to the Study of Infection and Immunity," Philadelphia and New York, 1913.
8. van Calcar, R. P.: "Tuberkulose und Immunität," Leiden, 1910.
9. Schoenlein, J. L.: "Allgemeine Pathologie und Therapie," Würzburg, Dritter Band, 1832, S. 103.
10. v. Ruck, K.: "Beitr. z. Klin. d. Tuberkulose," 1913, XXVII, 353 (p. 360 ff.).
11. Morton, Richard: "Phthisiologia, sive Tractatus de Phthisi," Genevae, 1696, p. 26.
12. *Journal of Tuberculosis*, 1903, V, 440.
13. Hurry, Jamieson B.: "The Practitioner," 1914, XCII, 274.

A NEW AND GREATLY SIMPLIFIED METHOD OF BLOOD TRANSFUSION.

A PRELIMINARY REPORT.

By RICHARD LEWISOHN, M.D.,

NEW YORK.

THE question as to the best method of transfusion of blood is still an open one. The method of vein-to-vein anastomosis has in the past two years encroached upon the original Carrel method of uniting the artery of the donor to the vein of the recipient. These methods, however, have recently been almost entirely replaced by Lindeman's syringe-cannula method, which has the advantage not only of being much simpler technically, but at the same time of giving an opportunity of accurately determining the amount of blood transfused. Even Lindeman's method, however, is far from being simple. Its proper application demands a staff of four people, each one trained for this special work. Further the method is quite an expensive one on account of frequent breakage of the syringes. The method is apt to prove a failure if not carried out with great precision and rapidity, for the blood is apt to clot in the syringes. These facts limit its usefulness and restrict its general application.

There can be no doubt that blood transfusion can only be popular if it can be done by any physician without the necessity of acquiring special skill for the work; in other words blood transfusion ought to be as simple as any ordinary saline infusion.

What is the reason that all the methods heretofore applied in blood transfusion are so complicated? Why has it not been possible so far to have a method of blood transfusion as simple as an ordinary infusion? The only reason is the rapidity with which the blood clots outside of the body, namely in from three to five minutes. If it were possible to retard the rapid coagulation of the blood, transfusion could be performed with the greatest ease and without acquiring any special technique. Then all the complicated methods which we have used heretofore could be dispensed with.

Many different drugs have been applied in experimental physiology to retard or prevent the coagulation of the blood. The best known among them are the leech extract (hirudin) and sodium citrate and oxalate. I started my experiments with hirudin, but found that this drug if given in sufficient quantity to prevent clotting is so toxic that its applicability for transfusion is out of the question.

Sodium citrate, on the other hand, with which I have experimented during the last few months, has proven to be a most satisfactory drug for our purpose. I do not want to enter here into any detailed statements as to its anticoagulant action, as the chemical action of sodium citrate on the blood is well known.

I performed a series of experiments to answer the three following questions:

(1) What is the smallest dose of sodium citrate required to keep the blood from clotting for twenty to thirty minutes?

(2) Is the coagulation time of the blood of the recipient retarded? If so, its general use in blood transfusion would necessarily be greatly impaired (purpura, hemophilia, etc.) and

(3) Is it toxic in the amounts necessary for our purpose?

As this is only a preliminary report I shall refrain from giving detailed data about all my experiments and only state the most important results in the very briefest terms.

1. The amount of sodium citrate necessary for our purpose is very small, only 0.2 per cent. The blood was tested in ordinary test tubes. In these experiments ten cubic centimeters of dog's blood was added to different amounts of a 10 per cent. sodium citrate solution. If one takes 0.1 cubic centimeter of this solution and adds ten cubic centimeters of blood to it, the coagulation time is not changed compared to normal blood (both about five minutes). All the other test tubes, however, running from 0.2 upwards to 1.0, did not clot at all (observation time over forty-eight hours). From this experiment, which was repeated several times with exactly the same results, it follows that sodium citrate must be added at the ratio of 0.2 per cent. for the purpose above mentioned. The identical results were obtained with human blood.

2. The tests of the coagulation time after the introduction of the sodium citrate-blood mixture show that the coagulation time in the whole blood volume of the body is not only not retarded, but actually hastened, at least immediately after the transfusion. The normal blood taken from the carotid artery of the dog, before the experiment was started, showed five minute coagulation time. Three hundred cubic centimeters of blood were then removed from the artery, mixed with five cubic centimeters of 10 per cent. sodium citrate solution and then reintroduced into the jugular vein of the same dog. Three specimens of blood taken from the carotid artery at intervals of three minutes after injection of the blood into the jugular vein showed that the blood clotted in ten seconds. I shall not enter into the interesting aspects of this fact and only record it here. That much certainly follows from this series of experiments that there is no retardation of the coagulation time on account of the added sodium citrate.

3. The dogs showed absolutely no ill effects from these small doses of sodium citrate, as was to be expected.

I used for the transfusions the simplest outfit imaginable. I did not use large syringes, because they are expensive, break easily, and are entirely unnecessary for our purpose. The technique used is the following: I simply allowed the blood to run through an ordinary cannula into a glass jar, containing five cubic centimeters of 10 per cent. sodium citrate solution. While the blood was running into the jar it was stirred with a glass rod to effect a good mixture of blood and citrate solution. The blood was then poured into an ordinary glass funnel, which was connected with the other cannula by a piece of rubber tubing. The whole procedure took about five minutes.

I have used the method on two patients (transfusions of 300 c.c. and 500 c.c. respectively) without any untoward symptoms.

I would like to draw attention to a paper by Hustin of Brussels (*Annales et Bulletin de la Société Royale des Sciences Médicales*, May, 1914) which came to my notice when my work was practically finished. He used in one case a citrate solution mixed with glucose.

While the experimental part of this work was still under way, Dr. R. Weil reported at a meeting of the Academy of Medicine (December 17, 1914,) that he had used sodium citrate successfully in the wards of the General Memorial Hospital. He stated that the coagulation time is hastened after the injection of sodium citrate, a statement which I confirmed in my experiments.

I feel assured that this method will popularize transfusion very markedly as it can easily be applied by any physician without any assistance and without the haste and technical skill necessary for the proper execution of the older methods.

I wish to acknowledge my indebtedness to Dr. Baehr and Dr. Epstein for their valuable assistance in this work. The experimental work was done at the Pathological Laboratory of Mount Sinai Hospital.

565 Park Avenue.

MYOCARDIAL CHANGES FOLLOWING THE ACUTE INFECTIOUS FEVERS.*

By WM. A. DICKEY, A.M., M.D.,
TOLEDO, OHIO.

In the treatment of acute fevers, the internist is confronted with a many-sided problem. He must think not only of the treatment of the disease *per se*, but also of the pathological changes brought about by the infective agency in the different organs and tissues of the body, for these have a wonderful influence on the final result. They not only influence the prognosis, but have an important bearing on the line of treatment. The integrity of certain structures is of paramount importance, because upon their functional activity often hangs ultimate result. Of all organs in the body that need most careful watching in infectious diseases, the heart is the most important. It demands the most circumspect attention and discrimination on the part of the medical attendant. Certain processes of a more or less permanent character may be implanted during the progress of one of these diseases, leading to the sudden and unexpected death of the patient, to the discomfiture of the physician, and the inexpressible grief of the family. Death may take place not only during the height of the infective process, but suddenly after an apparent cure. Indeed, so profound may be the toxemic process from the very outset, that the cardiac involvement may overshadow all other phenomena in the symptom complex. And yet it must in truth be said that an already damaged heart may pass through an attack of pneumonia or typhoid fever, for example, without showing that degree of injury or embarrassment one would expect; so that we have no hard or fast rules to govern us. But I repeat that in all infectious diseases the heart must receive the most constant and watchful care.

Another matter of vital consequence confronts us, and that is vasomotor paralysis, the result of the action of toxins on the vasomotor center in the medulla; the maximum influence being felt in the splanchnic area, in this way destroying the normal equilibrium between the different organs and parts of the body. To this, however, I shall refer again. The anatomical arrangement of the heart as well as its dynamic requirements make it an organ of special care and attention in infectious conditions.

*Read at a meeting of the Northwestern Ohio Medical Association at Tiffin, O., October 21, 1914.

In adult life it is difficult to consider diseases of the heart without at the same time taking into consideration diseases of the blood-vessels. In childhood, this does not obtain to the same degree, if it does at all. And yet many of the diseased conditions found in adult life have their inception in child life. In childhood, the pericardium and endocardium do not suffer to the same degree that the myocardium does, and yet the infections cripple more or less every part of the heart. There is hardly a single infectious disease that does not affect the heart injuriously, especially the myocardium. More especially is this true in those cases characterized by marked sepsis. In the exanthemata, even the mild or moderately severe ones, marked changes are often found, and the more severe the infection, the more grave the myocardial changes. In scarlet fever, particularly the cases marked by severe sepsis, the myocardial degeneration is more marked than the endocardial. This is equally true of typhoid fever. Indeed in my own experience, the endocardial change in this disease is not as common as the myocardial. In those cases of typhoid complicated with peritonitis, the myocardial changes are relatively common and constitute a grave source of danger. In the more malignant forms of pneumonia, myocardial degeneration is very liable to occur, and the sudden death that takes place when any attempt on the part of the patient to make the slightest physical exertion unaided, even to sit up in bed, is due to this change. For this reason, I never make a prolonged examination of the posterior chest wall, after the initial one, unless some clinical symptom arises denoting a fresh invasion of new lung tissue, or some complication makes such an examination imperative. In not a few of the pneumonic cases that fail to rally after the crisis is reached this result is directly attributable to the weakened condition of the heart muscle, because of the overwhelming influence of the bacteriemia. Indeed, I think it is the well-nigh universal experience of all physicians that few diseases to which flesh is heir place such a heavy burden on the heart as pneumonia.

It is not so much the amount or extent of the pneumonic involvement that produces the fatal result in a given case of pneumonia as it is the toxemia acting on the heart and vascular system. It is true, however, that the blood must be sufficiently aerated to have something near its normal supply of oxygen or the nutrition of the cardiac muscle suffers greatly. In a paper entitled "The Heart in Pneumonia," read before the Section on Practice of Medicine at the recent meeting of the American Medical Association, by Robert N. Wilson of Philadelphia, he says: "The less perfect the aeration of the blood in its passage through the pulmonary tissue, the more positive is the deprivation of the cardiac structure of its proper supply of nutriment." Physiologists say that the blood in passing through the lungs must receive more than 90 per cent. saturation with natural oxygen in order to maintain normal nutrition. In the article already referred to Wilson says: "The more complete the stoppage of the blood and lymph streams in their course through the walls of the air vesicles, the more real is the mechanical overload thrown on the pulmonic valves and soon on a toxemic tired right ventricular wall." Thus it will be seen, speaking abstractly, the greater the amount of consolidated lung tissue, the more is the cardiac musculature sure to suffer.

As a result, we have often, early in the disease, dyspnea, weak, rapid, irregular pulse, diminished first sound with a well-nigh absent pulmonic second sound, blue lips and finger tips, with an increase in the area of cardiac dullness to the right of the sternum, and diminished blood pressure. In this type of pneumonia, we very frequently have such complications as meningitis, pleurisy ending in empyema, pulmonary abscesses, and other conditions, showing a general pneumococcic septicemia. This is not due to the high fever, as was taught by Liebermeister and others of his co-workers, but to the toxemia as well as the lack of oxygen. Clinically we see evidences of cardiac dilatation, and consequent incompetency with thinning of both ventricular walls and insufficiency of mitral and tricuspid valves, due, as Wilson says, to an acute diffuse myocarditis with cloudy swelling of the cells, often with fragmentation of the muscle fibers. He further states that "here and there are found areas showing extensive round cell infiltration, mainly of the interstitial substance between the fibers." In left-sided pneumonia or pleurisy, we may have a pericarditis from contiguity of surface, which sometimes results in an effusion into the sac or a local mural myocarditis, or both, which cripples the heart greatly. The mortality list in these cases is greatly augmented by reason of the fact that some part of the cardiac mechanism had been previously diseased, a fact to which I have already alluded; the lesion is not always the same, of course, as it depends somewhat on the nature of the infection and its degree of virulence.

In diphtheria, the myocardium is more frequently involved than either the endocardium or the pericardium, and the extreme probability of this occurring should always be kept in mind, and put the physician on his guard. The enervation of the heart in this disease is of rather frequent occurrence, and toxic or infectious bradycardia is seen very often; when the heart is rapid and gallop rhythm makes its appearance with a sudden drop in the number of beats, we are justified in considering these ominous signs and in acting accordingly. I have already spoken of the injurious influence of certain toxins on the vasomotor center in the medulla, by which the coats of the blood-vessels are paralyzed and an undue amount of blood is collected in certain areas, particularly the splanchnic. In no disease is this so liable to occur as in diphtheria; as a result the heart beats rapidly and irregularly, and finally ceases because of a lack of blood to contract upon.

In acute articular rheumatism, few cases fail to show some degree of cardiac injury; especially is this true in children if preceded or accompanied by tonsillitis. Indeed, we not infrequently see cases in which cardiac symptoms indicate the approaching rheumatic syndrome. I think I am safe in saying that 50 per cent. of all cases of rheumatism show permanent evidence of heart disease; the other half are cured by judicious, well-directed treatment. Children under ten years of age reveal the largest percentage of permanent involvement—80 per cent., according to Church. The early signs of this disturbance are looked for at the mitral valves in the largest proportion of cases, and yet the inflammatory change in the valve may not be the only factor in the production of the murmur. It is the belief of many clinicians that the toxic action of the blood on the muscular sphincter surrounding this opening is a factor of much potency in the production of the

incompetency. Then, too, when the toxemia is profound the myocardium suffers and we have not only the incompetency of the valves, but also the loss of contractility and conductivity of the muscle. The melancholy fact confronts us that in those cases characterized by an unusually high fever and profound toxic symptoms, the pernicious influence on the myocardium is so great as to be irreparable, and the individual goes through life with a permanently crippled heart. If, at any time, the kidneys give evidence of the slightest inflammatory change, the heart must be carefully watched and safeguarded until such time as the inflammatory changes in the kidneys have subsided.

To show you the importance of a careful scrutiny of the heart during these infectious processes, I quote from the report of an insurance company, made use of by Brown of Richmond, Va., in a paper read before the American Medical Association in 1908. This report covered 9,592 deaths in which the cause was given; these deaths occurred after the insured were past twenty-one years of age. I need hardly assure you these were all white men of standing in their respective communities, and had passed a more or less rigid examination before being accepted. Moreover, inquiry was made regarding the vocation, sanitary surroundings, habits of life, and whether the applicants were in any way connected with the sale or manufacture of alcoholic beverages, whether they were engaged in hazardous employment, and whether there remained the stigmata of any former illness; their ancestry was carefully considered to ascertain if perchance any family taint might exist; in addition to all this, it is safe to presume that the different organs of the body were subjected to the same careful scrutiny, and yet of these 9,592 deaths, 1,255 were caused by heart disease—surely an appalling number.

From an editorial in the *Journal of the American Medical Association* for January, 1908, I quote the following: "During the year just ended (1907) heart disease is reported to have caused many more deaths than in 1906; in Chicago and Boston, 13 per cent. more; in New York City, 29 per cent.; in Detroit, 26 per cent; in Philadelphia, 5 per cent." Thus it will be seen that deaths from heart disease are increasing rapidly and the most potent of all causes is the infectious fevers. In the years gone by the chief consideration of the clinician was the murmur produced by the constricted or regurgitant valve action, and while these parts of the heart's mechanism are not to be lost sight of in our study of heart disease, still the integrity and usefulness of the myocardium, the early determination of tricuspid leakage denoting danger, are now considered matters of more importance. Indeed, the crippled condition of the valves may go on for years, and yet the individual have good health. I have just spoken of tricuspid leakage denoting danger. While this is true in a general way, still, according to King, the tricuspid valves are normally barely competent, so that it takes but slight dilatation to render them incompetent and the reservoir function of the auricles and large veins is a wise provision of nature to take care of this. In accentuating the importance of valvular disease, the value attached to the study of the heart as a whole is too often lost sight of. Its ability to perform the work intended by nature, must be kept steadily in view; its rhythm, excitability, and conductivity are to be carefully investigated. The laity and, I regret to say, the profession also, too often speak of "heart failure" without in the least degree understanding what brings it about. Indeed, I think I am safe in saying that all the factors that produce it are not yet well understood. Mackenzie in his Oliver Sharpey lectures delivered before the Royal College of Physicians of London in 1911, says the essential cause is "changes in the heart muscle; other causes are contributing factors"; this is true, but by far the most important is what I have indicated. He says that about "70 per cent. of the cases of severe heart failure met with in general practice, with dyspnea and dropsy, owe their onset to auricular fibrillation." This is a condition in which either the single muscle fibers or the small bundles contract rapidly and apparently independently of each other, and as a result the auricles do not contract as a whole, but stand still, as it were, while all the fibers that make up the chambers are in constant motion. When the ventricles take on this condition, death ensues immediately, but not so with the auricles because of the fact that the fibrillation cannot pass along the bundle of His which connects the auricle with the ventricle. Unfortunately the determination of fibrillation of the heart cannot be made out by the general practitioner to a certainty, because the instruments necessary are expensive and delicate and are to be found only in very large hospitals, heavily endowed. Then, too, it requires long years of training to operate them and to interpret their finding correctly. However, when we have such symptoms as dyspnea, dropsy, enlargement of the liver, and abnormal fulness of the large veins with tricuspid leakage, we may suspect what is responsible for the patient's condition.

This paper would be incomplete without some reference in a general way to the treatment of the conditions here outlined that we may add "length of days" and comfort, as well as usefulness to the life of the cardiopath.

First of all, *prophylaxis*. Every effort should be made to prevent the young and, indeed, those in early middle life, from contracting the acute infectious diseases; those past middle life possess a certain degree of immunity. We shall also aid them as far as possible, when an infectious disease has been contracted, in warding off or avoiding the complications that so frequently arise. I would urge upon the general practitioner the great necessity of a more careful supervision and treatment of all infectious diseases, not only during the acute stage, but as well during convalescence, to the end that the heart may receive that protection its importance and liability to injury demand. If a heart lesion is found, I think it but fair to the individual that he be told of its existence, and its exact nature explained to him, that he may carry out the instructions of his medical advisor in an intelligent and careful way. The heart has wonderful recuperating powers, perhaps as much so or more than any organ in the body, and not infrequently the most pronounced cardiopath can lead a life of comfort and more or less physical and mental activity, if properly instructed and guided. However, he must be made to appreciate the consequences of disobediance. Rest, both physical and mental, is absolutely imperative. The patient should remain in bed and in the recumbent position until such time as the pulsations, both in number and rhythm, have reached the normal, whether that be one month or six. The diet, when and what to eat, exercise or work, and baths are fundamentally important and

must be carefully supervised. If these are all carefully looked after, many of these cardiopaths will need no medicine whatever. During the height of the preliminary attack of the acute infection, or during convalescence, the conditions are entirely different; particularly is this true of diphtheria and pneumonia. In the former, a very slow or a very rapid pulse is an ominous sign, and nearly always ends in death, unless very vigorous and well directed medication is instituted, and even then the outlook is markedly grave. For the former, digitalis in ten drop doses every three or four hours should be given, together with camphor hypodermically in doses of 10 or 15 minims of a 10 per cent. solution in olive oil. I have had most gratifying results from the use of small doses of morphine hypodermically. It steadies the heart and gives to the patient a mental and physical tranquillity that nothing else will. Indeed, I am not sure but it strengthens the systole even better than digitalis. If there is fever, the ice bag over the pericardial space is often productive of good. If there is no fever and the pulse is slow, hot applications should be substituted. Other remedies of like character will suggest themselves, such as strychnine, strophanthus, ether, caffeine, etc. There seems to be a diversity of opinion as to the value of adrenalin in these cases. Some speak very enthusiastically of it, while others think it of very doubtful utility. Personally, I have not had sufficient experience with it to speak either for or against.

In the early part of the paper, I have spoken of vasomotor paralysis, particularly in diphtheria, the result of the action of the toxins on the vasomotor center in the medulla. Some years ago, Dr. Bovaird of New York City gave to the Medical Society of the County of New York the result of very valuable study in these conditions, which I regret I have not at hand as I write. However, in cases of this kind he found the abdominal veins were abnormally full of blood, thus depriving the heart of the requisite amount of blood on which to contract, causing it to falter and finally stop. To counteract this, it was necessary to stimulate the coats of the blood-vessels to contract, by abdominal massage, the injection of saline solution, hypodermic injection of camphor, caffeine, and such other remedies as would restore to the blood-vessels their normal tonus.

Had I the time, and you the forbearance, much more could be said concerning the treatment of the changes that take place in the muscular and interstitial tissues of the heart in a class of diseases the general practitioner is so frequently called to treat which makes them the object of more than special interest, but time will not allow.

402 National Union Building.

MODERN RÖNTGEN TECHNIQUE IN THE TREATMENT OF MALIGNANT CONDITIONS.

By MYLES W. JOHNS, M.D.,

UTICA, N. Y.

In covering the field of therapy I shall not attempt to go too much into detail, but simply to give to those interested in this branch of work an idea of how the treatment of to-day differs materially from that which many of us have been accustomed to use; as well as to give to the general practitioner some knowledge of what he may expect from this field of work.

In therapy there are three things we must thoroughly understand: 1, Measurement of vacuum of our tube; 2, measurement of amount of ray the patient receives; 3, filtering out the undesirable rays.

1. Measurement of Vacuum of Our Tube.—Instruments for this work are called qualimeters.

The Benoist scale is a round or oblong instrument which contains different thicknesses of aluminum. It may be likened to steps each presenting to the exposed ray one thickness more to penetrate than the preceding one. For comparison a portion of the scale is made of silver which gives about the same resistance to various degrees of penetration so that it makes a good medium for comparing with the other points of the scale. This instrument placed on a plate when the exposure is made readily shows how many layers of aluminum that particular tube is able to penetrate. This number is spoken of as such a number Benoist.

An instrument which I like very well on account of its simplicity as well as accuracy is the Bauer qualimeter. This is a round instrument which is unipolar. It is inserted in the line which leads to the cathode. As the tube is merely a resistance, the instrument inserted in this line registers the amount of energy which is necessary to produce the ray. The higher the tube the more energy it takes to overcome it and this instrument quite accurately measures this amount. This scale goes from one point up. The higher tubes register from seven to twelve. Thus, the higher tube would be spoken of as seven to twelve Bauer.

2. Measurement of Amount of Ray the Patient Receives.—Instruments for this work are called quantitometers.

One of the first quantitometers used was the Sabouraud scale. This consists of a pastille of barium platinocyanide, which under exposure to the Röntgen ray gradually changes from a brilliant yellow to the deeper shades of ochre. Tint B, or erythema dose, is the amount desired. Hampton's scale and Holzknecht's are varieties of this type.

Kienbock's scale consists of strips of sensitized paper which on exposure to the ray is so charged that by developing for a fixed time in a standard developer a color is obtained which may be matched with a scale and the shade noted. This scale runs from 2X to 44X, 10X being the equivalent to tint B of Sabouraud scale.

3. Filtering Out the Undesirable Rays.—Filters are used to eliminate the waves of short length which are particularly irritating to the skin and practically have no therapeutic effect.

Various thicknesses of leather, from chamois skin to sole leather, are used for the lighter types of filters, while metal constitutes the best in treating the growths in deeper tissues. Aluminum has come into use almost exclusively and can be had in 1, 2, and 3-mm. thicknesses. The 2 and 3 mm. are those commonly used in treatment of deeper malignant conditions.

In treatment it is desirable to give the maximum dosage without producing damage to the skin, aiming not to go beyond the erythema dose. By filtering the rays we can give twice the dose which was previously considered the erythema dose.

Treatment of Superficial Conditions.—Some do not use filters in this condition, others use chamois or leather, or the 1 or 2-mm. aluminum filter. Here the dose is 1 (tint B-10X-5H), or if filter is used, a double dose can be given. If the larger doses are

given with filter, always wait three weeks, as the reaction is slower.

Tumors of Mucosa and Serosa.—We do not get as good an effect in cases of involvement of the mucosa and serosa as when the epithelial surface is involved. I think this is often due to our not recognizing cases early, as these tissues are very vascular and the growth must be eliminated early or metastasis takes place. This is especially so in the tongue, but when the growth is removed at the earliest time possible followed by Röntgen treatment, the results seem superior to those of surgical treatment alone.

Sarcoma of the Maxilla.—Generally speaking, the results have not been satisfactory.

Rodent Ulcer.—Results have been very good, but it is questionable whether the zinc ionization or carbon dioxide snow is not preferable in the great majority of cases.

Deep Treatment.—Here we must have: High tube, full dosage, filter 3-mm. aluminum.

Malignant Conditions of the Breast.—In early cases where the growth is free, advise always surgical removal, followed by thorough Röntgen treatment. Bythell of Manchester has treated these cases for years, and states that he has known only one growth to recur. This came very soon after the operation and readily disappeared under treatment. In my own practice I usually make a röntgenograph of the chest and if metastatic conditions are not in evidence I follow with a course of treatment over the area of the scar and axillary region. In cases where there is metastatic involvement the dose must be the largest possible, and is given in the clavicular region, breast, and axillary regions; two doses in each place with 3-mm. aluminum filter. Treatment may be repeated in three weeks. If, as is often the case, the patient is sent for treatment with recurrence following operation, these cases can be kept in check for three to five years; old ulcers often clear up, pain is relieved, growths diminish in size and often disappear. These points make the treatment of considerable value and the patient is often made comfortable for months and even years.

Sarcoma.—Results here are better than in carcinoma or epithelioma. Barclay and Bythell report three cases which have apparently been cured. I have had one case which cleared up under the ray. Bulow Hansen reports a child ten years of age with sarcoma of the shoulder having considerable atrophy of muscles and failing health. This case improved rapidly under *x*-ray treatment, frequent radiographs being taken, each showing steady improvement until he suffered an accident resulting in his untimely death. A complete pathological examination of the tumor was made, and this showed that a large percentage of the sarcomatous areas which were rarified had filled in with new bone. Although there was still present some sarcomatous tissue, the disease was much more than arrested, the patient recovering the use of his arm, and his general health was improved.

In conclusion, I wish to state that there is yet much to be learned. But in the adoption of massive doses in the treatment of malignant conditions the results have certainly been superior to the fractional dose method. The accurate measure is scientific and we know that with small and often repeated doses cases may be stimulated and even malignant conditions produced. While we may divide these doses in two to four treatments the results are not the same as in one massive dose.

196 Genesee Street.

TWILIGHT SLEEP IN THE HOME.

By KENNETH F. JUNOR, M.D.,

BROOKLYN, NEW YORK.

Among nations where a more simple life than our own obtains, labor is a matter of very little anxiety and suffering. We have introduced the use of instruments, which are used, much more frequently than generally supposed, to hasten labor and, supposedly, to shorten suffering. Instrumental labor was fought as strenuously as any other innovation, but in reality by it much more damage and more permanent injury are done than can occur from the use of the twilight sleep. There seems little doubt that, in our highly nerve-strung and corset-wearing women, among whom childbirth is no longer a really natural function, nature has to receive aid. The immediate suffering and long-continued dread of labor, and the care involved in the raising of children, are lowering the birth rate dangerously. The nervous strain, lasting through months, and followed by the immediate nervous shock accompanying a difficult labor all influence more or less markedly the physical and mental condition and future of both mothers and children, hence the future of the race itself. Anything that involves no specific injury to mother or child, and at the same time relieves the long overhanging dread and final nervous shock of labor, is a matter of supreme national moment. And just here is where twilight sleep is, in the writer's opinion, of vital importance.

First, is it dangerous? The evidence from many thousands of cases testifies to not more than 0.5 per cent. of deaths having occurred—less than among ordinary labor records.

The drugs used are well known as to their immediate and remote effects, and the quantities used are so small that it is impossible to see how any permanent injury can follow. Undoubtedly great improvements in their application, as in everything else that is new, will soon follow their more extensive use.

My own experience has already taught me what I consider will, if generally adopted, render twilight sleep much safer and more effective, namely, the addition of sulphate of spartein. The most serious objection so far offered against twilight sleep is the danger of flushing in the mother, an indication of more or less interference with circulation; and, as sequelæ, cyanosis and suffocation in the child. Spartein, which is one of the greatest diuretics and heart tonics known, and has the specific effect of equalizing circulation, naturally prevents these untoward conditions.

Believing this treatment, with the added employment of spartein, a valuable addition to obstetric practice, I resolved to test its application in the case of labor in an ordinary home, and under ordinary conditions, it not having been as yet administered outside of a hospital. It was entirely successful, even without a graduate nurse. I ought to say that I escaped any cyanosis either in the mother or the child, although the conditions were such that cyanosis in the child would have been a certainty under the conditions of ordinary labor. The tendency in modern medical practice is too much towards making technique so difficult that it can be carried out only in a hospital. Thus the ordinary family physician is discouraged from undertaking many advanced relief measures, which he is really fully capable of carrying out with entire success.

With proper care the twilight sleep treatment, to the doctor who understands his business, is simple and perfectly safe for the patient; it does not interfere with the natural course of labor; it does not make a difficult labor any less difficult. It does relieve the mother from suffering in difficult labor; there lies its value. The nervous shock accompanying such labors, from which often the patient does not recover for weeks, is avoided by this method.

I firmly believe that the introduction of such amelioration of the pains of childbirth, and the removal of the dread of it will go far to restore the birth rate, and, as well, modify prenatal influences, now injurious to our children. Mothers, however, should not be encouraged to entertain the idea that the twilight sleep or anything else is going to remove the troubles of childbearing, but only to ameliorate them. There is good evidence for believing that the addition of spartein sulphate to the armamentarium of the twilight sleep, here recommended, is a distinct advance. In all probability it reduces narcosis amnesia, and unconsciousness, permits analgesia to the abolition of any suffering, securing on the whole such a complete reduction of shock that the patient emerges without exhaustion or impaired vitality.

One of the writer's most recent cases shows well how this method secures unimpaired vitality after labor.

I arrived at the patient's side to find her in a faint from exhaustion caused by the preliminary pains. I put her at once to bed and administered a grain of spartein sulphate, $1\frac{1}{2}$ c.c. of scopolamine, and 1 c.c. of narcophen. The pulse and respiration remained normal during the entire labor. She dozed or slept between the pains. She did not change her position during labor. I was obliged to ask her to let me know when the pains were coming, that I might measure their strength and efficiency. They were both strong and very efficient, as is indicated by the fact that I was only three hours in the house, leaving a perfectly happy and unexhausted mother, and a normal baby of eight and three-quarter pounds. There had been no amnesia, light sleep between pains, consciousness of labor, except of the third stage (when a few whiffs of chloroform were given), but no suffering at all. Surely this is ideal. This patient's three previous labors had all lasted over ten hours, and left her completely exhausted. I firmly believe this treatment of labor to rank as one of the greatest advances in medicine, as well as one of the greatest boons to the race, largely because it promises for a better race.

Twilight sleep requires a more continuous presence of the attending physician; this is undoubtedly a favorable condition in labor, necessitating as it does more care and supervision. What the writer considers one of the valuable, though incidental consequences of this treatment will be the restoration of confidence in, as well as the more careful study of drugs, and their more scientific use.

The question of amnesia is not of so much importance as its advocates claim. I believe too much importance has been attached to this condition of the abolition of memory. To my mind it makes little difference, so long as there is no sense of suffering, whether the patient remembers the things that have happened or not. It seems to me that this is also one of the things that is of too fanciful a character, like its name, partaking too little of the scientific to be readily accepted by a professional man. Practically I have found the twilight sleep entirely satisfactory without amnesia. I am not sure whether this condition may not be obviated by the use as I have suggested of the sulphate of spartein. There is a possibility of a desire to carry the anesthesia and amnesia to an extreme. Twilight sleep should be emphasized as simply and solely an amelioration of the suffering accompanying childbirth; not its entire abolition.

458 East Twenty-Ninth Street.

NASAL TUBERCULOSIS.

By JOSEPH COLEMAN, M.D.,

NEW YORK.

THE following case seems to me to be of sufficient interest to be placed on record:

Mrs. B. Z., aged 50, presented herself for treatment at the University and Bellevue Medical College clinic, Sept. 28, 1914, complaining of pain on the right side of the nose, which had been of about one month's duration, gradually growing worse, and now excruciating. Complained also of crusting and bleeding, from the right nostril only.

Patient is of the better class of clinic cases. Emaciated and anemic. Her weight ten years ago was 160 pounds, at the present time it is only 95, though she has not been conscious of any rapid loss of weight, particularly during the past two or three years. Coughs considerably and brings up large amount of thick, cheesy secretion. No night sweats.

The nose is considerably swollen, about twice its normal size, the swelling being mainly in the region of the tip. There is a good deal of redness and the nose is very tender to the touch over the right lateral cartilages.

Examination revealed a shallow, ovoid ulcer, about 1 mm. in depth, 12 mm. in length and 9 mm. in width, situated on the outer wall of the right nostril, at a point corresponding to the upper lateral cartilage. The ulcer had edges which were not sharp and well defined, and which gradually merged into the adjacent tissue. On its floor were seen numerous miliary tubercles. There was no area of redness or infiltration around the ulcer. All the mucous membranes were pale.

Patient had no syphilitic history, but a Wassermann test was made, which was reported negative.

The affected area was cocainized and a section taken which was sent to the laboratory for examination. Report, Oct. 2, 1914: "Specimen sent for examination shows epithelioid tuberculosis. Diagnosis: Tuberculosis of mucous membrane. Dr. D. S."

The patient did not reappear at the clinic until Oct. 19, 1914, about two and a half weeks after the first visit. During this time the ulcer had increased in depth and slightly in all other dimensions. Pain was still excessive, but crusting and bleeding not so profuse, probably due to the frequent cleansing, and to liberal applications by patient of yellow oxide of mercury ointment. Patient also has epilepsy and says that due to injuries received during a recent attack, she was unable to report for further treatment.

The case was referred to the medical department for chest examination, and was reported to have an extensive involvement of left upper lobe and beginning involvement on right side.

Tuberculosis of the nose is quite rare and by far the greatest majority of cases present lesions on the septal surface or floor, very seldom on the outer wall. Even when there is an ulcerative process which spreads from the septum to the floor of the nose, it rarely extends to the turbinated surfaces.

The general appearance of the nose might lead one to suspect acute follicular infection, though a history of one month's duration would cause one to suspect disease of a more serious nature.

It is interesting to consider in these cases the probability of nasal infection by the fingers. Examination of material removed from under the

finger nails of a number of tuberculous subjects has shown the presence of the tubercle bacillus; and how potent a factor this may be in causing further local infections is well worth serious thought.

Local treatment for the present consists in thorough cauterization with nitric acid C. P., patient keeping nose clean with hydrogen dioxide and preventing scab formation with the ointment mentioned before. An *x*-ray treatment has also been started. In addition systemic treatment is also being given.

59 West Ninetieth Street.

Medicolegal Notes.

Liability of Charitable Hospitals for Physicians, Nurses and Administrative Staff.—In an action against a hospital it appeared that the hospital charged its needy patients nothing for board or treatment, and charged the well-to-do for board an amount insufficient to cover the per capita cost of maintenance. It was held to be a charitable institution. The plaintiff came to the hospital suffering from some disorder of the stomach, became an inmate of the hospital, paying board, and after some weeks of treatment the house physician discovered a lump, which proved to be a fibroid tumor. He consulted the visiting physician, who advised an operation. The plaintiff's testimony was that the character of the lump, so the physicians informed her, could not be determined without an ether examination. She consented to such an examination, but notified the house physician that there must be no operation. She was taken at night from the medical to the surgical ward and prepared for an operation by a nurse. On the following day ether was administered, and while she was unconscious a tumor was removed. Her testimony was that this was done without her consent or knowledge. She was contradicted both by the visiting physician and the house physician, as well as by many of the attendant nurses, but for the purposes of the appeal, a verdict having been directed in favor of the hospital and affirmed by the Appellate Division, her narrative, even if improbable, was taken as true. Gangrene having subsequently developed in her left arm, necessitating the amputation of some of her fingers, she sought to charge the hospital with liability for the wrong.

The settled rule is that such a hospital as the defendant is not liable for the negligence of its patients and nurses in the treatment of patients. This exemption has been placed upon two grounds. The first is that of implied waiver. It is said that one who accepts the benefit of a charity enters into a relation which exempts one's benefactor from liability for the negligence of his servants in administering the charity. The hospital remains exempt though the patient makes some payment to help defray the cost of board. Such a payment is regarded as a contribution to the income of the hospital, to be devoted, like its other funds, to the maintenance of the charity. The second ground of the exemption is the relation subsisting between a hospital and the physicians who serve it. It is said that this relation is not one of master and servant, but that the physician occupies the position, so to speak, of an independent contractor, following a separate calling, liable, of course, for his own wrongs to the patient whom he undertakes to serve, but involving the hospital in no liability, if due care has been taken in his selection. On one or the other, and often on both of these grounds, a hospital has been held immune from liability to patients for the malpractice of its physicians. The reasons that have led to the adoption of this rule are, of course, inapplicable where the wrong is committed by a servant of the hospital and the sufferer is not a patient. It is therefore also a settled rule that a hospital is liable to strangers —*i.e.* to persons other than patients—for the torts of its employees committed within the line of their employment.

In the case at hand the wrong complained of was not merely negligence. It was trespass. Every human being of adult years and sound mind has a right to determine what shall be done with his own body, and a surgeon who performs an operation without his patient's consent commits an assault, for which he is liable in damages. This is true except in cases of emergency, where the patient is unconscious and where it is necessary to operate before consent can be obtained. The fact that the wrong complained of was trespass rather than negligence, distinguishes this case from most of the cases that have preceded it. In such circumstances the hospital's exemption from liability could hardly rest upon implied waiver. Relatively to this transaction the plaintiff was a stranger. She had never consented to become a patient for any purpose other than an examination under ether. She had never waived the right to recover damages for any wrong resulting from this operation, for she had forbidden the operation. In this situation the true ground for the defendant's exemption from liability is that the relation between a hospital and its physicians is not that of master and servant. The hospital does not undertake to act through them, but merely to act upon their own responsibility.

The hospital undertook to procure for the plaintiff the services of a physician. It did procure them. It procured the services of the visiting physician and the house physician. One or both of those physicians (if the plaintiff's narrative was to be believed) ordered that an operation be performed on her in disregard of her instructions. The administrative staff of the hospital, believing in good faith that the order was a proper one, and without notice to the contrary, gave to the operating surgeons the facilities of the surgical ward. The operation was then performed. The wrong was not that of the hospital: it was that of physicians, who were not the defendant's servants, but were pursuing an independent calling, a profession sanctioned by a solemn oath and safeguarded by stringent penalties. If in serving their patient they violated her commands, the responsibility was not the defendant's; it was theirs. There was no distinction in that respect between the visiting and resident physicians.

It was claimed that notice to the hospital might be gathered from the plaintiff's statement to one or more of the nurses and to the assistant administering the gas that she did not wish an operation to be performed. It was held that nurses, like physicians, in treating a patient, are not acting as the servants of the hospital. The superintendent is a servant of the hospital; the assistant superintendent, the orderlies, and the other members of the administrative staff are servants of the hospital. But nurses are employed to carry out the orders of the physicians, to whose authority they are subject. The hospital undertakes to procure for the patient the services of a nurse. It does not undertake, through the agency of nurses, to render these services itself. If there are duties performed by nurses foreign to their duties in carrying out the physician's orders it was not in the discharge of such duties that the defendant's nurses were then serving. The acts of preparation immediately preceding the operation are necessary to its successful performance and are really part of the operation itself.

They are not different in that respect from the administration of the ether. Whatever the nurse does in those preliminary stages is done not as the servant of the hospital but in the course of the treatment of the patient, as the delegate of the surgeon to whose orders she is subject. The hospital is not chargeable with her knowledge that the operation is improper any more than with the surgeon's. The physician who administered gas and ether took no part in the operation, and it did not appear that he knew that anything would be done except make an ether examination. The plaintiff's statement to him, therefore, did not charge the hospital with notice. In any event he was not the servant of the hospital. His position in that respect did not differ from that of the operating surgeon. If he was a party to the trespass he did not subject the defendant to liability. Judgment for the defendant was affirmed.—Schloendorff vs. Society of New York Hospital, 211 N. Y., 125, 105 N. E. 92.

Furnishing Medical Services as Necessaries to Wife.—The Massachusetts Supreme Court holds that a husband is not liable for necessaries, in this instance medical and hospital services, furnished by third persons to his wife, living apart from him, on the theory of provision not having been made for her; she having, under Massachusetts Revised Laws, chapter 153, section 33, obtained an enforceable order of the Probate Court, still in force and complied with by him, for his making to her certain payments at stated times for her support.—Malden Hospital v. Murdock, Massachusetts Supreme Court, 105 N. E. 457.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 23, 1915.

NEW GROWTHS INVOLVING THE TERMINAL BILE AND PANCREATIC DUCTS.

THIS subject is one that illustrates an important application of the new method of duodenal content analysis, a method that has already demonstrated its usefulness in routine clinical work. The duodenal tube enables one to determine whether or not the pancreatic juice and bile enter the duodenum, and in the former instance the degree to which either or both of these secretions enter the duodenum.

That duodenal content analyses furnish a means of making an early diagnosis of new growths involving the terminal bile and pancreatic ducts is the title of a thesis contributed by Burrill B. Crohn to the *American Journal of the Medical Sciences*, December, 1914. The contention is made, and apparently well substantiated by laboratory and autopsy studies, that complete obstruction of the bile or pancreatic ducts or of both is the result of tumors involving them and that other pathological conditions do not entirely obstruct these passages.

The complexity of this subject is revealed by the fact that new growths in this region may originate in any one of the following parts: the common bile duct, the ampulla of Vater, the duct of Wirsung, the papilla of Vater, the duodenal mucosa, and the head of the pancreas. The study of a number of cases including most of the above types, with the aid of duodenal content analysis, enables the author to draw the following deductions: Carcinomata of the common bile duct cause early and complete obstruction of the bile system, and may in their later extension, and frequently do, involve in addition the Wirsungian duct and completely obstruct it. Carcinomata of the ampulla of Vater and of the duct of Wirsung near the ampulla of Vater cause complete obstruction to both of the main duct systems. Carcinoma of the duodenal surface of the papilla of Vater is the more common type of tumor and progresses through two stages, an earlier one of obstruction to the ducts and a later one of necrosis and ulceration with secondary release of the dammed-up contents. Neoplasms of the duodenal mucosa usually grow rapidly and enmesh the mouth of the ducts to obstruct them. Carcinomata of the head of the pancreas frequently avoid the ducts early but later infiltrate them. The important fact that stands out among these deductions is that new growths in this region usually obstruct one or both ducts completely at some stage of their existence and that such obstruction is demonstrable with the duodenal tube.

Crohn cites an experience comprising 102 cases in which the duodenal contents were examined, including 50 cases of obstructive jaundice of doubtful origin, and states that he has met with no instance of complete closure of both the bile and pancreatic ducts which was not due to neoplastic formation. Stones that apparently completely block the common bile duct do not, as is shown by analysis of the duodenal contents, provide an absolute barrier to the entrance of bile into the duodenum. If stone is associated with tumor of the common duct the symptoms are those of tumor. Pancreatitis with rare exception blocks neither duct, and hypertrophic cirrhosis of the liver leaves both ducts free.

The importance of the use of the duodenal tube as a means of making an early diagnosis of new growths involving the terminal bile and pancreatic ducts is heightened by the fact that in their early stage these tumors are localized, relatively benign, and amenable to surgical treatment. Delay is attended by cholemia, hemorrhage, rapid emaciation, and the involvement of neighboring organs, with no prospect of relief by surgical intervention.

A PLEA FOR AUTOPSIES.

IN America very satisfactory progress has been made in surgery and bacteriology, but the advance in knowledge of chronic diseases and disturbed metabolism lags behind that of Europe. The report of a committee on inquiry into certain departments of this city attributes our backwardness in these branches of medicine to unfortunate legislation governing autopsies. Before the eighteenth century physicians knew nothing of the effects of disease upon the organs of the body, but in the middle of the eighteenth century Morgagni of Italy and in the latter part of the same century Bichat of France both conceived the idea that the organs of the body were affected by disease and that study of the conditions of these organs would determine the cause of death. Other physicians following in their footsteps discovered by autopsies what effects certain diseases produced in the bodily organs and thus were able to formulate a method of determining these effects before death.

In Europe hospitals are authorized to perform autopsies on almost all bodies. The University College Hospital in London in 1912 performed them in 84 per cent. of the deaths. In most German hospitals over 90 per cent. of the deaths are followed by autopsy, and the Allgemeines Krankenhaus in Vienna has the unique distinction of 99 autopsies for every 100 deaths. In contrast to these European ideals the hospitals of the United States make a poor showing. Thus, Bellevue performs autopsies in about 10 per cent. of the deaths, Boston City Hospital 9 per cent., and Philadelphia General Hospital 10 per cent. A few of our hospitals have a higher rate. Most notable of these is Johns Hopkins, where the percentage reaches 62.8. Bellevue Hospital may be taken as a typical example of the results of

autopsy legislation in the United States. Although it possesses the finest pathological laboratory building and equipment in the country and unlimited material it is unable to utilize its opportunity on account of the ruling of the Commissioner of Charities (in 1910) that unclaimed dead bodies belong to the medical colleges and must be delivered to them without autopsy unless authorized by written consent of the college or performed by the direction of the coroner or the district attorney. The result of this rule is that much good autopsy material is wasted, because it has been shown by the committee conducting this investigation that the medical colleges of New York City received during the year 1912 a total of 661 bodies, when the most liberal calculations of their actual needs did not put the required number in excess of 342.

The immense value of the knowledge gained by a comparison of clinical diagnosis with postmortem findings is clearly shown by the report made on behalf of the committee by Dr. Horst Oertel, formerly Chief Pathologist of the Russell Sage Pathological Institute located at the New York City Hospital. He found that in 388 autopsies only 52.3 per cent. of the clinical diagnoses were confirmed. At that rate, of the 3,170 deaths occurring at Bellevue in the year 1912, there would have been 1,512 from causes not fully determined. In view of the foregoing facts it is not difficult for us to agree with the committee that our laws should be amended to permit hospitals to perform autopsies except when expressly forbidden by the nearest relative within forty-eight hours after death, and that they should be performed upon the bodies of all persons dying in public institutions and remaining unclaimed for forty-eight hours after death, unless deceased had signed a written request to the contrary, it being of course understood that such a proportion be reserved as may be legitimately needed for the use of medical colleges.

INFECTION OF THE PLEURA.

Dry pleurisy, pleurisy with effusion, and empyema are obviously rather closely related pathologically, and the differentiation is made between them solely on the basis of the character of the exudate. In an endeavor to determine the underlying factor in the resistance of the pleura to infection, and further as to what controls the degree of pleural response to irritation, Floyd has obtained some very interesting results (*Jour. Med. Research*, 1914, XXXI, 261). The high resistance of the pleura to infection has always been known in a general sort of way, but has not been sufficiently appreciated. A certain degree of pleural involvement is always present in lobar pneumonia and by far the most frequent cause of empyema is the pneumococcus, yet empyema develops in a comparatively small percentage of patients with pneumonia. Working with guinea-pigs and rabbits, Floyd found that the injection into the pleural cavities of emulsions of dead streptococcus pyogenes, pneumococcus or staphylococcus aureus which had not been washed usually produced an acute fibrinous pleurisy, while if the organisms had been washed free from bacterial products the injections were without effect. When the injections were made of living organisms practically no effect was produced until the dose was large enough to result in a fatal sepsis when the pleural cavity was usually found to contain fibrin and a little fluid, but in no case any condition resembling empyema. In another series of experiments the animals were first subjected to infection in other parts of the body or were treated with extracts or autolysates of the organism concerned. In this series there were several animals which showed the presence of a more or less purulent fluid in the pleural cavity. This work is somewhat along the line of that on aggressins or that more recently published by Zinsser and Dwyer on proteotoxin or anaphylatoxin (*Jour. Exper. Med.*, 1914, XX, 582). Certainly it shows that the pleura is exceedingly well able to take care of itself so far as bacteria alone are concerned and that it yields only when the bacterial forces are aided by the presence of some irritant or toxic material the nature of whose action is still unexplained. An attractive explanation is that given by Froin as quoted in Floyd's paper. When the bactericidal action is rapid after inoculation there is little chemiotactic action, the destruction of the organisms takes place rapidly, and any exudate is merely serous. If, however, the animal's defensive powers are weakened by the presence of infection elsewhere, or if the defensive powers of the bacteria are enhanced by the action of aggressins or proteotoxins, then the bactericidal action is slight, chemiotactic action is profound and exudate in the pleural cavity will be purulent. Unfortunately this does not correspond entirely with clinical findings since it is not always those who are the most ill with pneumonia who develop empyema. It is the best theory that has been offered up to the present time, however, and in immunity it is not often that an hypothesis can be found which will coincide completely with all the accepted clinical observations on the subject.

Mobilization Typhoid.

This phase of typhoid fever is one that requires special consideration, because it has been prevented by antityphoid inoculation, notably in the Texas mobilization of the United States troops several years ago. It seems from the experience of the present war that these mobilization epidemics may be quickly jugulated even after they have had a fair start. At a meeting of the Aerztlicher Kreisverein at Mainz on October 23 (*Münchener medizinische Wochenschrift*, December 1) Curschmann discussed this subject at length. Typhoid appeared soon after the assembling of large bodies of troops and could hardly have been either waterborne or foodborne. The victims were at once isolated and search was made for carriers with generally negative results so far as the troops were concerned. Suspicion rested strongly on the family of an innkeeper, in which typhoid had occurred repeatedly within the past twenty-five years. The suspicion could not be proved against this family, but it was submitted to rigorous measures for the public weal. Some technically typhoidal soldiers (serodiagnosticated) were apparently in good health; while there were also ordinary cases of walking typhoid. Senile

typhoid was also recognized, characterized by persistent subfebrile temperatures and tachycardia; as were also certain types of the disease which were masked by unusual localizations. A general round up along these lines with prompt isolation seemed sufficient to abort the threatened epidemics of mobilization typhoid.

Yaws and Syphilis.

THERE has long been a difference of opinion among authorities as to the unity or otherwise of syphilis and yaws and this question is still a moot one. Dr. C. S. Butler, Surgeon U. S. Navy, discussed the matter at some length in a paper read at the March, 1914, meeting of the Manila Medical Society (*United States Naval Medical Bulletin*, October, 1914). The author expresses himself a believer in the theory of duality of viruses as between yaws and syphilis, but confesses that many facts are better explained on the basis that yaws and syphilis are but different clinical manifestations of the same disease. He lays stress on the point that there is no fixed base line from which the two fields of yaws and syphilis can be surveyed. Those tests and reactions in immunity which are held as nearly absolute often are not to be relied on in the face of actual facts. One of the features of yaws which seem to distinguish it from syphilis is that yaws is a tropical disease while syphilis is pandemic, but the strict limitation of yaws to the tropics appears to Butler to be one of the strongest indications that in it we are simply dealing with syphilis. The paper by Butler, though interesting and suggestive, leaves the question where it was. However, it is a valuable contribution to the subject because it places the present situation as regards theory and facts brought out by the study of yaws and syphilis in a clear and concise manner.

News of the Week.

Sanitation on the Isthmus.—The report of Dr. Charles F. Mason, chief health officer of the Canal Zone, states that during October the total number of deaths from all causes among the 38,416 employees was 23, of which 15 were from disease, giving a rate of 4.68 per thousand, as compared with 5.31 for the preceding month and 5.14 for the corresponding month in 1913. Among the 36,395 residents of the Canal Zone there was a total of 49 deaths; of these, 42 deaths were from disease, giving a rate of 13.85 per thousand, as compared with 13.11 for the preceding month and 15.91 for the corresponding month of last year. No cases of yellow fever, smallpox, or plague originated on or were brought to the Isthmus during the month.

Health of New York City.—The death rate of this city for the week ending January 16 was 14.49 per thousand, a decrease of .37 of a point compared to the corresponding week last year, equivalent to a relative decrease of forty-one deaths. The death rate for the first three weeks of this year was 14.73 per thousand of population, as against 14.62 during the same period last year. During the past two weeks there has been a large increase in the deaths from bronchitis and bronchial and lobar pneumonia.

No New Hospital Ship for the Navy.—It is reported that the Secretary of the Navy had intended to purchase a modern steamship to be converted into a hospital ship, but that the plan was blocked by Secretary Bryan who feared that the addition of another hospital ship to the Navy would be unneutral or at least might make the impression that the United States was looking for trouble somewhere. The Secretary of State probably thinks that a hospital ship, like his army of one million men, could be created over night if occasion for it arose.

For the Improvement of Sanitary Work in New York State.—The State Public Health Council recently urged upon Governor Whitman the need for more efficient, better trained, and better paid health officers, who could afford to devote more time to the work and who should be required to do so.

Dr. E. F. Bashford has resigned the post of general superintendent of the Imperial Cancer Research Fund, which he has held for the past eight years.

Dr. Margaret Sullivan has been appointed a member of the Jersey City Board of Education.

Dr. John M. Peters, Superintendent of the Rhode Island Hospital, Providence, was the recipient on January 5 of a handsome silver coffee service, the gift of the graduate nurses of the institution upon the completion of twenty-five years of service as head of the hospital by Dr. Peters.

Dr. William Hallock Park has resigned as Dean of the University and Bellevue Hospital Medical College in order to devote all his time to the duties of Director of Laboratories of the Department of Health.

Alumni Association of the Knickerbocker Hospital.—The annual dinner of this association will be held at the Hotel McAlpin on Thursday evening, February 11, at 7:30. The Secretary-Treasurer of the Association is Dr. J. E. Lumbard, 1925 Seventh avenue, New York City.

Freak Legislation in Massachusetts.—The *Boston Medical and Surgical Journal* says that among many important pieces of medical legislation to be brought before the Massachusetts legislature during the present session is one whose obvious absurdity should lead to its immediate defeat. It is a bill to regulate the condition of surgical practice which provides that "No surgeon, physician, dentist, nor other person, performing, directing, or assisting at a surgical or dental operation upon a human, either on public or private property in this State, shall wear the hirsute appendages commonly known as moustache and beard." Weird bills of this sort were at one time not uncommon in some of the younger States, but that the staid old Bay State should be giving herself up to such foolishness is distressing.

Belgian Physicians' Relief Fund.—In his stirring appeal for aid for the Belgian physicians, Prof. Charles Jacobs of Brussels states that 1,000 doctors are poverty-stricken, and that 2,000 to 3,500 doctors are suffering cruelly through this war. That 2,000 physicians need to be supplied the necessities of life would seem a low estimate. It is probable that the physicians' families will average four members. That means that 8,000 members of physicians' families are dependent upon outside contributions. Four dollars and forty cents will supply sufficient food to sustain life for four for one month. Belgian physicians and their families, therefore, absolutely need at least $8,800 worth of food every month. For the first month, contributions of American physicians aggregated $1,414. Will the medical profession of America accept its opportunity and meet its share of this responsibility by prompt and repeated contributions? Every cent of every dollar contributed will be available for the purchase of

supplies as the carrying charges are provided for by the American Commission for Relief in Belgium. The first $1,000 contributed have been expended by the Executive Committee for food and supplies, and the packages properly labeled have been started for their destination. The following is a full list of names of all contributors up to January 16:

Union Trust Company, Pittsburgh, Pa....Banking Facilities.
Sterrett & Acheson, Attys., Pittsburgh, Pa....
Professional Service.

Dr. Frank Overton, Patchogue, N. Y.	$25.00
Dr. Franklin H. Martin, Chicago, Ill.	100.00
Dr. F. F. Simpson, Pittsburgh, Pa.	100.00
Dr. S. Peskind, Cleveland, Ohio.	25.00
Dr. & Mrs. George C. Smith, Mansfield, Ohio.	5.00
Dr. Samuel Ayers, Pittsburgh, Pa.	20.00
Dr. Edwin Walker, Evansville, Ind.	25.00
Dr. Boleslaw Lapowski, New York.	10.00
Dr. Thos. E. Satterthwaite, New York.	20.00
Dr. Thomas L. Stedman, New York.	25.00
Dr. Richard E. Eustis, Boston, Mass.	10.00
Dr. Mark W. Richardson, Boston, Mass.	10.00
Dr. Wm. Allen Pusey, Chicago, Ill.	25.00
Dr. M. C. Shelton, Joplin, Mo.	5.00
Dr. Henry F. Walker, New York.	25.00
Dr. Boyd Cornick, San Angelo, Tex.	2.50
Dr. David W. Cheever, Boston, Mass.	25.00
Dr. Virgil P. Gibney, New York.	25.00
Dr. John B. Murphy, Chicago, Ill.	100.00
Esther F. Boland, Boston, Mass.	5.00
Dr. Chauncey W. Norton, Saranac Lake, N. Y.	25.00
In Memory of H. H. C., Boston, Mass.	10.00
Dr. S. J. Meltzer, New York.	15.00
Dr. David Bovaird, New York.	25.00
Evelyn G. Manter, Winthrop, Me.	10.00
Dr. L. Maude Warren, Baldwinsville, Mass.	5.00
Dr. Ambrose Talbot, Kansas City, Mo.	10.00
Dr. J. G. R. Mainwaring, Flint, Mich.	25.00
Dr. James C. Thompson, Pittsburgh, Pa.	25.00
Dr. Lowell C. Frost, Hollywood, Cal.	10.15
Emma T. Frost, Hollywood, Cal.	10.15
Dr. F. W. Stetson, Boston, Mass.	10.00
Dr. Guy L. Hunner, Baltimore, Md.	25.00
Dr. George E. Lyon, Moweaqua, Ill.	5.00
Dr. Edward E. Krumbhaar, Philadelphia, Pa.	10.00
Academy of Medicine, Cincinnati, Ohio.	100.00
Dr. David S. Moore, Birmingham, Ala.	10.00
Dr. C. M. Banta, Springfield, Tenn.	1.00
Marion Co. Medical Soc., Marion, Ohio.	25.00
Dr. Henry M. Swift, Portland, Me.	10.00
Dr. E. H. Mackay, Clinton, Mass.	5.00
Dr. R. O. Raymond, Flagstaff, Ariz.	10.00
Dr. J. H. Bertrand, De Forest, Wis.	5.00
Dr. E. S. Reedy, Seattle, Wash.	5.00
Dr. & Mrs. H. C. Sweetser, Denver, Colo.	50.00
Dr. Burnley Lankford, Norfolk, Va.	3.00
Dr. Charles W. Allen, Hoboken, Pa.	5.00
Dr. Wm. Van V. Hayes, New York.	25.00
Drs. Parker & Parker, Peoria, Ill.	5.00
Dr. Heman B. Chase, Hyannis, Mass.	10.00
Dr. John B. Wheeler, Burlington, Vt.	25.00
Dr. Stuart McGuire, Richmond, Va.	50.00
Dr. John G. Clark, Philadelphia, Pa.	50.00
Dr. F. R. Underwood, Seattle, Wash.	5.00
Dr. Abraham Jacobi, New York.	100.00
W. A. M., Ossining, N. Y.	2.00
Dr. Theodore C. Janeway, Baltimore, Md.	15.00
Dr. Isaac M. Heller, New York.	5.00
Dr. S. H. Miller, Joplin, Mo.	5.00
Dr. B. F. Saylor, Redding, Cal.	10.00
Dr. J. Wolf, Pittsburgh, Pa.	10.00
Jasper Co. Medical Society, Joplin, Mo.	10.00
Dr. Sidney A. Chalfant, Pittsburgh, Pa.	10.20
Dr. Frederick Abbe, Boston, Mass.	10.00
Dr. J. Riddle Goffe, New York.	25.00
Dr. Henry F. Graham, Brooklyn, N. Y.	5.00
Total	$1,414.00

Belgian Relief Organization.—The Belgian Relief Commission announces the completion of a system for the collection of relief supplies in the United States and their distribution in Belgium. This organization includes a line of thirty-one steamships, which will in the future ply on regular schedule between ports of the United States and Rotterdam. Arrangements have been made with the Post Office Department and the express companies for the shipment of small parcels by individuals. It is now possible for any person in any part of the country to ship to the nearest assembling depot, at the expense of the commission, packages which will be held until carloads have accumulated, after which they will be sent to the seaboard for ships of the relief line.

Colleges Give Red Cross Ambulances.—Students of Yale have given twelve and Harvard students five automobile ambulances to the Red Cross for use in the war zone. Each of the ambulances is equipped to carry two wounded men.

The American Women's War Relief Fund.—American women resident in England recently held a meeting to review the work done by their organization since the beginning of the war. Up to the present a total of $219,550 has been subscribed toward the Hospital, and the urgent need of more funds was emphasized. The chief surgeon of the Hospital, Dr. Howard W. Beal, said that a pathologist was needed and the American Red Cross had promised to supply one and also to send as many surgeons as might be required.

Opposition to the Tax on Dentifrices.—A committee of New York physicians and dentists has been organized to petition Congress to revoke the war tax on tooth washes, pastes, and powders on the score that it is a severe blow to the work that has been done by State and municipal governments in behalf of mouth hygiene.

Guinea-pigs for Food.—The Medical Society of Frankfort-on-the-Main has issued an appeal to the German public to undertake the extensive breeding of guinea-pigs for food purposes. It is stated that the meat of this little animal is delicate and tasty, and as the creatures are so prolific it is believed that a large amount of food can be thus provided at small cost.

Medical Society Elections.—The Walker County (Ala.) Medical Society met at Jasper on December 12 and elected the following officers: *President,* Dr. J. M. Miller of Cordova; *Vice-President,* Dr. T. Manasco of Carbon Hill; *Member of the Board of Censors,* Dr. J. M. Miller of Cordova.

The Four Counties Medical Association, comprising the counties of De Witt, Lavaca, Victoria, and Calhoun, Tex., met at Cuero on December 16 and elected the following officers: *President,* Dr. M. Duckworth, Cuero; *Vice-President,* Dr. J. E. Pridgen, Thomaston; *Secretary and Treasurer,* Dr. B. T. Norwiercki, Yorktown; *Delegate to the State Medical Association,* Dr. G. W. Allen, Yorktown; *Alternate,* Dr. J. M. Lackey, Cuero.

The Simpson County (Miss.) Medical Association met at Mendenhall on December 12 and elected the following officers: *President,* Dr. Tillis Gandy of Weathersby; *Vice-President,* Dr. W. F. Stroud of Pinola; *Secretary-Treasurer,* Dr. J. L. White of Pinola; *Censors,* Drs. J. H. Kennedy of Pinola and A. E. Kennedy of Magee; *Delegate to the State Association,* Dr. J. L. White of Pinola.

The Mobile County (Ala.) Medical Society, at a meeting held December 12, elected the following officers: *President,* Dr. J. Tunstall Inge; *Vice-President,* Dr. Daniel T. McCall; *Secretary,* Dr. W. W. Scales; *Treasurer,* Dr. Angelo Festorazzi; *Librarian,* Dr. John Rush; *Censors,* Drs. Harry T. Inge and Gilman Winthrop.

The Carroll County (Ga.) Medical Association elected the following officers at a meeting held at La Grange on December 21: *President,* Dr. R. J. Goodwyn of Poopville; *Vice-President,* Dr. W. L. Fitts of Carrollton; *Secretary and Treasurer,* Dr. R. E. Foster of Carrollton.

The Richmond County (Ga.) Medical Association elected the following officers at a meeting held in Augusta on December 11: *President,* Dr. R. V. Lamar; *Vice-President,* Dr. Ashby Hull; *Secretary and Treasurer,* Dr. J. C. Wright; *Member of the Board of Censors,* Dr. C. I. Bryans.

The McNairy County (Tenn.) Medical Society held its regular meeting at Selmer on December 18, electing the following officers: *President,* Dr. Charles Chambers of Michie; *Vice-President,* Dr. W. T. Bell of Selmer; *Secretary,* Dr. T. G. Jackson of Gravehill.

Deaths of Foreign Medical Men.—Dr. Klaus Hanssen, chief physician of the Municipal Hospital, Bergen, Norway, and a member of the Norwegian Academy of Medicine, died recently at the age of 71 years. Dr. Hanssen was a leader in the fight against tuberculosis in Norway.

Dr. Léon Lereboulet has died in Paris. He was born in Strasbourg, December 14, 1842. He served in the medical corps during the Franco-German war. He was one of the editors, with Dechambre and Duval, of the "Dictionnaire usuel des sciences médicales."

Dr. Suñé y Molist of Barcelona died recently. He was one of the editors of the *Gaceta Médica Catalana* and was a member of the Real Academia de Medicina.

Obituary Notes.—Dr. Joseph Piersol of Bellaire, O., a graduate of the Medical Department of the University of Pittsburgh in 1890, and a member of the Ohio State Medical Association and the Belmont County Medical Society, died suddenly on January 1, while visiting at the home of a patient.

Dr. Robert Liggett McGrew of Pittsburgh, Pa., died on December 18. He was graduated from the Bellevue Hospital Medical College in 1886.

Dr. Jacob Lyman Horr of Westbrook, Me., died December 22, at the age of 73 years. He was born in Waterford and was graduated from the Bowdoin Medical School in 1869. After practising for a few years in Oxford he removed to Westbrook.

Dr. Henry Dusenbury of Brooklyn, N. Y., died on December 30, at the age of 80 years. He was born in Albany and was graduated from the College of Physicians and Surgeons in this city in the class of 1866. He was at one time in the Medical Corps of the U. S. Army.

Dr. John W. Smith, a retired physician of Detroit, died at his home in that city on December 21 at the age of 84 years. He served through the Civil War in the medical corps of the U. S. Army, being retired with the rank of major.

Dr. Joseph Hunt Wilson of Somerville, N. J., a graduate of Princeton University in the class of 1846, and of the New York University Medical College in 1850, for some years a member of the staff of the New York Custom House, and at one time editor of *The Unionist Gazette* of Somerville, died at his home on January 2, aged 86 years.

Dr. Dudley Peter Allen of Cleveland, O., a graduate of the Harvard University Medical School, Boston, in 1880, emeritus professor of surgery in the Western Reserve University School of Medicine, and a member of the American Medical Association, the American Surgical Association, the Ohio State Medical Society, and the Cleveland Academy of Medicine, died in New York, after a short illness, from pneumonia, on January 6, aged 62 years.

Dr. David J. Loring of Valparaiso, Ind., a graduate of the Rush Medical College, Chicago, in 1878, a member of the Indiana State Medical Association and the Porter County Medical Society, and secretary of the latter, died at his home, from cancer of the stomach, on December 29, aged 66 years.

Dr. Charles Ross Jackson, formerly of New York, a graduate of the Medical Department of Yale University, New Haven, in 1888, and a member of the American Medical Association, the New York State and Essex County Medical Societies, and the West Side Chemical Society of New York, died at his home at Lake Placid, on January 4, aged 47 years.

Correspondence.

WAR NOTES.

TETANUS—TINCTURE OF IODINE IN FIRST AID PACKETS—MINER'S NYSTAGMUS IN THE TRENCHES—BACTERIOLOGICAL RESEARCH AT THE FRONT—LONDON DOCTORS AT WORK.

London, January 4, 1915.

The war is changing many of our ideas regarding the value and kind of antiseptics, and their relative value in preventing infection in the field. As we know, the territory now occupied by the opposing armies in Marne and Flanders was under a high state of cultivation, and has been so frequently treated by enrichment of manure, that it is undoubtedly a fruitful soil for the breeding of dangerous microorganism. Like our own Long Island in early days, it is noted especially for the prevalence of tetanus in ordinary times. As on the south side and about Moriches, the wound of a fish bone would very likely be followed by "lockjaw," and farmers would take their male colts to Montauk to be castrated, so would the injured Belgian farmer at times flee to a region where he was immune. At present the first thing, if possible, is to give the wounded soldier a good dose of antitetanus serum, and when fighting goes on practically in the mud full of the special germ, this precaution is undoubtedly valuable and life saving.

The use of iodine seems to be most general just at this time, and the French government furnishes each soldier with a small packet containing an *ampoule* with a small brush. An English pharmacist has improved this by supplying an *ampoule* filled with a strong tincture, the friable stem of which ends in a pledget of gauze or cotton. When the wounded man simply breaks the terminal stem the bandage is soaked with the contents, and with this he thoroughly swabs the wound. It is said to be far more efficacious than the simple application of gauze, which is certain to favor the retention of any imprisoned bacteria. This is on the theory that in anaerobic wounds the dangerous bacteria of tetanus, gangrene, malignant edema, and other diseases thrive in situations when air is excluded; in fact, after the first application of iodine there is little or no dressing applied. In many cases the wound heals by first intention.

Many strange conditions are seen by the surgeons. Dr. Jex-Blake, who is now a surgeon at the Denmark Hill Hospital of Kings, told me that he had seen a case of miner's nystagmus in a man who had been lying in the trenches and had been doing sappers' and miners' work. He had originally been a Welsh miner and had had this affliction when at work, but it disappeared on changing his occupation, and he remained free for years until the labor at the front was resumed under the old conditions. This required him to be on his side and excavate the earth above him. The condition was so serious that he had to leave the army.

The activity of those engaged in bacteriological research is simply astonishing, and the other day when we heard that cholera had broken out among the Russian troops, an investigator was sent to procure a specimen of the particular cholera bacillus that he might prepare in time a serum that would contain the specific antibodies, should this special form of cholera break out among the forces in the Belgian and French territory.

This thoroughness is seen in all branches of hos-

pital and research work. The best men devote as little time as possible to office or other work, but actually see their ordinary patients in khaki, and may be seen going from one point of London to another at all hours, all intent upon carrying out the sensible orders of the head of the medical department, who, in the absence of Sir Arthur Slogget at the front, is Sir Alfred Keogh, who by the way has been in the United States, where he is very popular.

ALLAN McLANE HAMILTON.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE WAR, TREATMENT OF WOUNDS AT THE FRONT AND AT THE BASE—DIVERSE SURGICAL VIEWS—ANTISEPTICS AND ASEPTICS.

LONDON, December 31, 1914.

OUR talk is still of war and the press reflects our diverse opinions on its various aspects. In previous letters I have reported some of these, especially as expressed at Societies. Last month's discussion on the treatment of wounds in war at the Medical Society is recalled by Sir Anthony Bowlby who says that for some six weeks he has observed such wounds under different conditions from those who joined in that discussion. For the last three of these weeks he was at the clearing stations to which wounded are taken after dressing in the field ambulances—some within a few hours, others after eighteen to twenty-four—more rarely on the second day. But motor ambulances cannot take them at night, as their lights would draw fire. The latest cases at the field ambulances are fractures of lower extremities or of the spine, as they cannot help themselves as those can who are only hit in the arms or have slight flesh wounds. Many have been left lying in wet mud or manured fields a long time and their wounds have been contaminated with these, blood, or other septic matter. Sir A. Bowlby, who you may remember is consulting-surgeon to the expeditionary force, found the rifle wounds in this war different from those he observed in South Africa. The new bullet inflicts a more severe injury and at very close range, at which it is frequently inflicted, produces an "explosive effect." He has seen the greater part of the muscles of the forearm protruding through a rent in the skin and fascia in the case of a shot within three or four yards. But if the bones be struck at these distances the wounds may be so severe as to resemble shell wounds.

Shrapnel wounds are twofold—from its bullets or from fragments of the case. The former vary with the height from the ground when the explosion takes place as well as with its velocity at the time; so again with its distance from the man. Howitzer shells contain no bullets and the bursting charge usually explodes on striking the ground. Accordingly the wounds are caused by fragments, some of which may weigh several pounds while others are quite small. Howitzer wounds are the most horrible of all and so the most fatal. They are often contaminated with mud, clothing, or other things carried in by the part of the shell causing the wound.

Passing to the principles of treatment Sir Anthony points out that the exigencies of war only permit at clearing stations equipment which can be moved as necessitated. As there are no tents or huts any available building must serve as shelter or rather several, for one of adequate size cannot be expected, and there is no time perhaps to clean. Nor are there any beds, and patients have to lie on the stretchers on which they are brought. In towns some beds may be obtained. A clearing station will be equipped for 200 cases, and such a one has had to dress above 1,000 in one day. The pressure in such event must be left to imagination. The dressing must be *anti*septic—the idea that in the clearing stations it may be *a*septic is erroneous. It is impossible to have a general hospital at the front, and clearing stations must be very portable. In the recent war 1,200 wounded a day had to be treated in the clearing stations, and on one day over 3,000. The pressure was greater because they were not distributed over all the stations, so that on some occasions every yard of floor space was taken up by stretchers coming in by hundreds every two or three hours. But every case was fed, dressed, and cared for on the day of arrival, the great object of the clearing station being to treat the patients temporarily and send them on to the base hospital and be ready for fresh cases from next day's fight. After dressing it is necessary to transfer to ambulances and hospital trains.

The question of antisepsis, alluded to above, has been a good deal talked about in reference to the present war. One meets, now and again, a person who is imbued with the notion that asepsis can be carried out in military surgery, but those who have served in a clearance station are not among them, but will tell you that aseptic gauze and sterilized water are not to be trusted against wounds contaminated with soil reeking with organisms. Sir R. J. Godlee calls them broken reeds compared with a true antiseptic like carbolic acid, preferably pure, for the first dressing of a wound probably infected with tetanus or spreading gangrene besides other organisms. He calls to mind Lister's early compound fracture cases in which undiluted carbolic acid was freely used and no ill effect took place and adds that diluted with blood or serum it is less potent than with water as also is bichloride. The wound should therefore be as dry as possible for disinfection. In a suspicious case he favors a prophylactic dose of antitetanic serum.

Sir Victor Horsley seems to be shocked with such vigorous antiseptic measures and in a postscript to a letter to the *British Medical Journal* says: "As though the conditions surrounding wounds in the present campaign were not sufficiently complicated, there has now been shown to me a memorandum, purporting to be issued by the War Office and prepared by Sir Rickman J. Godlee, Bart., in which the terrible proposal is made to swab out recent wounds with pure liquid carbolic acid!"

Drs. Purves Stewart and J. T. C. Laing record in last week's *Journal* a case of tetanus in which the disease steadily advanced in spite of antitetanic serum treatment but yielded to hypodermic injections of carbolic acid. They used a 5 per cent. solution of which they injected into the abdominal wall 2 c.c. every two hours. On the second day the spasms being greatly reduced the injections were given every four hours; on the third day a slight increase of spasms was met by the two-hourly dose for a couple of days, after which convalescence was uninterrupted. The thoracic and abdominal muscles were the slowest to lose their tonic spasms. This is Baccelli's treatment under which he recorded a gross mortality of 17.4 per cent. in 190 collected cases. It is suggested that cases in the present war should have the chance of this treatment which would not supersede preventive antitoxin, being only resorted to when the disease had developed.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 7, 1915.

1. Relation of the Tonsils, Adenoids, and Other Throat Conditions to Tuberculous Cervical Adenitis. G. L. Richards.
2. Treatment of Tuberculous Cervical Adenitis. H. D. Chadwick.
3. Treatment of Tuberculous Cervical Adenitis. J. B. Hawes, 2d.
4. Tuberculosis from a Dentist's Viewpoint. G. H. Wright.
5. Visceral Ptosis. A Review. J. T. Williams.
6. A Few Notes on the Treatment of Anteposed Uteri. H. T. Hutchins.

1. The Tonsils and Tuberculous Cervical Adenitis.—G. L. Richards states that it has been repeatedly demonstrated that tubercle bacilli can be made to invade and pass through the faucial tonsil without producing tuberculosis of the tonsil itself. Tuberculous adenitis is not necessarily accompanied by a tuberculous tonsil. The tonsil, however, may be the portal of entry for the infection. The author recommends that in all cases of cervical adenitis the tonsil be removed as the first procedure.

2. Treatment of Tuberculous Cervical Adenitis.—H. D. Chadwick details the routine treatment of tuberculous cervical adenitis in children, as carried out at the Westfield State Sanatorium, Massachusetts, as follows: If the patients have no more than one degree of temperature, and have no other signs of active pulmonary disease, they are given tuberculin treatment, the bacillen-emulsion being used. The initial dose is one-millionth of a milligram and the course of treatment extends over a period of about six months until the maximum of ten milligrams is reached. As the result of this treatment the glands decrease perceptibly in size and the area of dullness over the hilus becomes less pronounced. Surgical interference is necessary to remove only such glands as have become caseous or fibroid. Extensive dissections are unnecessary in these cases as the small recently diseased glands that are left disappear under the influence of tuberculin treatment.

5. Visceral Ptosis.—J. T. Williams finds from a review of this subject that none of the various methods of treatment has proved universally satisfactory. But few men have carried out any of the outlined procedures with the vigor ordinarily applied to the treatment of other pathological conditions. Concerning the surgical treatment, the amount of work so far done is too small upon which to base an opinion. The number of surgical procedures which a single case demands must prohibit operative treatment in a considerable proportion of cases. Gymnastic treatment must be of great benefit early in the process, but unfortunately the anatomical changes are so extensive in advanced cases that but little help can be expected from exercises. Corsets, although only palliative, and never quite relieving the patient's symptoms, nevertheless are of much value, and probably in advanced visceral ptosis will continue to give more comfort than anything else. The greatest prospect for improvement lies in prophylaxis, as pointed out by Goldthwait. Certain individuals are predisposed to ptosis by anatomical peculiarities. These patients should be easily recognized by their tendency to the ptotic figures, and by general muscular insufficiency. Such persons taken early in life, their attitude corrected, and their muscles developed by exercise and proper food, it should be possible to prevent the development of extreme cases of visceral ptosis.

6. Treatment of Anteposed Uteri.—H. T. Hutchins concludes that the position of the fundus is of little importance from a symptomatic standpoint. Descent of the cervix, irrespective of the position of the fundus, causes a drag on the parietal peritoneum of the pelvis with congestion of the ovarian veins. One must recognize this descent as a symptomatic factor and not hesitate to suspend an anteposed uterus when such descent is present. In every case, before operating, one should prove by temporary means to the patient's and to one's own satisfaction that the malposition is the cause of the patient's symptoms. One should then suspend only those few selected cases in which a suspension is necessary.

New York Medical Journal.

January 9, 1915.

1. Metastatic Complications of Suppurative Otitis Media. S. Oppenheimer.
2. Some Medicomilitary Observations in the Late Balkan Wars. C. S. Ford.
3. Pneumococcus Infection and Immunity. R. I. Cole.
4. A Conservative Estimate of Radium Therapy from the Clinical Standpoint. W. B. Chase.
5. Should a Newborn Infant Receive Anything During the First Two or Three Days? C. Herrman.
6. Osteoarthritis in Tabes Dorsalis. J. R. Martin.
7. Decapsulation of the Kidney. R. R. Huggins.
8. Pituitary Extract in Postoperative Intestinal Stasis. R. Duffy.
9. Outfit for Urethral and Bladder Irrigations. E. G. Ballenger and O. F. Elder.

1. Metastatic Complications of Otitis Media.—By S. Oppenheimer. (See MEDICAL RECORD, January 2, 1915, page 36.)

3. Pneumococcus Infection.—R. I. Cole states that it has been possible to produce serums of very high protective power against pneumococci of Type I and Type II. A method has been devised for the rapid determination of the organism in each case, and the corresponding serum is used. Usually 80 to 90 c.c. of the serum are injected intravenously, and this dose is repeated in twelve hours. Usually these doses are repeated on the following day, and this is continued so long as the patient's condition indicates that it is advisable. The treatment has so far been carried out in only a small series of cases of pneumonia due to organisms of Type I occurring in the Hospital of the Rockefeller Institute, and the number of cases is still much too small to enable the author to draw conclusions as to the efficacy of the serum from mortality statistics alone. In a small number of cases the results have been extremely encouraging, both as regards the effect on the clinical course and on the outcome. Stress is laid on the following observations: First, in a considerable number of the treated patients, the blood cultures, before beginning treatment, have been positive. In some of them the degree of general infection as indicated by the number of colonies per cubic centimeter was quite high. A high grade of general infection is of bad prognostic import. The two main conditions associated with the death of patients with pneumonia are the increasing invasion of the blood by pneumococci and the extension of the local lesion. In every treated case in which the culture from the blood was positive before the first injection of the serum, following one injection, and before the second one was made, the culture of the blood was negative and remained so. Second, it has been demonstrated that the process of recovery in pneumonia is associated with the appearance in the blood of substances which are able to protect mice against infection with pneumococci. Whereas in the untreated patients these substances appear only late in the disease, at or following the crisis, in treated cases their appearance is very appreciably earlier, usually shortly after treatment is begun.

4. Radium Therapy.—W. B. Chase concludes that (1) the destructive power of radium on cancer cells is well established. (2) The employment of radium in cancer is not in conflict with surgery, but both possess distinctive fields of usefulness, each having its limita-

tions; they are largely supplemental to each other, and there is ample opportunity for cooperation and reciprocity. (3) Large, operable malignant growths should be removed by the knife. (4) The analgesic power of radium is one of its most precious properties. (5) Want of confidence in radium arises from the use of low grades or spurious products, and from want of knowledge and skill in its application, together with the exaggerated, conflicting, and false reports so constantly current. (6) Postoperative radiation is of great usefulness and rapidly coming into professional use at home and abroad, being commended by prominent authorities, who not long since were unconvinced of its curative and palliative powers. (7) Crossfire application of radium increases its efficacy and aids by its multiple application in securing deeper penetration of large areas than by ordinary methods of application. (8) As in surgery so in the application of radium, disappointment is likely to follow too optimistic expectations of recovery. (9) In proportion as metastasis is present the chances of cure diminish, and in turn delayed diagnosis is often responsible for metastasis.

5. **Feeding the Newborn Infant.**—C. Herrman employs the following method: Six hours after delivery the baby is put to the breast and thereafter regularly every three hours during the day. It remains at the breast five minutes and is then given one and a half ounces of a 10 per cent. solution of lactose. This is usually continued for the first forty-eight hours. If the mother has an insufficient amount of breast milk, and no other mother in the ward is available for breast feeding, the supplemental feeding with a solution of lactose is continued for one or two days longer. The results of this method are a reduction in the average initial loss from eleven to six ounces; an increase in the percentage of cases regaining their birth weight after ten days, from 35 to 65 per cent; and no inanition fever.

7. **Decapsulation of the Kidney.**—R. R. Huggins believes that decapsulation and nephrotomy are indicated: (1) In toxic nephritis following acute poisoning by mercury or carbolic acid. (2) In nephritis following infection, especially the acute infectious diseases, such as scarlet fever, in which there is great edema, or in the presence of uremia; their use should be considered as soon as medical measures have been thoroughly tried without relief. This is true especially in young adults and children. (3) In severe hemorrhage complicating chronic nephritis, when the bleeding is practically limited to one side. In these cases a nephrotomy should be done to make sure of the exact cause of the hemorrhage. (4) They may be indicated for the relief of renal pain which sometimes occurs in the course of chronic nephritis. (5) They may be of value in uremia and anuria during the course of chronic nephritis, merely as an emergency measure. (6) In eclampsia, when the symptoms are due to faulty action of the kidney and improvement does not follow delivery of child. (7) Cases of movable kidney associated with albuminuric casts and hematuria, in which the urinary signs result from the trauma incident to the mobility, may be cured by decapsulation and fixation, but when coincident with chronic Bright's, only temporary good is effected.

Journal of the American Medical Association.

January 9, 1915.

1. The Limitations and Possibilities of Prenatal Care, Based on the Study of 705 Fetal Deaths Occurring in 10,000 Consecutive Admissions to the Obstetrical Department of the Johns Hopkins Hospital. J. Whitridge Williams.
2. Value of Hydrotherapy in Urology. W. F. Martin.
3. The Practical Value of Chemical Tests of Renal Function in Surgical Conditions of the Urinary Tract. W. F. Braasch and G. J. Thomas.
4. The Treatment of Advanced Tympanic Deafness. Clinical Observations Bearing on the Problems Involved. P. D. Kerrison.
5. The Relation of the Rhinopharynx to the Middle Ear and Mastoid. E. L. Jones.
6. The Origin of Labyrinthine Rest-Tone. E. P. Fowler.
7. The Atropine Treatment of Dysmenorrhea. E. Novak.
8. The Endowment of Motherhood. J. F. Moran.
9. The Amino-Acid Content of the Blood and Spinal Fluid of Syphilitic and Non-Syphilitic Individuals. A. W. M. Ellis, G. E. Cullen and D. D. Van Slyke.
10. The Effects of Collargol as Employed in Pyelography. An Experimental Study. D. N. Eisendrath.
11. Fractures of the Inferior Maxilla. A Report of 1,065 Cases Treated. H. S. Dunning.
12. A Portable Positive-Pressure Apparatus for Administration of Ether by Intratracheal Insufflation. A. W. Williams.
13. Résection of the Knee-Joint for Tuberculosis. M. S. Henderson.
14. The Bacteriological Examination of the Urine in a Case of Eclampsia. G. F. Dick and G. R. Dick.
15. Report of a Case of Acute Dilatation of the Stomach. A. Mayoral, Jr.
16. Quinine Salts in Postoperative Cases. Preliminary Report. E. Bonnot.

1. **Prenatal Care.**—J. Whitridge Williams, in an analysis of 705 fetal deaths, states that syphilis is the most common etiological factor concerned in the production of death, presenting an incidence of 26.4 per cent. Toxemia, including eclampsia, nephritis, and occasional rare conditions, which is usually regarded as the condition par excellence which can be influenced by prenatal care, is the cause of only 6.5 per cent. of the deaths, and consequently is accountable for only one-fourth as many as syphilis. Notwithstanding most painstaking investigation the cause of death could not be satisfactorily explained in 127 cases, or 18 per cent. The death rate is nearly twice as high in the blacks as in the whites, 9.4 and 5.1 per cent. respectively, and equals or exceeds that of the whites in all but three categories, namely, toxemia, deformities, and placenta previa. Prenatal care is not merely a matter of a few visits by a nurse to the patient in her own home, but should consist in the coordination of the medical, nursing, and social-service resources of the hospital in the effort to obtain such treatment and supervision for the mother as will offer the greatest possible guarantee for the safe delivery of a normal child which can be kept healthy by maternal nursing.

7. **Atropine Treatment of Dysmenorrhea.**—E. Novak states that his experience with this method of treatment has been most encouraging. In the frequent cases of young unmarried women in whom pelvic examination is obviously undesirable, and who present the classical picture of spasmodic pain recurring with each menstruation, the atropine treatment is indicated without the preliminary of pelvic examination. The cases which respond most favorably are generally those in which the atropine has been pushed to the point of tolerance. The plan has been to commence the administration of the drug about two days before menstruation is expected to appear, and to continue its use until the second or third day of menstruation, depending on the usual duration of the pain. Patients differ in the degree of tolerance to the drug. Ordinarily about 1/100 grain is given three times a day, unless some pain appears, in which event, if there are no symptoms of atropine saturation, the doses may be given somewhat more frequently. Many patients complain of dryness of the throat, itching of the skin, and sometimes even disturbed accommodation, in which case it may be necessary to lessen the dosage somewhat.

9. **Amino-Acids in Blood and Spinal Fluid.**—A. W. M. Ellis, G. E. Cullen, and D. D. Van Slyke have found that: (1) The amino-acid nitrogen of the blood varies within certain definite limits (4.5 to 8.5 milligrams per 100 cubic centimeters) in different individuals. (2) A similar variation occurs in the same individual at different times. (3) The amino-acid nitrogen in the spinal fluid in different individuals, and also in the same individuals at different times, varies between approximately 2 and 4 cubic centimeters per 100. (4) The amino-acid nitrogen content of the blood in syphilitics varies with-

in exactly the same limits as in the blood of non-syphilitics. The amino-acid nitrogen content of neither the blood nor spinal fluid of a sphyilitic bears any relation to the Wassermann reaction. (5) The conclusion of Kaplan and of Kaplan and McClelland that in patients with syphilis the amino-acid nitrogen of the blood is diminished, and that such determinations may be used as a means of diagnosis is incorrect.

11. **Fractures of Inferior Maxilla.**—H. S. Dunning notes that the inferior maxillary bone on account of its position and shape is the most frequently fractured bone of the face and about tenth on the list of all bones of the body to be fractured. About 98 per cent. of all fractures of the body of the bone are compounded when there are teeth present. And thus it is the most frequent bone to suffer a compound fracture. The fracture of this bone becomes infected, on account of the fractures being compound, more than any other bone. The patient suffers great pain from injury to the inferior dental nerve and also from the inability to swallow, eat, drink, and cough. The fracture is about ten times as common in man as in woman. The most common age is between thirty and forty. The most frequent cause is a blow of the naked fist. A line of fracture is most often at the region of the bicuspids on the left side. Fractures of the lower jaw depend a great deal on the occlusion of the upper and lower teeth. Fractures of the condyles are rare, but are often followed by bony ankylosis. Fractures of the coronoid process are extremely rare and occur only when the zygomatic arch and the side of the face are severely crushed. Great care should be exercised in keeping the mouth clean in the treatment of fractures of the jaw. A cap splint or single-arch splint should be used whenever there are one or more strong teeth on either side of the line of fracture to which the splint may be cemented. The interdental splint or intermaxillary splint should be used only in children, in edentulous mouths, and in fractures posterior to the third molar when the upper and lower jaws cannot be wired together by means of Angle's wires and bands. The open operation or surgical wiring of the fractured ends of the bone is unnecessary and generally results in infection and necrosis. The inferior maxillary bone can be more accurately reduced and held in better coaptation than other bones, as direct force can be applied to it by means of appliances attached to the teeth. Non-union very rarely occurs and is generally due to faulty or delayed treatment. An *x*-ray picture should always be taken to ascertain the line of fracture, to discover the presence of impacted teeth, and to note any infections or abscess conditions at the apices of the teeth near the point of fracture.

The Lancet.

January 2, 1915.

1. Acute Hemorrhagic Pancreatitis; with Remarks on the Etiology of Chronic Pancreatitis. Sir Frederic Eve.
2. Some Experiences of Shell Wounds in the Present War. A. W. Sheen.
3. X-Rays in War Time. W. H. Shenton.
4. A Case of Spontaneous Recovery from Detachment of the Retina. H. L. Eason.
5. Amputations in War Surgery. M. Fitzmaurice-Kelly.
6. Two Cases of Cicatricial Stenosis of the Larynx. H. Barwell.
7. Leper Houses and Mediæval Hospitals. C. A. Mercier.

1. **Pancreatitis.**—Sir Frederic Eve states that clinical experience bears out the conclusions that stasis and infection are the main elements in the causation of acute pancreatitis, and these are most commonly brought about by cholelithiasis. Occasionally acute pancreatitis may be due to the regurgitation of duodenal secretion. An acute pancreatic lesion which does not end fatally may terminate in chronic pancreatitis or in sclerosis. Like acute pancreatitis, the chronic form is closely related to cholelithiasis, especially to stones in the common duct, which would cause intermittent stasis of biliary and pancreatic secretion, and be associated with biliary infection. Gastroduodenitis and ulcers favor the occurrence of an ascending infection of the biliary duct and intermittent stasis may result from congestion at the papilla. Cancer of the head of the pancreas is in rare instances a cause of chronic pancreatitis. The author details the symptoms of acute pancreatitis based upon an analysis of twenty-four consecutive cases at the London Hospital and of sixteen cases reported by Dietrich. Over one-half of the patients had premonitory symptoms of varying intensity. These consisted of attacks of pain in the upper abdomen or occasionally over the abdomen generally. The symptoms of acute pancreatitis accord with the symptoms of the group of acute abdominal crises, and closely resemble those of the perforation of gastric and duodenal ulcer, of the gall-bladder, or of the appendix. Many cases have been mistaken for acute intestinal obstruction. The onset is sudden, with very severe pain in the epigastrium, persistent vomiting, usually constipation, tenderness, fulness, and resistance in the upper abdomen, and gradually increasing distention; the pulse is rapid and weak; the temperature lower than the pulse-rate, and not infrequently subnormal with collapse. The general condition of patients with acute pancreatitis is indicative of an acute toxemia. The Cammidge reaction is of no value in the diagnosis. Operation is indicated at the earliest possible moment. The procedure generally followed after opening the abdomen is to pack off the lower part of the peritoneal cavity with gauze, open the lesser cavity of the peritoneum through the gastrocolic omentum, and mop up any collection of serosanguineous or seropurulent fluid within it. The covering of the pancreas is divided, and blunt scarification made along its whole length, or over the part affected, sometimes only the head. Bleeding is stopped by underrunning vessels with catgut, or a gauze plug is fixed in position with catgut sutures. A drainage tube is left in. If there is a quantity of fluid in the peritoneum a drain should be inserted above the pubes. In those cases in which a collection of pus exists this should be drawn off by aspiration before the cavity is opened.

5. **Amputations in War Surgery.**—M. Fitzmaurice-Kelly calls attention to a method of amputation which he has suggested and which is now widely practised in some of the military hospitals in France. The method consists in a simple circular division of all the tissues, including the bones, at the same level, and that level the lowest possible. The skin is divided by a circular sweep, the muscles are divided at the level to which the skin retracts, and the bone is then sawed at the same level. The bleeding points are secured and tied, the nerves pulled down and cut short, and a dressing is then applied to the raw surface of the stump. The advantages claimed for the method are: (1) Economy of tissue. The amputation is performed at the lowest level at which a flap could be cut, or even lower, and all recoverable tissue is thus preserved. (2) It is applicable to otherwise hopeless cases, such as wounds or gangrene at the root of the limbs, and in these cases carries a much better prognosis than disarticulation at the hip or shoulder joint. (3) It is very rapidly done, and there is very little shock. (4) The surface from which septic absorption can occur is the least possible, and the drainage is free. (5) The nutrition of the stump is unimpaired; in this respect its advantage over a flap amputation is obvious. (6) It is so simple that it is said to be within the range of every one and not to need an experienced surgeon for its performance.

British Medical Journal.

January 2, 1915.

1. The Principles and Practice of the Localization of Foreign Bodies by *X*-Rays. Sir James Mackenzie Davidson.
2. Some Practical Hints on the Localization of Bullets and Shell Fragments. F. Hernaman-Johnson.
3. A Rapid Method of Localization by *X*-Rays. K. W. Mackenzie.
4. Acute Hemorrhagic Pancreatitis. With Remarks on the Etiology of Chronic Pancreatitis. Sir Frederic Eve.
5. Gray Hair and Disease Limited to the Nasolabial Area. G. Lenthal Cheatle.

1. X-Ray Localization of Foreign Bodies.—Sir James Mackenzie Davidson calls attention to the misleading character of the single radiograph with reference to the localization of foreign bodies. Whatever method is adopted the first essential is to have some means of determining the exact position of the point of emergence of *x*-rays from the tube in relation to the patient's body. The author describes a method which makes use of a specially constructed couch and of an arrangement of wires, the details of the entire apparatus being too complicated to be described in this place. There is used in addition a so-called cross-thread localizer which enables measurements to be made by reconstructing geometrically the conditions of the exposure. Among the surgical precautions to be adopted in dealing with foreign bodies, the author mentions the following: The patient should be placed in precisely the same position as he occupied at the time the *x*-ray photograph was taken. The surgeon should be very careful to ascertain the exact position of the foreign body which he proposes to remove. An important aid is the use of a probe with a telephonic attachment.

5. Gray Hair and Disease in the Nasolabial Area.—G. Lenthal Cheatle describes the case of a man a portion of whose moustache fell out for no determinable cause at the right hand extremity only. The part remained bald for about three months; when hairs reappeared they were gray, and that portion of his moustache has remained so, the rest being normal. Another instance is cited in which the hair is gray everywhere on the face except the central portion of the moustache. Cases of grayness of hair limited to the nasolabial fold are not exceptional. The author calls attention also to cases of rodent ulcer, in which the disease shows a tendency to become arrested at the vertical line which marks the internal limit of grayness. A syphilitic rash involving the upper lip tends to occupy the area that is not involved by rodent ulcer.

Berliner klinische Wochenschrift.

December 7, 1914.

Tetanus.—Wolfsohn states that in all warfare tetanus becomes cumulative. In two military hospitals with which he is affiliated no less than twenty-nine cases of the disease were seen in five weeks. In almost every case the wounds were relatively extensive, undermined with pockets, and covered with a dirty coating. The average period of incubation was very brief—five to eight days. As might have been expected the mortality was frightful in comparison with certain favorable series published from time to time. Of the twenty-nine patients but two recovered! The two recoveries were examples of the long incubation period in which prognosis is almost favorable. That no treatment was spared is shown by the citations: Every subject but three received his due of antitoxin not only seasonably but in sufficient quantity and distribution. The results almost justified the belief that serum has possibilities for evil. One patient died within thirty-six hours, despite serum injections. By an "irony of fate" the two patients who recovered had received no serum. The author used magnesium sulphate intramuscularly in nine cases and saw no improvement whatever, yet concedes that this remedy was used in the two recovered cases. The author praises chloral in these fulminating cases, while antitoxin receives full credit as a prophylactic.

Anthrax (Splenic Fever) as a War Scourge.—Richter and his historiographical colleagues have long labored to show that this condition, now held in bounds, was in medieval and classical times a terrible scourge. This knowledge has not caused any reaction worth mentioning in the present war. The pestilence can readily be traced through history. It is spoken of in Exodus as deadly to mankind and livestock. A similar scourge is mentioned in the Iliad, and also by Seneca. The plague described by Thucydides harmonizes better with anthrax than with variola, typhus, and bubonic plague. This was also a war plague, as were several subsequent scourges. A careful perusal of the descriptions of Thucydides and subsequent narrators readily shows how much better the disease pictures adapt themselves to what we know today of anthrax than they do to other similar states. The probability of anthrax is associated throughout with a disease which attacks both mankind and domestic animals, and it is in war especially that such diseases should spread.

Russian Machine-Gun Bullet Extracted from the Bladder by Means of the Urethra.—Zondek relates the following case: A reservist, aged twenty-five, was hit last September by a missile, as above described, close to the orifice of the penis. He passed no urine for eighteen hours, passage painful, urine bloody. At the time the bullet could be felt in the penis, but five days later it was found to have escaped in some manner. The bladder and urinary excretion showed marked disturbances, including retention and frequent micturition. Upon examination by the author the bullet wound was found to be cicatrized; no visible opening of egress; urine common to that of hematuria. An *x*-ray picture showed the presence of the bullet, apparently just in front of the symphysis. Cystoscopy, however, showed the missile to be in the bladder. These projectiles are long, narrow, and pointed, and for their extraction the author devised a bullet-catcher especially adapted to seize an object of this sort. With this resource he was eventually able to extract the projectile with considerable difficulty but without permanent injury to the bladder.

Münchener medizinische Wochenschrift.

December 8, 1914.

Prognosis and Therapy of Abdominal Gunshot Wounds.—Rotter having studied a number of small series of these injuries finds mortalities as high as 80 per cent. This figure, however, is far behind the naked truth. The cases were treated in the field hospital. Let us now take the cases on the fighting line which were borne to the dressing stations and never reached the field hospital. Fifty-six soldiers died outright from their abdominal injuries who would, had they survived, have reached the hospital. If we add the fifty-six to the thirty-two who arrived at the latter we have a material of eighty-eight cases with seven recoveries and eighty-one deaths. Only here and there can we expect to save a life.

War Letters from a Military Hospital.—Klaussner continues to publish these documents which proceed from the various hospital stations, which are doubtless somewhat novel in warfare. Schlösser, who writes from the Ophthalmic Station, states that actual material of ocular lesions is not more cumulative than that seen in civic clinics. It is far otherwise, however, with wounds of the bony regions which communicate with the orbit. Eye lesions also complicate numerous conditions which

have little in common. Slight wounds of the globus are like those seen in civil practice with their menace of sympathetic ophthalmia. Severe wounds which lay bare in part the orbit may in theory readily be infected. Here we have the alternative of attempting to retain vision (or form an artificial eye stump) or of cleaning out the orbit. Müller, writing from the Odontological Station, states that civil and military practice in this field differs widely. Ordinary bullets cause comminution of the jaw bones, while shell fragments, besides causing the most horrible lesions of the soft parts, splinter teeth and jaws in all directions, while dirt is forced into the wounded area. These victims cannot reach a stationary hospital before the end of about a week, having meanwhile a simple retentive dressing. Everything is then found to be reeking with putrid pus. It must be owned that bandaging these wounds is open to question. Fixed dressings prevent drainage of saliva and wound secretion. A sort of light mask with windows should answer better. A very striking feature of these wounds is the favorable prognosis. Herzog, from the Otological Station, states that external violence is responsible for most injuries of the ears, especially detonation. The drumhead often ruptures if the subject is near to an exploding shell, and the apertures are very large, so that only a narrow margin of drum-head remains. Kattwinkel, from the Internal Station, reports the occurrence of heat-stroke and infectious enteritis (both very common). There was but little true dysentery. An epidemic of typhoid seems to have been jugulated by isolation, inoculation. Diseases incidental to cold and damp weather were very few, as were venereal diseases. In general the deaths were very few and the condition of the troops excellent.

Feeding the Civil Public in War Time.—In a document signed by numerous Munich physicians it is said that Germany is in no danger of starvation. Sea fish can be caught in abundance in the season; what is not eaten may be canned and preserved for reserve food. Some fish not commonly eaten can be utilized. Legumes which come from Russia no longer exist in Germany, but next spring will be cultivated in enormous quantities, including the soja bean. Hungary will also cultivate the legumes. Artificial fertilizer will be required. Vacant lots and unused spaces can be utilized for the cultivation of all the legumes. Rice can be obtained in great quantities from Italy and stored against need. Food chestnuts can be drawn upon for regular consumption. Maize, like legumes, can be made to grow in abundance and more oats can be raised. Rolls can be made of rye-meal. People must be taught food values so that the acquired demand for milk, eggs, and meat may be turned in the direction of the cereals, potatoes, legumes, etc. Children especially should be taught to eat fruit, salads, vegetables, etc. Indulgence in alcohol should be diminished, because alcoholic beverages are relatively costly in comparison with the raw materials from which they are made. It makes a German soldier very bitter to think of himself half frozen in a trench while the stay-at-homes are sitting contentedly in a comfortable public-house. The stay-at-homes should therefore regard self-denial as a form of patriotism.

Deutsche medizinische Wochenschrift.

December 10, 1914.

Forensic Activities of the Military Surgeon.—Reckzeh states that this province of military medicine must be regarded as of equal significance with prophylaxis and cure. The rights of the soldier and those of the fatherland must be alike respected. A parallel condition is seen in life insurance. Medical opinions in a campaign must be brief and to the point. The first thing to be considered is the declaration of the soldier in regard to fitness for military service, along with the objective conditions (characterized briefly as normal, good, etc.) The two are then compared and the opinion must be so couched as to be intelligible to the layman. At times some examination may be requisite. The fitness for duty must depend at times on what the duty is. There is on the part of the soldier a certain tendency to exaggeration, simulation, and dissimulation, but in the German troops this tendency is seldom in evidence. Under simulation comes exaggeration of past sicknesses, false statements as to their causation, or statements to the effect that old ailments are being aggravated by military duty. The soldier of this type would like to be judged incapable of shooting well or of some other form of inefficiency, and his ailments will be of the sort which will give this impression to the exclusion of others which would be less injurious to him as a soldier. The claimant does not so much fabricate as overvalue certain immaterial symptoms. These men are often nervous and hypochondriacal by nature, and the army would perhaps be better off without them. Simulators are best examined privately and surprised into contradictions or confessions. A man who simulates deafness will readily deny that he hears a whisper or other test because he is on his guard. But afterward when told from behind to "face about" he obeys the order. Ruses of this sort are common in the detection of simulation.

Cystin Calculi and Cystinuria.—Neumann states that 170 cases of these conditions have now been reported. Of late years interest in cystin has notably increased. The author has seen two cases which he reports in great detail. The first case was a renal calculus. Family and personal history of the twenty-four-year-old girl was good. Up to a certain day her health had been perfect and the urine normal. Within two months the entire disease-picture developed. Upon admission she presented a high degree of pallor. Chest, abdomen, and general nutrition without finds. A tumor was palpable at the site of the right kidney with patient in left lateral decubitus.. Left kidney seemed normal. Urine contained cystin crystals and blood corpuscles. A part of the diagnosis was therefore readily made. Under pyelography the *x*-ray revealed the pressure of a stone in the kidney pelvis. Pyelotomy then revealed the presence of cystin calculi. These were removed, everything healing cleanly. The patient, however, showed no corresponding improvement. The kidney which had shown numerous little points of suppuration at the operation continued to give trouble and its fellow also began to show symptoms. The *x*-ray showed no calculi anywhere, nor did the urine contain anything abnormal save a few cystin crystals. An attempt was made to determine the amount of cystin secreted, but the maximum values found were not significant. It was easier to determine the number of crystals in the sediment of each portion of urine passed, in the hope of causing them to vanish. Treatment consisted of bed rest, milk diet, bicarbonate of soda. Cystinuria was greatly benefited, but there was a possibility that other kinds of stone could develop.

The Histodiagnosis of Chronic Endometritis. — Vincenzo Vannelli concludes that this condition is the result of an inflammation involving the epithelium of the uterine mucosa, the chorion, the glandular epithelium, the blood vessels, and the mesometrium. Of considerable diagnostic value is the detection of plasma cells. Normally the uterine epithelium does not secrete glycogen, the detection of which, therefore, indicates an inflammatory change in the endometrium.—*Giornale Internazionale delle Scienze Mediche.*

Insurance Medicine.

Medical Examinations for Life Insurance.—Dr. Cuthbert Powell, in a paper given before the Boulder County Medical Society, April 23, outlined the attitude that should be taken by the medical profession toward insurance work. In all of our American companies the selection of risks by medical examiners has been practised since their inception. Recent figures gave 76,500 appointments as medical examiners for five of the larger life companies, and $347,810 was paid by one of these companies in 1913 to its examiners in the domestic field alone. When one considers that in the United States alone there are about 260 life companies, all employing medical men in the selection of applicants for insurance, one begins to realize what a tremendous part these companies play in augmenting the income of members of the profession, and the right they have to expect and receive only the finest type of work from their medical examiners. Too little consideration, he says, has been given to this phase of professional duty; and the training for it should be given at the medical colleges. It has been taken for granted that no special knowledge was required to enable one to examine properly an applicant for life insurance. This is a mistake and one which should be speedily corrected. In ordinary practice the presumption of ill health is uppermost; in life insurance work the applicant is presumptively sound. In the one case the physician starts out with a known or probable abnormal, in the other with a presumptive normal. His mental attitude is thus reversed, and the importance of a neglected branch of study, that of a normal body, is strongly emphasized. Speaking broadly, nine out of ten patients are diseased, and nine out of ten "applicants" are healthy. No physician can honorably retain an appointment as examiner for a life company unless he is willing and able to devote sufficient time and energy to the proper performance of the special duty required of him; it is the duty of our medical colleges to equip their students with sufficient knowledge to properly perform this part of their professional vocation, since it is from this work that the first income is received, long before the opportunity arrives to perform and receive compensation for major operations. That physicians generally are either incompetent or extremely careless in the making of life insurance examinations is shown by the fact that out of a certain hundred examinations fifty-four, or a little more than half, were completely recorded, requiring the necessity of obtaining additional information in order to complete the reports, and a delay in time which means much to both agent and applicant. Pecuniary loss may be suffered by widow and children by reason of the applicant's death pending information required of the medical examiner. The medical examiner, too, has his problems, and the higher the type of man the greater the problem. The examiner must remember that he is employed by the company and not by the applicant or agent. Any information obtained during the course of the examination belongs always to the company, and should not be withheld even though facts appear thereon which are detrimental to the applicant. The examiner receives his fee for all examinations whether a policy is issued or not; he must not be influenced by either agent or applicant. No matter how carefully the history may be taken or how thoroughly the physical examination is made, unless the questions on the examiner's report are answered in words or figures, the medical director cannot pass upon the applicant's insurability; dashes, ditto marks, and blank spaces are not accepted as answers to questions. All applicants for insurance are passed upon by at least two medical men, the local examiner and the medical director. The local examiner does not accept or reject an applicant, but his report should convey to the medical director such knowledge that he may act intelligently upon it. Some companies employ a medical referee, whose duty it is to obtain such additional information as may be necessary from the examiner to enable the director to pass upon the applicant's insurability, and also to recommend as examiners physicians in his territory where vacancies exist. It occurs that applicants who are passed as first-class risks by the medical examiner are rejected by the medical director, due to the fact that he obtains knowledge of the risks about which the examiner knows nothing. Naturally the examiner desires the reasons for such action. The medical department is in possession of special knowledge of mortality statistics and rules of selection not accessible to an examiner, and has at its command important sources of confidential information and means of special inquiry. The examiners' relation to the agent is sometimes a vexatious problem, but it is always well to consider the point of view of the agent, as the most of them are honest, ambitious men and women doing hard and often disappointing work. As examiners, physicians can do much to aid them by occasionally inconveniencing themselves to make quick examinations. Honesty, absolute incorruptibility, and a deep sense of moral obligation, which are the best vouchers for moral courage, are required of the examining physicians. *Denver Medical Times*. October 1914.

Status of the Medical Director in Courts.—Blackburn considers the medical directors as the "Biological Engineers" of life insurance, as essential to ultimate success as the agency department is essential to immediate results. Medical directors and actuaries combine the knowledge and experience of the relations of normal and abnormal man with the mathematics of probabilities and averages. They resolve the doctrine of diseases, their courses and modes of occurrence into statistics sufficiently accurate to warrant the company guaranteeing with absolute certainty the ultimate fulfillment of its contract obligations. The medical director is the credit man of the business and the actuary is its comptroller. The courts, however, have not dealt with the medical department as frequently as with the agency department because the medical department is intermediate. The agency department is initial. The executive department is final. On these two departments hang most of the law of life insurance.—"The Medical Department in Court," American Life Convention.

Medical Section of the American Life Convention.—The fifth midyear meeting of this very active association will be held at the French Lick Hotel, French Lick Springs, Indiana, on March 3, 4, and 5, 1915, under the presidency of Dr. Whitfield Harral. The secretary is Dr. F. L. B. Jenney, 168 North Michigan Avenue, Chicago, Ill.

Book Reviews.

Précis de Chirurgie de Guerre. Par E. Delorme, Medecin Inspecteur General de l'Armée, Membre de l'Académie de Médecine, Membre et ancien Président de la Societé de Chirurgie, grand officier de la Légion d'Honneur. Price, 4 fr. 50. Paris: Masson et Cie, 1914.

This excellent little book, which, as the author tells us, was not thought of until the unexpected declaration of war by Germany made evident the necessity of some manual of instruction for the civilian physician suddenly confronted with military medical problems, is one that answers its purpose capitally. Though written under pressure, begun at Paris during the first days of mobilization, interrupted repeatedly by the engrossing calls upon the time of a medical inspector general, taken up again at odd times, during the noonday rest, during the intervals of inspection, and finished in the small hours of the night after fatiguing work in the field and the hospital, the book shows no signs of haste. It is, of course, no formal treatise, but merely a practical manual instructing the volunteer surgeon in his new duties with the army on the battle line or in camp, warning him of the problems he will be called upon to meet, and telling him what to do and what to avoid. The book is of portable size and shape, clearly printed, and neatly bound. It might be studied with profit by medical officers of the National Guard as well as by the lieutenants of the medical reserve corps of the U. S. Army.

Operative Surgery: The Head and Neck, the Thorax, and the Abdomen. By Edward H. Taylor, M.D., B.S. (Dub. Univ.), F.R.C.S.I. Professor of Surgery in the University of Dublin, Surgeon to Sir Patrick Dun's Hospital Quarto, 524 pages; illustrated with 300 figures from original drawings, many printed in colors. Price, $9.00 net. New York: William Wood & Company, 1914.

In this work a different plan has been followed from that of the ordinary operative surgery, where the attempt is usually made to cover the whole field. Taylor has confined his attention to the surgery of the head, neck, thorax, and abdomen, and even here has made no attempt to cover all the operative procedures that *may* be employed but has included those which the general surgeon is most likely to be called upon to perform; while of the almost innumerable methods of performing some operations he has selected and described the technique that he has himself found most satisfactory. By thus eliminating the descriptions of a host of rarely used methods, usually transplanted bodily from one text-book to another, he has been enabled to devote adequate space to more important operations and to incorporate a profusion of magnificent illustrations and still keep the size of the book within reasonable bounds. While occasionally, as, for example, in the case of inguinal hernia or gastroenterostomy, several methods of performing an operation are given, frequently but one is described, thus compelling the reader to acquire a thorough grasp of the important principles and avoiding the danger of confusion of ideas so often resulting from attempts at abbreviated descriptions of numerous slight differences in technique in operations designed to accomplish the same purpose.

The first section is devoted to surgical technique, including the questions of sterilization, preparation of patient, operator, and assistants, ligatures and suture materials, drainage and drainge materials, the choice and methods of administering anesthetics, etc., and it is remarkable how well the essentials have been covered in the 30 pages allotted to this section. The remainder of the book is devoted to the surgery of the regions indicated in the title. The principal operations on the head and neck are well covered, the author being assisted in the preparation of the sections on the larynx by Sir Robert Woods, and in those on the mastoid and maxillary sinus by Mr. T. O. Graham. In the section on the thorax Taylor has taken up the operative surgery of benign and malignant tumors of the breast, acute and chronic empyema, and the treatment of pericardial effusions. It seems unfortunate that this section was not amplified to include at least something on the surgery of the lung, for in recent years considerable progress has been made in this field.

The section on the abdomen must be considered a masterpiece. The keen summarizing of pathology and indications for operation, the choice of operation and concise description of technique, the wide range of valuable comments suitable to the individual subject, the remarkable illustrations—all these not only deserve but compel admiration. It is hard to single out any part of this section as being more worthy of special notice than another; but the unusually full treatment of colectomy, with the author's comments and the particularly fine illustrations showing, among other things, the course and destination of the lymphatics and the proper lines of incision of the mesentery in order to preserve the blood supply in cases of excision of various portions of the large intestine, should appeal to the expert as well as to the beginner in the practice of surgery. To round out this section the technique of hysterectomy should be given, for in the country and even in the larger centers a large proportion of such operations are done by the general surgeon. The author gives credit to Mr. Adams McConnell and Mr. R. A. Stoney for aid in the preparation of parts of this section.

The index is remarkably complete, especially for a first edition and on the whole we have seldom had the pleasure of reviewing a book that came so near to the ideal in its aims and achievements.

A Practical Medical Dictionary of Words Used in Medicine with Their Derivation and Pronunciation, including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance, and Other Special Terms; Anatomical Tables of the Titles in General Use, and Those Sanctioned by the Basle Anatomical Convention; Pharmaceutical Preparations, Official in the U. S. and British Pharmacopœias, and Contained in the National Formulary; Chemical and Therapeutic Information as to Mineral Springs of America and Europe, and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine," of the "Reference Handbook of the Medical Sciences," and of the "Medical Record." Third Revised Edition. Illustrated. Price, $5.00 net. New York: William Wood & Company, 1914.

Since 1911 there have appeared three editions of this work, which has grown from the original 1000 pages to 1059 pages. This increase in size has been necessitated not only by the inevitable accretions to an already unwieldly medical vocabulary, but also by the revision and amplification of former definitions. This work is not a mere compilation, but shows on almost every page the results of sound judgment in the selection of words where alternative terms are in use, in the omission of obsolete expressions, and in the inclusion of new words which have earned a place in the medical vocabulary. The value of a medical dictionary to the undergraduate student is to be gauged largely by the clearness of its definitions, the ease of reference, and the indication of the preferable term or terms to be chosen when several are in use. To the advanced student and general medical reader the value of a medical dictionary is to be determined largely by the new words that it defines. The needs of both classes of readers are apparently well supplied by this volume.

Lehrbuch der Oesophagoskopie. Von Prof. Dr. Hugo Starck. II Neubearbeitete Auflage. Price, 9 M. Würzburg: Curt Kabitzsch Verlag, 1914.

Prof. Starck has rewritten the entire first part of his text-book, which is devoted to technique and to the instruments. He says that the theory and practice of esophagoscopy has advanced very little since the von Mikulicz era—the date of the previous edition of a decade ago.

A Manual of Diseases of the Nose, Throat, and Ear. By E. B. Gleason, M.D., LL.D., Professor of Otology in the Medico-Chirurgical College; Aurist to the Medico-Chirurgical Hospital; Surgeon-in-Charge of the Nose, Throat, and Ear Department of the Northern Dispensary; Formerly one of the Laryngologists to the Philadelphia Hospital. Illustrated. Third edition, thoroughly Revised. Price $2.50. Philadelphia and London: W. B. Saunders Company, 1914.

Students and general practitioners will find in this volume the essential facts of rhinology, laryngology and otology, correctly stated. Special attention is given to methods of examination, diagnosis, and treatment; operations are clearly described, and where the methods of operation are numerous, the author has selected those which his experience has led him to believe will prove most useful to the readers for whom this book is intended. The language of many of the prescriptions is capable of improvement; books intended for students should be immaculate in this respect.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held December 17, 1914.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

Blood Transfusions, Indications and Results, Based on Observations of 212 Transfusions.—Dr. R. OTTENBERG and Dr. E. LIBMAN presented this communication, which was read by Dr. Libman. He stated that the real value of transfusions and the real indications for it were becoming better understood as a result of the large number of transfusions that had been done since Crile had introduced direct transfusion. They had studied 212 transfusions in 189 cases, chiefly through the kindness of the attending staff of Mount Sinai Hospital, New York. Of these 85 cases, or 45 per cent., were successful in that the condition of the patient was greatly improved, and 42, or 20 per cent., were actually life-saving. The cases might be classified as follows: (1) Successful cases, to which belonged those in which the prognosis was extremely bad and transfusions saved life (some of these subsequently recovered, while in others the original underlying disease continued) and those cases which recovered in which the prognosis before transfusion was not desperate. (2) Unsuccessful cases, of which there were 104. These cases might be classified into three groups: (1) Cases in which there was temporary improvement following transfusion, with death later from continuation of the original disease; (2) cases which died of some disease necessarily fatal and in which transfusion could not have been expected to do much good; (3) cases in which transfusion did little or no good, although from the nature of the disease a good result might have been possible. The most interesting cases were those in which transfusion was life-saving and these were almost all cases of hemorrhage either from operation, disease, or hemorrhagic diathesis. Some of them were also cases of grave chronic anemia or poisoning. The speaker then discussed the special indications for transfusion under the following headings: 1. Transfusion for simple hemorrhage, (*a*) gastric and duodenal ulcer, (*b*) dysentery, (*c*) typhoid hemorrhage, (*d*) ectopic hemorrhage. 2. Transfusion in connection with surgical operations, (*a*) preliminary to operation, (*b*) for postoperative shock, and (*c*) for shock. 3. Transfusions for the cure of hemorrhagic conditions, (*a*) purpura hemorrhagica, (*b*) hemophilia, (*c*) hemorrhages secondary to blood diseases, severe infectious diseases, and jaundice. 4. Transfusions for blood diseases, (*a*) pernicious anemia, (*b*) leucemia. 5. Transfusions for infections, (*a*) infections with pyogenic organisms, (*b*) infective endocarditis. 6. Transfusions for intoxications, (*a*) acute poisonings, (*b*) diabetic coma. 7. Transfusions for debilitated conditions, (*a*) cancer, (*b*) malnutrition, (*c*) simple anemia. In the cases of hemorrhage from gastric or duodenal ulcer the results were exceedingly good; although all of the patients were in a desperate condition at the time of the transfusion, 12 of the 14 recovered. In dysentery, on the other hand, the results were rather poor, because, as might have been expected, the transfusion exerted very little influence on the course of the dysentery itself. In typhoid fever the results were exceedingly encouraging. Among seven transfusions for typhoid hemorrhage, four were successful in relieving the immediate symptoms of hemorrhage. Two transfusions in protracted cases of typhoid fever exerted a very beneficial effect on the course of the typhoid itself, and the authors recommended that in typhoid fever cases, at the first indication of blood in the stools, preparations be made so that a transfusion could be done at short notice if necessary, and that in protracted cases of typhoid state transfusion should be tried as a reviving agent on the patient. Possibly such transfusions would be more advantageous if a donor who had recovered from typhoid or who had been immunized could be used. In three cases of ectopic pregnancy seen by the authors transfusion was life saving. Among the most satisfactory transfusions in the whole series were some of those done preliminary to operation in patients whose desperate condition would otherwise have contraindicated any other operation. There were 23 such preoperative transfusions, and in 13 of them the result was decisive and the patients recovered. In shock, on the other hand, the results were very disappointing. The authors thought, however, that if the shock could have been foreseen so that the transfusion could have been done immediately, instead of after several hours' delay in obtaining a donor, the results might have been better. Perhaps the best results in the series of cases were those in the group of hemorrhagic conditions. These the authors discussed under three heads—purpura hemorrhagica, hereditary hemophilia, and symptomatic hemorrhagic diathesis. Of purpura hemorrhagica there were nine cases, all very severe, as no one had yet advocated doing transfusion in the milder cases of this disease. Of the nine cases, six recovered completely and one left the hospital greatly improved. The prompt cessation of the hemorrhage in most cases was very striking. After speculating as to what effect the blood transfusion might have on this disease the authors pointed out that it was probably not due to restored coagulability (as it was in hemophilia) because in most cases of purpura, the coagulability of the blood was not impaired. The two fatal cases of purpura hemorrhagica formed a peculiar group in that they were both cases of postpartum purpura hemorrhagica in which the ordinary kinds of bacterial infection could be excluded. They suggested that possibly this was a separate type of disease with a pathogenesis different from that of the other cases. In hemophilia the transfusion had an almost specific effect. In five of the six cases transfused the hemorrhage stopped promptly and the coagulation property of the blood became practically normal. In the cases that were followed for some period of time, however, the deficient coagulability always returned after some weeks or months. The authors suggested that every individual known to have hemophilia ought to have at his command several persons whose blood, by previous tests, was known to be compatible with his own. Whenever serious hemorrhage occurred prompt transfusion should be done. Besides this a small intravenous injection (25-50 c.c.) of whole blood should be given to such persons regularly at intervals long enough to have some continued effect. It was possible that if this was done the hemorrhage could be prevented and the majority of hemophiliacs able to lead a life of normal duration. In discussing the value of Weil's serum treatment in hemorrhagic diseases, Dr. Libman and Dr. Ottenberg were not in entire accord, though they believed that the serum treatment deserved a further trial. In almost all of the 35 cases in which transfusion was done for hemorrhagic disease serum treatment had been tried out thoroughly before the transfusion and had had no effect. In various types of hemorrhagic disease secondary to other conditions, in general transfusion helped to check hemorrhage, but only did so permanently if the original condition could be relieved. In cholemic hemorrhage the results were rather disappointing; only one of the seven cases recovered. They suggested that in these conditions the blood and the viscera were so badly damaged that only very large, and possibly repeated transfusions, so as to replace a very large part of the patient's own blood, would be effective. Of the 24 cases of pernicious anemia studied, 13 underwent more or less prolonged intermissions immediately following the transfusion. The cases which underwent remissions were generally those of longer duration than the ones that failed to undergo remission, and this suggested that there were two types of pernicious anemia; one a type with a rather definite onset and reaching a severe grade of anemia within three to six months, in which transfusion did little good; the other, a type with a less definite onset and slower progress, which tended to undergo remission spontaneously and in which new remissions could be brought about by transfusion. It seemed wise to do a large enough transfusion to overcome the anemia to a considerable extent because this tended to overcome the vicious circle caused by apparent degeneration resulting from the anemia itself. Nevertheless remissions sometimes occurred after small transfusions. The effect of the transfusion on the general condition of the patient was remarkable; the fever usually disappeared, and the appetite returned, although apparently the hydrochloric acid did not return to the gastric secretion. In regard to pernicious anemia, the authors concluded that transfusion was the best remedy and that though it never cured it led to remission in about one-half the cases. They recommended that if the first transfusion failed to bring about a remission, one should be tried from a different donor. With regard to splenectomy in pernicious anemia they had seen two cases, in one of which it was

very successful; in the other it was not. They believed that splenectomy had about the same effect as transfusion; namely, it brought about a remission, and judging from their experience up to date it should be reserved as a final method of producing remission when transfusion would no longer do so. In leucemia, the results were interesting. In myelogenous leucemia and acute lymphatic leucemia transfusion was without effect, but in four or five cases of chronic lymphatic leucemia transfusion was followed by a remarkable remission in which the blood picture returned temporarily to normal. The ultimate outcome, of course, was not affected. In bacterial infections, transfusion was of value only so far as it restored the general resistance of the patient. In cases of acute infection with pyogenic organisms, of which the authors reported ten cases, transfusion was of much value; but in protracted cases, particularly those of pyemia, transfusion sometimes produced remarkably brilliant results. In subacute bacterial endocarditis transfusion was of great value in combating the anemia and the general weakened condition. The authors suggested that in acute infectious diseases, particularly those in which serum immunity had yet to be demonstrated, transfusions be done from donors who had recovered and were therefore immune. This should be tried in malignant cases of the exanthemata. In gas poisoning transfusion was almost a specific treatment and should be accompanied by phlebotomy. In diabetic coma it was useless. After discussing certain technical questions affecting the indications for transfusion the authors pointed out that by careful performance of the tests for hemolysis and agglutination of either donor's or patient's blood by the other, the danger of fatal accidents could be absolutely excluded. They had had no such accidents in any of their cases in which this difficulty was excluded, but they had had three accidents in cases in which it was not. The danger of doing too large a transfusion was considerable, especially in cases in which the heart action was already impaired. The amount of blood which should be transfused should be carefully calculated and then strictly adhered to. It was wise before transfusion to have the donor sign a legal form relieving the patient and the surgeon from liability. The donor should receive fluids freely during the transfusion, but whiskey should be avoided as it seemed to cause vomiting when the patients became anemic. After discussing the various methods of doing transfusion, the authors decided that the syringe method was at present the best, since it was simple, did not injure the vein, and could be repeated as often as necessary on the same patient.

Treatment of Pernicious Anemia by Transfusion.—Dr. E. LINDEMAN presented this communication. He stated that to him the most typical feature of pernicious anemia was its variable and capricious course. The variability of the symptoms was so great that doubt as to the accuracy of the diagnosis was frequently felt. Most of the cases in his experience of the atypical type had proved later to be the pernicious anemia of Addison. Because of the capricious course of the disease one must ever be guarded in the presentation of any form of therapy lest one attribute to the therapy that which rightly belonged to the natural course of the disease itself. While in a number of cases a favorable change occurred spontaneously, only too frequently did death occur while awaiting the favorable moment for improvement. Transfusion had been practised for a number of years and the results were often strikingly brilliant, sometimes only temporary, and sometimes indifferent and even poor. In the writer's opinion the reason for this variable response was due in part to the extent and seat of the pathological invasion and in some cases to the incompatibility of the blood introduced. It would be entertaining to relate a series of dramatic successes in the treatment of pernicious anemia by transfusion, but for study a series of cases that did not respond well to any form of therapy including transfusion would prove more profitable. Splenectomy in pernicious anemia was not an accidental thought but was arrived at through rather laborious study and logical reasoning. Dr. Lindeman outlined the experimental work in reference to toluolendiamin poisining in animals and stated that the observers making these experiments concluded that toluolendiamin was a blood poison for dogs, powerful *in vivo*, but powerless *in vitro*. The poison alone did not affect the red blood corpuscles, but the hemolysis and icterus were influenced by the spleen. They believed the spleen took out the decomposition products of the red blood corpuscles and passed them on to the liver through the portal vein. The material for building bile pigment was over-abundant and the liver made an excessive amount of concentrated bile. The result was stasis and resorption causing icterus. Toluolendiamin was a hemolytic substance in the sense that it only injured the red blood corpuscles and did not completely destroy them. The spleen dissolved the injured red blood corpuscles and thereby subjected the liver to increased metabolism of blood pigment. The hemolysis in chronic toluolendiamin poisoning ran parallel with fatty changes in the liver and was benefited by splenectomy. In acute poisoning, no fatty change was found in the liver and splenectomy had no influence. Joannovics and Pick concluded that in chronic toluolendiamin poisoning after splenectomy there was a reduction in the building of higher unsaturated fatty acids in the liver. Here one found the first references to the spleen exerting some influence in fatty metabolism. The experimental work of Myerstein in regard to the protective bodies in cholesterin and of Eppinger showing that urobilin was greatly reduced after splenectomy led to the conclusion that in the absence of the spleen blood destruction was diminished. Pearce found that after splenectomy the resistance of the red blood corpuscles was increased and that this increased resistance depended upon the corpuscles and not the serum; however, there was an increase in the antihemolytic property of the serum. Splenectomy itself produced an anemia, which reached its height in from three to six weeks, and a leucocytosis. The repair of the anemia was longer in splenectomized than in normal animals, according to the experiments of Krumbhaar and Musser. In pernicious anemia the total fats were increased from 40 to 60 per cent., while cholesterin and cholesterin ester were decreased and the iodine combining power had from two to three times the normal value. Where hemoglobin and icterus occurred in a number of diseases, this relationship of the lipoid and fatty acid content of the blood obtained. King said that the occurrence of these acids was closely related to the activity of the spleen, since the removal of the spleen lessened their value in the blood and greatly benefited their hemolytic condition. These conclusions the author showed were well borne out clinically. In the literature about 35 cases of splenectomy had been reported. He had had under observation six cases of splenectomy with transfusion for pernicious anemia which he reported in full, and from a close study of these and some thirty other cases he concluded as follows: (1) Splenectomy played an important part in the course of events in this disease. (2) The removal of the spleen reduced the blood destruction percentually. (3) The extreme blood crises did not occur after splenectomy. (4) Splenectomy did not cure the disease; the patient still maintained the blood picture of a primary anemia, though clinically normal. (5) Considering the course of the disease the procedure was entirely justifiable. (6) Cases should be selected carefully and those showing petechia, hemorrhage, mental disturbances, and marked cord disturbances should be considered unfavorable to this procedure. Cases in which the vital staining could not be demonstrated belonged to the unfavorable group. (7) The patient should be transfused before splenectomy; he must not be allowed to make the blood himself. In many cases he could, but even if he could he should not be permitted to do so. By blood transfusion the bone marrow function was conserved for the vital need of the patient in the future.

Dr. MORRIS MANGES said that to those who had listened to what had been said on the subject of blood transfusion it seemed like a revelation of the value of this work, and he desired to emphasize the importance of this kind of work as he felt confident that five or six years hence the field for transfusion would be larger. There was much to be learned in making the indications more definite. The failures which had been so candidly reported were small when compared with the striking results obtained by transfusion. He had never seen a case in which transfusion had done so much as in the one case of typhoid fever referred to in which the primary attack lasted seventy-eight days. Without the transfusions this case would have been shorter and fatal. The first transfusion was done on the thirty-eighth day when the patient had had a third hemorrhage and was in a desperate condition. The transfusion checked the hemorrhage and the patient went on with the disease. On the sixty-sixth day

the blood culture showed that typhoid bacilli were still present and the condition of the patient was as bad as could be conceived and petechæ were abundant. A second transfusion was then done and within six days the patient was convalescent; this showed what transfusion could do. Dr. Manges said he was glad the point had been made with regard to the existence of fever due to anemia. One young woman, 26 years of age, was in a deplorable condition from metrorrhagia, the hemoglobin being 26 per cent. and the red blood corpuscles, 2,000,000. She did not have a sloughing fibroid or any other discernible condition to cause fever. There was a negative blood culture. In spite of all the negative findings she had a continuous fever of about 102-103° F. for a week after admission. By that time consent was obtained for a transfusion when the hemoglobin was 16 per cent. and the red blood cells were as low as 1,500,000. The transfusion raised the hemoglobin to 48 per cent. and the bleeding at once ceased. Likewise the fever disappeared. Neither returned and the patient made an uneventful recovery.

Dr. Willy Meyer said that it was a pleasure to know that blood transfusion had now reached a practical stage. In the employment of the older method and using the ingenious cannulas of Crile, Elsberg, Soresi, and Levine, one did not know just the amount of blood that the patient was getting, and the operation itself was rather cumbersome. The procedure worked out by Tuffier and Carrel, to make use of the recipient's saphenous vein brought some improvement, but not with reference to the question whether the patient was getting just what he needed. The Lindeman method counted a great step forward. They could now see what they were doing and were able to gauge the amount of blood to be transfused. Besides the vein of both patients was punctured, if necessary, repeatedly; cutting was abolished, and from the cosmetic point of view this was a great gain. Regarding pernicious anemia, he had done transfusion in two patients thus afflicted with marked temporary improvement. Perhaps the life of both might have been saved had splenectomy been added and the transfusions continued. It certainly was wonderful how this important chapter of diseases of the blood had become a "borderland" in the last years. Dr. Meyer said he wished to say a good word for the cutaneous injection of human blood serum in hemophyliacs and persons suffering from chronic jaundice. In both the dreaded secondary hemorrhage could often be well overcome by prophylactic repeated injections before operation. If done later, when bleeding had started, this treatment had hardly ever been effectual. This kind of preparation was simpler than transfusion, but the latter was preferable in case the patient was also rather anemic.

Dr. Eugene H. Pool said that his experience with transfusion was rather limited but possibly of some interest in the present discussion. When Crile and Carrel published their first articles, he became enthusiastic over end-to-end suture. McClure and he had reported twelve transfusions by this method with variable results (*Annals of Surgery*, Oct., 1910, LII, 433). He also tried the glass cannula and the Elsberg cannula. However, about eighteen months ago in spite of his enthusiasm for end-to-end suture the superiority of the Lindeman method over all others which he had tried or seen used became evident to him. At that time a boy was brought to the House of Relief with leg mangled; he presented profound anemia from loss of blood following accident. The parents refused permission to amputate for five days when both the crushed leg and the other leg were badly infected. A few days after the amputation the boy was practically moribund. He was so weak that a transfusion by a method which entailed much manipulation for a considerable time did not seem to be warranted. Dr. Pool therefore asked Dr. Lindeman to use his method. The veins in the boy and in the father, who was extremely fat, could not be seen. Nevertheless in an incredibly short time Dr. Lindeman inserted the needles and completed a transfusion. The boy was revived and rapid recovery resulted. A few months later they employed the method successfully in a case of extreme jaundice which presented marked hemorrhage following removal of stone from common duct (*Annals of Surgery*, Vol. LX, 1914, p. 7683). That the success of the method was not due simply to Dr. Lindeman's personal facility was attested by the fact that since then he himself had adopted the method exclusively and had used it in about 10 cases without much difficulty. In regard to the uses of transfusion, he emphasized its value in hemorrhage with jaundice; in this it might be well to use it as a prophylactic measure. He also emphasized its value as an ante-operative procedure in cases of extreme anemia.

Dr. Richard Lewisohn said that Dr. Lindeman's method certainly meant a step forward, but he did not agree with Dr. Willy Meyer that it was the best possible method; it remained to be seen whether a better and a simpler one could be found. In order to do Lindeman's method properly it required four persons. The great advantage compared with the older methods (anastomosis of artery to vein or vein to vein) was that one knew the amount of blood transfused, but one should have a method that could be practised with less assistance and greater ease. The speaker said that he had tried to mix anticoagulating substances with the blood to simplify the technique of transfusion. Hirudin and sodium citrate seemed to be substances applicable in this direction. Engelmann of Germany had used 0.3 grams of hirudin in twelve cases of eclampsia without any ill effect. To prevent the coagulation of 1,000 c.c. of blood (the usual amount used in blood transfusion) 0.1 gram of hirudin was needed. The speaker had tested out hirudin in a series of animal experiments and when he found no ill effects he injected 0.1 gram of hirudin into a patient suffering from inoperable cancer. The effects of this injection were so alarming that he certainly would not use it again. Sodium citrate, however, seemed to be very promising for this purpose.

Dr. William A. Downes said he wished to say a word in corroboration of what Dr. Lindeman had said in regard to splenectomy plus transfusion in pernicious anemia. Five of the cases whose histories were given by Dr. Lindeman had been admitted to the Medical Service of St. Luke's Hospital. They were all transfused by Dr. Lindeman and later splenectomized by Dr. Downes. Two of the cases were of the type in which there was marked cerebral symptoms and should not have been operated upon. There was a continuation of symptoms and death in both cases in from two to three weeks. The other three cases had done remarkably well, and while a cure could not be claimed it did seem that splenectomy with transfusion both before and after operation offered more in this disease than any treatment yet proposed.

Dr. Louis Hauswirth said the remissions in the disease were just as long after transfusion in pernicious anemia as they were after splenectomy. One of his cases in which the hemoglobin remained 85-90 per cent. for eleven months showed in spite of it continuous blood evidence of the disease. Splenectomy did not relieve gastric or nerve symptoms any more than did transfusion. Both were palliative only. If splenectomy did no more than transfusion, the theory of splenectomy could not stand.

Dr. Richard Weil said he wished to speak of a point of technical interest, namely, the use of sodium citrate in transfusion. This substance had for a long time been in use in the laboratory to prevent the coagulation of blood, and doubtless its availability to keep blood fluid for transfusion had occurred to others. In animal experiments, guinea pigs which had been exsanguinated from the carotid could be restored by the intravenous injection of citrated blood. In human subjects the intravenous injection of citrated blood, in amounts up to 250 c.c., had been well borne, although it had as yet been tried in only a limited number of cases. Further experience was required to test its general availability. Citrated blood could be kept for some time in the ice box without undergoing any notable change. As regarded the capacity of the red cells to take up and lose oxygen, or their resistance to toxic agents, the injection of considerable amounts of sodium citrate intravenously in human beings, such as five grams in 25 c.c. of water, had been tried in a number of cases, and had not been found to diminish the coagulability of the blood.

Dr. Ottenberg, in closing the discussion, emphasized some of the points brought out in the paper.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held December 22, 1914.

The Secretary, Dr. George W. Kosmak, in the Chair.

Reports of Renal and Ureteral Anomalies.—Dr. Henry Dawson Furniss presented this report.

Case I. Dr. Furniss said this was a case of single

ureter and kidney. A mass the size and shape of a slightly enlarged kidney overlay the pelvic brim. Cystoscopy showed only one ureteral orifice on the left side, the same side upon which the mass was observed. The trigonum was distorted, there being no right angle. No kidney could be discovered on the right side and the mass overlying the pelvic brim proved to be the left kidney.

Case II. This was a case of single ureter dividing and supplying the two kidneys. The patient had a large mass in the region of the left kidney, but only one ureteral opening into the bladder and that was on the right side. After injection with collargol the radiograph showed the pelvis of the right kidney filled, and about five inches from the bladder there was an offshoot toward the left kidney. The whole ureter on the left side was filled only for a few inches.

Case III. This was a case of four ureters which was discovered accidentally. Both supernumerary ureters opened one-half inch in front of the normally situated ureters and in a line between them and the urethra. Both ureters on the left side were catheterized and injected with collargol and radiographs showed that the upper pelvis corresponded to the ureter opening nearest to the urethra. This was the usual distribution found in all cases having similar anomalies.

Four Ureters.—Dr. Furniss reported thirteen cases of three ureters which had come under his observation. Of these, nine occurred on the right side and four on the left. Most of these anomalies had been discovered during cystoscopic examination and were not related to the troubles for which the patients sought relief. Only a few of these cases needed special mention. One was a case of real hematuria from the right side in which upon cystoscopy a dimpling was seen at the inner and proximal side of the ureter which could not be catheterized and from which indigo-carmine was not excreted. This kidney was removed and had a complete double pelvis. Dr. Furniss said he was unable to tell at what point the ureters fused, but thought it must have been near the bladder on account of the dimpling that resembled a ureteral orifice. In another case a double pelvis was encountered in which there was a double ureteral orifice on the right side which showed the usual distribution, that was, the ureter from the upper pole of the kidney emptied nearest the urethra. This anomaly was discovered while working on a cadaver. In another instance there was a stone in the ureter that supplied the lower pole of the kidney, and when first seen there was no elimination of indigo-carmine from that ureter. After the removal of the stone the function improved. This obstructed ureter as seen through the cystoscope appeared larger than its fellow on the same side and smaller than the one of the opposite side. This had been observed in some of the other cases also. One patient came with a history of having been constantly wet since birth. After diligent search following the administration of indigo-carmine a very minute opening was discovered just below the urethral orifice. This opening could be catheterized for a distance of one inch. Cystoscopy showed two normally situated ureters functioning normally. This supernumerary ureter was implanted into the bladder through the vagina and the patient had thus been relieved of her discomfort. In another instance the patient had had the left kidney removed on account of infection. For the same reason a nephrotomy was done on the right side; only one pelvis was opened. The kidney discharged a portion of the urine through the loin and the rest through the bladder. Before operation Dr. Furniss thought he saw two ureters on the right side, but could not be certain. In a recent case having two ureters he had been unable to pass a catheter into the ureter that was situated to the inner side of the normal one. In this instance indigo-carmine was eliminated from the two right ureters at different times. Most of the cases with two ureters on the same side could be be catheterized, but in his opinion the elimination of indigo-carmine at different times furnished sufficient evidence of two complete pelves and ureters.

Dr. Clarence G. Bandler reported five cases similar to those reported by Dr. Furniss, having two ureters on the left side and one on the right. After injection with collargol the x-ray showed the classical arrangement spoken of by Dr. Furniss, namely, the catheter introduced into the lower opening went to the upper pole of the kidney and the other orifice led to the lower pole in each case. During the past month he had seen two such cases, which was rather unusual. During the past three years he had had five such cases and two of them during the past month. Dr. Bandler showed several radiographic slides illustrating the classical arrangement above referred to. Other pictures and pyelographs of double ureters were also shown. The point of interest in this demonstration was that all of these cases showed two ureteral orifices on one side of the bladder, and all were discovered by cystoscopic examination.

Dr. D. W. Tovey reported a case of urinary incontinence similar to the one described by Dr. Furniss. The patient was a young woman who had had urinary incontinence since childhood. A cystoscopy showed two normal ureters emptying into the bladder. This patient also had a tubercuolous kidney which was removed. She was operated on by the Kelly method but the incontinence still continued. Later the supernumerary ureter was found just behind the urethra; it was turned into the bladder and the patient had no further trouble.

Dr. Leroy Broun said that in regard to the rarity of the occurrence of double ureters, Wertheim stated that he had found double ureters seven times in 500 operations for carcinoma of the uterus. In one case there were double ureters on both sides; in three on the left side, and in three on the right side.

Dr. Furniss, in closing the discussion, said that in a recent talk with Dr. Bandler he had been told that Huntington claimed to have seen only five cases of ureteral doubling in five thousand dissections. According to Huntington the most usual form was that of double pelvis and ureter, the ureters fusing before reaching the bladder. This was a condition in which there was apt to be much confusion, especially when one pelvis was infected and the other not, as it was then often a matter of chance as to which one a ureteral catheter would enter. One of his cases was of this type; in all the others there was a double ureter and double pelvis, proved in every instance by ureteral catheterization and x-ray, or by the different time of elimination of indigo-carmine.

Horse-Shoe Kidney, with Anomaly of Ureter.—Dr. J. R. Losee reported this case and presented the specimen, which was obtained from a macerated fetus having a congenital umbilical hernia and a deformity of the left forearm. The lower poles of both kidneys had fused and the bridge between them was made up of renal tissue and not of a fibrous band as was some times observed in these anomalies. The lower pole of the kidney was situated at the brim of the pelvis and opposite the bifurcation of the aorta. This position was due to the fact that fusion took place from the fifth to the seventh week of embryonic life before the kidney ascended into the abdomen. The pelves had not united and from the right side there were two ureters which ran a parallel course and entered the bladder separately. On the left side there was one ureter which had a normal course throughout.

Ovarian Cyst with Twisted Pedicle.—Dr. G. W. Bandler reported this case, which was interesting because of the onset and duration before operation. The patient, a woman about 40 years of age, a multipara, noted during the summer that her abdomen had become enlarged. In September she had an attack of abdominal pain which confined her to bed for three days. In October she had another severe attack of abdominal pain, equally severe on both sides. Her family physician suspected kidney stone. After suffering for five weeks the patient was able to be up and about. Her abdomen was hard and she suffered from obstinate constipation. When he first saw the patient Dr. Bandler said he made a diagnosis of ovarian cyst. At operation a little more than two weeks ago he found a large cyst reaching far above the umbilicus and intimately adherent to the anterior abdominal wall and to the lateral surfaces of the abdominal cavity. This tumor, greenish chocolate in color, was carefully loosened from its attachments to the anterior abdominal wall, the lateral wall of the pelvis, the great omentum, numerous coils of intestine, and particularly the sigmoid flexure. There was no point, except a certain area on its posterior surface, that was not glued to some interabdominal tissue. After extraction the tumor was seen to have originated from the left side, forming a complete twist of the pedicle, which was no thicker than a thumb. After removal considerable time was spent in applying hot abdominal pads to the numerous oozing surfaces. A large Morris drain was introduced down to the left side. The patient made an uninterrupted recovery.

A Case of Hydatid Mole with Malignant Tumor of Vulva and Vagina.—Dr. S. W. Bandler reported this case, in which, he said, fortunately for the patient but

unfortunately for the scientific interest, the tumor had proven not to be malignant. It had been his belief that hydatid mole and choric-epithelioma were evidence of epithelial proliferation resulting from lack of a protective ferment or secretion in the body. When the laboratory report on the small associated vulvar tumor stated that there was malignancy it seemed that this was an instance of the lack of a protective element. It was found, however, that the tumor was not malignant and neither was the vaginal infiltration. The patient was a woman 50 years of age, the mother of eleven children, the last born thirteen years ago. She had menstruated regularly until three months before admission to the hospital. Two weeks before admission she began to bleed and continued to do so for several days when a sudden hemorrhage occurred lasting half an hour. During the period of amenorrhea she had suffered from burning sensations in the stomach, vomiting, and failing appetite. Opinions varied as to whether the case was one of pregnancy or of myoma. The uterus was unevenly enlarged. Because the uterus was much larger than the period of amenorrhea warranted Dr. Bandler made a diagnosis of pregnancy and myoma. During the four days intervening between this diagnosis and operation the uterus increased in size fully one-third so that an unusual condition was recognized. Examination under anesthesia revealed that they were dealing with a hydatid mole. After the uterus was thoroughly emptied, during which time several hypodermics of pituitary extract were given, a small pedunculated tumor of the vulva was removed, and sent for laboratory examination. The convalescence was complicated by an involvement of the glands of the neck, first on one side and then on the other. A large infiltration of the left side of the vaginal wall was later discovered which, in view of the report on the vulvar tumor, was considered malignant in nature. A specimen of this infiltration was sent for pathological examination. This proved to be granulation tissue and a review of the vulvar tumor showed that in all probability it was not malignant. Some pus was later aspirated from the vaginal infiltration which showed the presence of *B. coli* and possibly pneumococci. The infiltration was still present and on this account hysterectomy was not being considered.

Report of Cases Showing the Value of Pituitary Extract in the First Stage of Labor.—Dr. S. W. BANDLER presented this report, consisting of a few selected cases in which he had used pituitary extract in the first stage of labor. He made the report because after the last meeting he had been taken to account for advocating or practising the use of pituitary extract in the first stage of labor with the cervix dilated to admit one finger. The cases which he reported were private ones, seen and examined regularly during the entire period of gestation. From these regular examinations and from the pelvic measurements he knew with what kind of cases he was dealing and that they were what might be called safe cases. In every instance the head during the last weeks of gestation was firmly engaged in the pelvic brim, well moulded, and in practically all instances very well through the pelvic brim. In other words, they were cases in which there was no doubt that a birth by natural channels was as absolutely safe and certain as any physician could wish. Only in such cases did he venture to use pituitary extract in the first stage of labor, and then he never gave more than one-half an ampule at any one injection. He judged of the frequency with which the injection should be repeated by the progress of events and by the duration of the pains which resulted from the injection of the pituitary extract. There was no reason why one should not make use of this drug to distinguish between true and false labor pains. Often times one found by the administration of a small dose of pituitary extract that the irregular discomfort and so-called pains of irregular character were really attempts at labor, and that if only a little stimulation of the right sort was added at the right time they would progress with a saving of much time to both the obstetrician and the patient. Dr. Bandler reported four cases illustrating these points and said that they by no means included all of those for which he had used pituitary extract in the first stage. In cases in which the membranes had ruptured before the onset of labor, at the beginning of irregular attacks of pain, the use of one-half an ampule of pituitary extract might save hours of time by introducing a regular rythmical labor at once. Dr. Bandler said that he prized pituitary extract highly in the second stage of labor in primiparæ and that it had done him wonderful service in these cases and especially in multiparæ might readily be imagined from the fact that he found its use frequently indicated in the first stage of labor.

Dr. JOHN O. POLAK said that in the discussion which he had had with Dr. Bandler after the last meeting he had maintained that Dr. Bandler's teaching in reference to the use of pituitary extract was bad and he still held the same opinion. All men were not competent to handle this drug as was Dr. Bandler. The practitioner who did not see so many cases of labor was not always competent to say whether the child's head would come through as an expert obstetrician could do. Dr. Polak said he agreed perfectly with Dr. Bandler that pituitary extract was useful when employed as he had employed it in a limited number of selected cases. He had employed it in that way himself. But it should be remembered that pituitary extract was a very potent drug and also that there was a great difference in the strength of different preparations and a difference in the susceptibility to the drug of different patients. In his experience he had seen one-half an ampule of pituitary extract throw a uterus into clonic spasms, shake a placenta loose and result very disastrously to the child. Dr. Bandler had had some good results with this drug and was very enthusiastic about it but he had not gone far enough to see the bad results that might follow its use. The drug had one field of usefulness and that was in the second stage of labor in primiparæ and multiparæ, and in multiparæ where the head was engaged and the membranes about to rupture. When it was given the obstetrician should see that chloroform, ether, and forceps were ready at hand. The reason he said this was that he had seen instances in which the fetal heart was around 140 and the head in the vagina, and after the administration of less than one-half an ampule of pituitary extract the fetal heart dropped to 60 and the child was born asphyxiated as the result of titanic uterine spasms. Another warning should be added and that was that pituitrin should never be given in the third stage of labor for the control of hemorrhage unless accompanied with ergot. The main point in determining the advisability of using pituitrin was whether the particular head in question could pass through the pelvic outlet, and if the general practitioner was going to use this drug he must avail himself of the safeguards to which he had just called attention and should use it only in suitable cases and not as a matter of convenience.

Dr. BANDLER, in closing the discussion, said that he was very glad that Dr. Polak had said that the teaching that pituitary extract should not be used indiscriminately should go out as the teaching of the Section. It certainly should not be used except with certain well-defined indications. The paper set down very distinct and sensible indications for the use of the drug. However, to say that the members of this Section ought not to exchange views because their ideas might be wrongly used outside by the general practitioner was not the proper stand to take, nor was it any reason why he should not use the drug under discussion. In the discussion on "twilight sleep" it was brought out that there were certain dangers and that the method should only be used with certain safeguards and the same thing was true in reference to pituitrin; it should only be used where there were proper safeguards as he had pointed out, but that was no reason why they should not talk about it to one another. Dr. Bandler said that he followed his primigravid cases closely and knew just what to expect when they came to term; if forceps were used, at the worst they would be low or median forceps cases. If one would go slow and give the pituitary extract in small doses it would do no harm and with the membranes unruptured it was difficult to understand how small doses could do harm. If the head was well moulded and through the brim the child would pass without danger and he would rupture the membranes when complete dilitation denoted the second stage. It was to be regretted that they did not have the pituitary extract in standard solution; the strength of the solutions differed. He never gave a full ampule but only one-half or one-third an ampule. Multiparæ were ant to have a long and tedious first stage and one might frequently give one dose of one-half an ampule of pituitrin and see what happened. Frequently after giving the first dose the labor was over within three hours. In multiparæ it was most useful as a diagnostic aid and might save the patient much pain. As he had said in the paper, pituitary extract was only indicated in the first stage of labor, when the head was

firmly engaged, well moulded, and partly through the brim. It shortened labor by one-half. In his discussion of "twilight sleep" the point he had wished to make was not that the method was unworthy of use; if pain was forgotten and shock saved he was certainly in favor of the method, but the point he wished to make was that a pituitary effect was rendered innocuous by the scopolamine and morphine. It was not a drug foreign in action, it was a secretion. It added in many cases what the organism was supplying too slowly or in an imperfect form. It stimulated the uterus to effectual muscular contractions and accomplished only what nature did of her own accord in many cases.

Extraperitoneal Lipoma Simulating Cyst of the Kidney.—Dr. JOHN O. POLAK of Brooklyn reported this case. He stated that mistakes in the diagnosis of intraabdominal conditions were so frequent in the practice of every abdominal surgeon that the man who was always right became dangerous, for each error made one more careful in his interpretations of clinical findings. The following case nicely illustrated this statement. The patient, a woman 35 years of age, was admitted to the Jewish Hospital, Brooklyn, on November 28th. Her family and personal history were negative, but since marriage she had complained of slight pain in the left iliac region toward the end of each menstruation. Her last menstrual period occurred two months prior to her admission to the hospital. Four weeks before admission she was suddenly seized with sharp pain in the left iliac region, followed by abdominal tenderness, distention, fever, and nausea. The acute symptoms continued for two weeks and then she began to bleed from the vagina. The flow lasted eight days. A tentative diagnosis of ovarian cyst with a twisted pedicle, complicated by peritonitis, was made. Operation was refused. The abdominal distension was especially marked in the lower half, and tenderness and tension were appreciable over this area, being especially marked in the left hypogastrium and the right iliac region. A firm rounded, smooth, mass was palpated in the hypogastrium, extending from the symphysis to within five cm. of the umbilicus and to the left of the median line, for a distance of 10 cm. A diagnosis of intraligamentous myoma was made. At operation an iliac lumbar tumor was found which was a large lobulated lipoma including all the perirenal structures surrounding the lower pole of the kidney. The redundant folds of thickened peritoneum were infolded and the entire area peritonealized. A small but unobtrusive appendix was also removed. The recovery was uneventful save that a definite extraperitoneal exudate could be palpated from the pelvic brim to the right kidney. The pathological report confirmed the clinical diagnosis.

Primary Sarcoma of the Ovary.—Dr. POLAK reported this case because of the rarity of this condition. The patient, a woman 19 years of age, was admitted to the hospital on November 7th. Her last menstruation had occurred on August 29th. Just after this date she observed that her abdomen seemed to be enlarging; this enlargement was rapid and progressive, at first without pain, but later with attacks of sharp pain referred to the right and left iliac regions. These attacks of pain were usually accompanied by vomiting, but there was no disturbance of pulse or temperature. A mass was noted in the right supraclavicular region, while a firm insensitive mass the size of an orange could be palpated in the upper and outer quadrant of the right breast (lympho-sarcoma). The heart was displaced upward and to the left. A large firm mass was also palpated in the central and left side of the abdomen, extending upward from the pelvis to above the umbilicus. Rectoabdominal examination showed the uterus carried upward and forward by an abdominal tumor the size of a child's head. A diagnosis of sarcoma of the ovary with ascites was made. Through a peritoneal incision several gallons of serosanguinous fluid was evacuated and a tumor of the left ovary exposed. The tumor ruptured during eventration and was seen to contain tissue of a friable brainlike structure. The right ovary, the size of a hen's egg, was also sarcomatous. Both tubes were immensely hypertrophied and edematous. To control hemorrhage a subtotal hysterectomy and a double salpingooophorectomy were done and the peritoneum drained with a Mikulicz bag. The operative recovery was prompt, but, as was to be expected, the patient lost ground and died about eight days later. The diagnosis of primary sarcoma of the ovary was confirmed by the laboratory.

Dr. S. W. BANDLER said that he had been interested in this intraligamentous myoma and retroperitoneal lipoma because they pointed to an embryonical tendency or weakness. The situation was such that with the colon in front of it percussion might have led to a diagnosis of a retroperitoneal tumor. This was a point where they were frequently confused and it seemed that the percussion note gave some information as to whether the tumor was in front or behind the colon.

Dr. FRANK R. OASTLER said that as to the diagnostic value of percussion over the colon in retroperitoneal tumors, he did not think it was of as much value as Dr. Bandler seemed to think. In such cases he had gotten no tympanitis and yet the tumors proved to be retroperitoneal. Last June he had had a case of hydronephrosis etxending over the median line and percussion gave no tympanitis over the ascending colon or cecum. Percussion was not of much value in retroperitoneal tumors.

Dr. ALFRED M. HELLMAN said that in regard to Dr. Polak's case of primary sarcoma of the ovary, the condition was very rare. In looking over the tumors of the ovary at the Frauen Klinik of the Berlin Charité of the last ten years, he had found many epithelial tumors, but only six fibroids and no sarcomas. In malignant tumors of the ovary the operation should be very radical, and the uterus should have been removed even had the hemorrhage not compelled this step.

Dr. POLAK said that this apology for removing the uterus was that there was a metastatic condition and also for the control of hemorrhage. They were in a position where they had to do one of two things and they chose the lesser evil. As to the diagnosis of intraperitoneal myoma, if one inflated the colon with air it brought out the tumor; by the use of the thermocautery bulb one could make out the tumor unless the woman was very fat.

Early Ectopic Pregnancy Associated with Double Ovarian Cysts.—Dr. GEORGE W. KOSMAK presented this report of a patient who was admitted to the Lying-In Hospital on December 1, 1914: She was twenty-two years of age, the mother of one child delivered instrumentally in 1912. Her last menstruation occurred during the last week in October. About November 20 she begun to bleed, and this continued up to the time of her admission to the hospital. Careful inquiries failed to elicit that the patient had skipped a menstrual period, neither could any history of pain be elicited. The patient was admitted to the hospital for curettage following an incomplete abortion. The uterus was found slightly enlarged and soft but the cervix was hard. The discharge of blood had been noted at this time. On careful palpation the left adnexa seemed to be more painfully felt than the right, but nothing definite could be determined from the examination. A suspicion of ectopic pregnancy was, however, present, and the patient was prepared for operation. Examination under ether revealed a distinct enlargement about the size of an orange in the left iliac region and a laparotomy was done. As soon as the peritoneal cavity was entered bright red blood was encountered and a considerable number of formed clots. A mass involved the left ovary and tube. The ovary was decidedly enlarged and the site of an irregular lacerated wound evidently due to the rupture of a thin walled cyst. The left tube was embedded in a mass of blood clots which extended on the posterior surface of the broad ligament and at approximately the middle of this mass a finger-like clot protruded from an opening which was believed at the time to be the site of the rupture. The tube was considerably thickened throughout its entire length and was removed together with the cystic ovary. Examination of the right adnexa showed a cyst of the ovary as large as a goose egg which was unavoidably ruptured during delivery. The right tube was normal. The patient made an uneventful recovery. Subsequent and more careful examination of the specimen showed that they were dealing not with a tubal rupture but with a tubal abortion. The finger-like clot previously referred to projected from the fimbricated extremity of the tube. Microscopic examination of sections through this clot showed a few chorionic villi. Sections of the ovary showed cysts of the Graafian folicles and a corputs luteum of pregnancy. The particular interest in this case lay in the absence of the classical symptoms of pregnancy. There was no disturbance of the mentsruation and aside from the slight bleeding nothing to call attention to the presence of an ectopic pregnancy. The case illustrated the necessity of careful examination of all cases of suspected uterine abortion and the advisability of doing an exploratory operation in cases

in which the uterus itself did not furnish sufficient evidence of pregnancy. The outcome in this case must be regarded as certainly better than the natural conclusion which would have resulted in the production of an hematocele with a possible pelvic abscess later on.

Dr. S. W. Bandler emphasized the fact that he had had many cases of ectopic pregnancy which did not go over the period more than one or two days and some which did not go over at all. After all there seemed to be no reason why menstruation should not take place at the right time when the ectopic was in the outer end of the tube. Hence there was often no reason for suspecting such a condition if the physician had been taught to always expect a period of excessive amenorrhea as an essential symptom of ectopic pregnancy.

Dr. Frank R. Oastler said that in a series of 69 ectopics there were about 38 which had not skipped a period and the only symptom was irregular bleeding or a longer period of flowing, sometimes seven to ten days or even two weeks. Another interesting feature of this singular case was the double ovarian cyst with the ectopic pregnancy. The etiology of ectopic pregnancy was not definitely understood. In many cases there was no disease of the tubes or ovaries so far as one could tell, no definite pathology, and in such cases sections had been made and studied but with no results. This case was one in which there was an apparent cause, but there were many in which there was no demonstrable cause.

Dr. John O. Polak said that Dr. Kosmak had mentioned the finding of fresh blood on making the inspection; it had been impressed on him that in cases in which there was a suspicion of ectopic pregnancy one should not make an examination under an anesthetic. Some men seemed always to see these cases in the tragic stage and this should not be the rule. He had written about one hundred and fifty letters to prominent obstetricians throughout the country asking the symptoms of ectopic pregnancy and about 80 of the replies had classed the chief symptom as that of metrorrhagia, and particularly if the patient had been curetted and the metrorrhagia had persisted.

Dr. Kosmak, in closing the discussion, said he was convinced that the tubal abortion in his case had occurred the day before the examination under anesthesia was made as there were a number of dark clots as well as bright ones.

Rupture of a Pregnant Uterus Bicornis Unicollis.—Dr. David W. Tovey reported this case. He stated that there was so great a variety in the manifestations of congenital defects of development in the uterus that for a long time it was thought that they were accidental and did not follow well-defined lines which govern congenital deviations from the normal in the fetal and infantile body as a whole. Anomalies of the womb depended upon an arrest of Müller's ducts, the nature of the anomaly depending upon the time at which the development of the uterus was arrested. If there was an arrest or fusion before the twelfth week a greater or lesser duplication of the womb resulted. After the twelfth week a uterus bicornis or a septate uterus resulted. If there was an arrest at a very early period there might be simply a rudimentary bundle of muscle and connective tissue fibers. The upper parts of the ducts of Müller formed the hydatids of Morgani, the middle of the Fallopian tubes, and the lower the uterus and vagina. In a uterus bicornis unicollis the junction of the two ducts was quite intimate below so there was a single cervix without dividing septum, but directly above this the two uterine halves diverged sharply from each other. In the instance reported the patient was 29 years of age and the mother of children. She was sent to Dr. Well's clinic with the diagnosis of dead fetus of about three months and a fibroid. Dr. Well's diagnosis was pregnancy of about four months in one horn of a double uterus. An attempt was made by the house surgeon to remove the fetus and placenta, but this was found impracticable and the uterus and cervix were packed with iodoform gauze to cause dilatation and perhaps expulsion of the uterine contents. The following morning the patient was in good condition and was having regular pains. The pains stopped and during the afternoon the patient went into a state of shock. She was given ether and the house surgeon again attempted to empty the uterus. With forceps a piece of omentum, the remains of the fetus, and part of the placenta were removed, and the uterus irrigated with strong iodine solution. The house surgeon said all the iodine solution returned. Dr. Tovey said that in Dr. Well's absence he was called in later and decided to open the abdomen. The abdomen was opened by a Phannenstiel incision, and a double uterus found, one cornu being enlarged by pregnancy and there was a hole the size of a silver dollar near the septum between the cornu. A supravaginal hysterectomy was done. The patient recovered after having had a stormy first twenty-four hours. Examination of the removed specimen showed a uterus bicornus unicollis, with a hole about the size of a silver dollar near the septum between the two uteri. The pregnant cornu contained a piece of placenta two by four inches. The other horn was fully developed as were also the tubes and ovaries. The single cervical canal was dilated; the supravaginal part contained the ovum and part of the membranes. Dr. Tovey said they believed that after the uterus was packed and ergot given there were uterine contractions which ruptured the uterus. The patient was in shock and the pains stopped suddenly as they always did when the uterus ruptured. Some years ago a prominent gynecologist wrote to fifty experienced gynecologists throughout the country asking them how many times they had perforated the uterus. All confessed to one or more times. The subject was brouhgt up for discussion before the New York Academy of Medicine and the consensus of opinion was that unless there was injured intestine, a large hole in the uterus, sepsis, or poisonous fluid injected into the peritoneal cavity, the best treatment was to pack the uterus and wait. Otherwise immediate laparotomy should be done. As there was no doubt but that the uterus was often punctured during curettage, Dr. Tovey said he would like to bring about a discussion of its treatment in this society. In their clinic nothing but ring forceps were used to clean out the uterus and only saline was used for irrigation unless they were sure the uterus had not been perforated. Most perforations occurred just above the internal os on the posterior wall. All that was necessary was to pack the uterus, open the posterior cul-de-sac and pack it with gauze, thus walling off the perforated area. If there was a large hole, or intestine or omentum had been brought down, the uterus should be packed with gauze and the abdomen opened. The removal of retained products of conception was much more difficult and dangerous than most abdominal operations.

Dr. William T. Moynan said that it seemed to him that the severe shock in this case might have been due to iodine entering the peritoneal cavity or touching the intestine. In cases where this was liable to happen they sewed the peritoneum to the skin to prevent touching the intestines and used saline solution.

Dr. Leroy Broun said he would not use iodine under such conditions, but Dr. Bevie had advocated the use of iodine in sterlizing the uterine cavity. He used a 50 per cent. solution of the tincture and injected it under pressure. He had found on opening the abdomen that at times the iodine solution had passed through the open ends of the tubes. At no time had he noted any ill effects from this; of course his patients were under anesthesia.

Dr. Tovey, in closing the discussion, said that he did not believe the iodine caused the shock. The danger was not from the iodine, but when the uterus was perforated there was danger of an infection being carried into the peritoneal cavity. He had put iodine all over the lower pelvis during a Wertheim operation and there had been no bad effects.

An Unusual Case of Abductor Paresis.—E. D. Davis reports the case of a healthy gardener, aged 47, who complained of loss of voice of gradual onset, and that fluids occasionally went down the wrong way, following an attack of influenza five years previously. In January, 1910, a well-marked weakness of the arytenoideus, with the typical triangular interval behind the vocal processes, and the approximation of the anterior two-thirds of the vocal cords, was seen on vocalization. There was no evidence or history of rheumatism or syphilis. Skiagraphy of the chest and examination by the direct method were negative. No fixation of the arytenoideus could be detected. Treatment by faradization valerian, etc., had no effect. An examination in June of this year showed that the paresis had progressed considerably, and that the abductor paresis was practically complete. The nervous system had been repeatedly examined, and on the last occasion by Gordon Holmes, who found no signs of organic disease. —*Proceedings of the Royal Society of Medicine.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 5.
Whole No. 2308.

NEW YORK, JANUARY 30, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

SENILE PARAPLEGIA.*

BY M. ALLEN STARR, M.D., LL.D., SC.D.,

NEW YORK.

PROFESSOR OF NEUROLOGY, COLLEGE OF PHYSICIANS AND SURGEONS; MEDICAL DEPARTMENT OF COLUMBIA UNIVERSITY.

AMONG the diseases of old age is one which seems to have received little attention in the text-books and in recent literature. I refer to a condition which may be designated as senile paraplegia, although this symptomatic title really includes a number of different pathological conditions. These I shall attempt to analyze, in order that the distinction between them may be evident, and that the treatment appropriate to each may be indicated.

Old age is a relative term, dependent upon the inherent vitality, power of endurance, and vascular condition of the individual, and many persons at the age of sixty-five are more feeble than others at the age of eighty-five. The term senility is, therefore, an elastic one, and is not to be limited to any particular date in one's existence. The conditions here described may, therefore, occur in anyone after the age of sixty-five, depending upon his general strength and vitality.

The clinical picture presented by these cases is quite similar in the first symptoms which we can distinguish. The individual becomes gradually more and more feeble, and notices first an increasing disability in walking, in going up stairs, or in standing for any length of time. This undue weariness goes on to an actual feebleness of movement, no longer compensated for by the use of canes or help, and finally results in a partial paralysis of movement, so that it is with difficulty that the patient moves from room to room or chair to chair, and finally becomes bedridden. In some cases the weakness is attended by a marked ataxia, the incoordination being more extreme than the actual weakness. In some cases pain is a very prominent symptom, felt either on motion only, or on standing, although it may occur spontaneously, and is particularly severe after exertion and towards night. The pain is not infrequently attended by sensations of numbness and tingling, and is always attended by coldness of the feet and legs, and an objective coldness of the surface. Occasionally, however, burning pain has been complained of, even though the surface was felt to be cold.

An atrophic condition of the muscles is quite natural in a feeble old person, but in these cases the atrophy is very often quite pronounced and is attended by a loss of the mechanical excitability of the muscles to percussion and by loss of the tendon reflexes. The limbs, as a rule, are flabby, cold, and blue, showing that the vasomotor condition is below normal, and the circulation sluggish; not infrequently edema occurs when the patient is out of bed. Occasionally a loss of control of the sphincters occurs late in the course of the case, although this form of weakness is to be carefully distinguished from that due to local disturbances in the prostate gland in men. This distinction is important, as one might wrongly conclude from the appearance of some inability to control the bladder that a spinal lesion was present.

Pain in the back, and around the loins, is a frequent accompaniment of senile paraplegia, and gives rise to much discomfort and distress, particularly at night, when it is liable to lead to insomnia. The mental state of discouragement consequent upon the gradually increasing feebleness is a point which is not to be overlooked. As a rule, we have no affection of the hands or arms, or of the back above the shoulders.

When these cases are studied simply with a view to ascertaining their pathological basis, it seems possible to distinguish between certain groups. First, those in which the primary disease lies in the muscles alone and may be likened to a muscular dystrophy or atrophy, slowly progressive in character and attended by many of the discomforts which muscular weakness entails, with relaxation of ligaments and removal of support which muscles give to joints. Along with this condition the vasomotor symptoms are quite prominent, and the paresthesia and pain, the defective circulation and edema, may all be present without any apparent lesion of the nerves.

In another group of cases it is evident that there is an active degenerative neuritis present, which is characterized by a great deal of pain of a spontaneous character, by burning and tingling, by tenderness all along the nerves and by great tenderness to pressure on the limbs and increased pain on any motion. In these cases it is not uncommon to find areas of hyperaesthesia and areas of anesthesia in the feet and legs. I have found that the anterior crural nerves appear to be more frequently affected than the sciatic, and not infrequently considerable pain is felt about the rectum and the bladder, showing that all the finer branches of the sacral plexus share in the degeneration.

Thirdly, there are cases in which it is evident that the spinal cord is the seat of the disease. The symptoms particularly indicating a spinal involvement are the appearance of an incoordination and ataxia in the early stages of the disease, and the early involvement of the sphincters. In the spinal cases the atrophy appears to be rather more rapid in its progress than in the muscular and nerve cases, and the entire progress of the disease appears to be more rapid in this type. In the later stages trophic symptoms in the skin are more frequent in this type than they are in the others, and the dif-

*Read before the Practitioners' Society, Dec. 4, 1914.

ficulty of preventing bed sores is sometimes very great, especially when the patient is very thin and has little fatty or muscular padding to protect his bony points. In this class of case, it seems as if a venous congestion of the lower portion of the spinal cord might be considered as the pathological condition present, leading possibly to an edema of the cord and an imperfect nutrition rather than a state of active myelitis. The condition in the cord of myelitis, excepting as an acute infectious disease, or as a result of injury, appears to be very rare, whereas these degenerative states, possibly to be designated as myelo-malacia, a necrosis from imperfect nutrition, may be fairly common.

I have seen several of these cases of senile paraplegia, probably of spinal origin, which have developed in individuals who have been subjects of cancer or tuberculosis, but who had no symptoms of secondary involvement of the spinal cord, and who yet suffered from marked senile paraplegia.

The prognosis in all of these cases is manifestly a rather unfavorable one, although in all of them I have seen great variations in the course of the case, and a very marked improvement, more or less temporary, under treatment. In the muscular cases there is no question that a very vigorous, stimulating diet, with meat, fatty foods, and an excess of water, with a diminution in the amount of salt in their diet, and a mild stimulation by alcohol and small doses of strychnine, will give rise to some arrest in the progress of muscular degeneration and an improvement in the symptoms. In these cases, also, warm baths of a temperature of 100°, continued for twenty minutes, with mild massage, given preferably under the water, followed by dry massage or alcohol rubs, followed by rest in bed, warmed by hot-water bottles, cause a great deal of benefit. In the cases where there is a manifest neuritis, on the contrary, baths and all manipulation of the limbs and massage have to be avoided on account of the extreme tenderness, and if local applications are made they should be soothing lotions, applied lightly on soft linen cloths, and kept warm by heating the bed. In the spinal cases hot and cold douches to the back, massage of the back and of the limbs, dry cupping to the spine, have been found of special service, and in these cases it is wise to instruct the patient to lie on the stomach, so the gravitation will aid in emptying the congested veins. It is possible in these cases that tonics containing strychnine and digitalis may be of some service.

These cases are easily separable from the spastic type of paraplegia due to lateral sclerosis, in which stiffness and rigidity, with greatly exaggerated reflexes, are marked symptoms, a condition not often seen in old age. They need not be confounded with the paraplegic condition of slow onset appearing late in Parkinson's disease; where the tremor is usually a prominent, though not a uniform, symptom, and where the gait is slow, shuffling, and stiff, with a tendency to fall.

A few illustrative cases which have recently occurred in my practice may make these conditions a little more evident:

Case I.—J. C. F., a fairly vigorous old man of eighty-two, has been suffering for the last two years from intermittent attacks of severe pain and weakness in the legs and back. I have seen him frequently during this time with Dr. Bolton Bangs, and on each occasion he has been suffering greatly from pain in the back, pain down the legs, at times in the sciatic distribution at times in the anterior crural distribution, with tenderness along the nerve and cutaneous hypersentitiveness. He complains of burning pain, alternating with a sense of great coldness of the limbs, but even when his complaint is of coldness, the surface temperature of the legs and feet is manifestly high, and they are warm to the touch. Heat, however, is the only thing that seems to give him relief from this discomfort. There has been a progressive atrophy of the muscles of the legs, and in these muscles there are at times some fibrilary twitchings and occasional cramps, which are painful. The knee-jerks are lost and the mechanical excitability of the muscles to percussion cannot be elicited. There is no anesthesia, but there is a subjective difference in the sense of touch which is somewhat blunted below the knees and in the feet, as contrasted with the thighs or arms.

The mechanism of the bladder has been markedly interfered with on account of an enlarged prostate, but there is no paralysis of the bladder or rectum, and this defective mechanism is not to be accounted for by any affection of the spinal cord. The body is extremely thin, so that the bony portions are very prominent and while in bed, unless his position is changed frequently, a marked redness appears on the surface, suggestive of a beginning bed-sore, but fortunately none have appeared on account of the care with which he has been attended.

When he is suffering from the intense pains, there is a feeling of great weakness, but there has never been any true paralysis and he has always been able to walk across the room with the aid of an attendant, and this condition is not a stationary one, for after six such attacks of considerable pain, there has been a partial recovery so that he has been able to go out in his automobile and go about, going up and down stairs with a little aid, and during the last two years at least ten months of the time have been passed in considerable comfort, but a recurrence of the pains and weakness has been frequent, without any apparent cause, unless it is probably exposure to cold.

The condition during the interval between the attacks is not, however, one of health, for there is a good deal of weakness and a degree of atrophy that is more than one commonly sees, even in an old man. Furthermore there are trophic changes which coincide with the attacks of pain, consisting of erythema and eczema of the legs, with great itching, which has required local treatment and which has subsided with the subsidence of these painful attacks. In this case, therefore, we have an example of a senile paraplegia which is manifestly due to intermittent attacks of neuritis, a neuritis which affects both the motor, sensory and trophic function of the nerves, and which is sufficiently severe to confine the patient to bed for periods of time, varying from six weeks to three months.

The condition is not to be ascribed merely to feebleness of old age, although this mistake might easily be made on a cursory examination,—because at no time in the history of the patient has there been any involvement of the arms or hands, the strength there having been normal throughout. Nor can the condition be ascribed to an arterial sclerosis, for, although this condition is present in the patient in a mild degree, yet the symptoms, it will be noticed, are confined to the lower extremities, whereas in arterial sclerosis they are present throughout the entire body.

Case II.—R. W., aged seventy-two, had been quite well until July last, when, after a rather unusual walk of three miles, he felt considerable weakness in his legs and a sense of unusual fatigue, and a few hours later considerable pain across his loins, and some shooting pain down his legs.

He rested easily that night, but the next morning on arising found that his legs were very awkward, and that he could not balance himself firmly upon them. He walked with difficulty and felt some numbness in the soles of his feet and had some difficulty in micturition.

His physician did not find any paralysis of motion or sensation, although the subjective numbness in the feet continued, but he was distinctly ataxic in his gait. It was not necessary to use a catheter, but the action of the bladder was not normal, there being a tendency to retention and difficulty in starting evacuation. The condition was not sufficient to warrant his remaining in bed, but it has remained about stationary ever since, and when I saw him in October, he was no better than he had been in July.

Examination showed a very ataxic gait, although he could walk without assistance, and without a cane. His steps were irregular in length, the feet not being

placed where he intended and there being occasionally a slipping of the foot in walking. This stagger was increased by shutting his eyes, and a very marked Romberg symptom was easily elicited. The knee-jerks were lost, and there was no ankle jerk to be obtained. There was a subjective pain felt in both feet and in the outer part of the legs below the knee, also to some extent on the inner side of the leg below the knee to touch. The sensation of pain and temperature in these areas was diminished, but not lost. Sensation of pain and temperature were markedly delayed. The muscular sense was somewhat impaired, as he could not place his foot in the same position given passively to the opposite foot, nor was he sure about the position of his toes, whether flexed or extended. There was no anesthesia of the buttocks, or around the waist. There was no girdle sensation. He had no pain in his back or limbs.

There was no local condition in the prostate to explain the difficulty in micturition, which consists chiefly in the delay in the act and the need of straining. There was no affection whatsoever of the hands. His pupils were normal and re-acted to light. There was no history of any luetic infection, and the sudden onset of the ataxia, together with the general history of the case, the absence of shooting pains or other indications of locomotor ataxia, make it possible to exclude that disease.

The diagnosis of a small thrombus in the spinal vessels affecting the lumbar enlargement of the cord, and producing a small area of myelomalacia of irregular distribution, seemed the most probable diagnosis.

The prognosis seemed unfavorable, as the condition has been stationary for the past four months.

Case III.—Mrs. F., who had been operated on for cancer of the breast in 1905, had made a good recovery without recurrence, when she began to suffer in 1912 from a gradually increasing weakness of both legs, attended by paresthesia of the feet. She has now reached the age of seventy-four, and is a fairly well-nourished but very small and delicate woman. All of her muscles are thin and rather feeble and she has never been able to take very much exercise, but in the past three years the weakness of the legs has exceeded that of the arms, and in October, 1912, this weakness had proceeded sufficiently to confine her to her bed or to make it impossible for her to walk without the assistance of two nurses.

The legs were markedly thin, so that there appeared to be very little muscular tissue left, and this is exceedingly flabby. The legs are streaked in places in a way which reminds one of the streaking of the abdomen in a multipara, showing the great atrophy of the muscles, especially about the thighs and buttocks, yet no one of her muscles is absolutely paralyzed and all of them re-act to a strong faradic current.

There is no tenderness along the nerves, but the entire limbs are tender to pressure. There is no anesthesia, although there is a sense of paresthesia, and the feet are uniformly cold and blue, showing that the circulation is impaired. There is no disturbance of the bladder or rectum, no pain in the back and nothing to indicate any cancerous affection of the nervous system.

Her condition has been progressive during the past three years, and has resisted all efforts of treatment. In this case nothing can be determined except a gradual muscular atrophy, without any neuritis or spinal affection to account for it. There is no family history of dystrophy and this woman's children and grandchildren are thoroughly healthy.

5 West Fifty-fourth Street.

FURTHER OBSERVATIONS ON THE TIC NEUROSIS (FOURTH PAPER).

By L. Pierce Clark, M.D.,

New York.

Last year I presented three papers upon the psychogenesis of tics based upon the clinical study of a definite case material.* The first case was that of a young man whose mental torticollis had its real origin in the stroking and petting caressments of the mother, which were continued by the patient through childhood and adult life in a habit movement of stroking his head. Later, when under great physical and mental stress he strove to break himself of the growing habit, mental torticollis resulted, the movements in which were found to be a sort of a "magic signal" bid for the resumption of the head-stroking which the patient had discontinued. By analysis this patient has been entirely cured and is now back again at his work as bookkeeper, doing as well as before his illness. The second case was that of a young woman with a mental torticollis caused by sexual repression; the tic movement was a physical counterpart of this repression. The conversion mechanism of the hysteric complex was employed instead of a substitution one as ordinarily obtains in the pure obsessive neurotic mechanism. The outcome in this case under analysis has not been so favorable as in Case I. The patient is freed from many of the active clonic twistings of the head and neck, but there still remains some degree of false motion when the patient is excited or intent upon some work requiring her close attention. She continues, however, to improve steadily. In the third paper a case of multiple tics with marked mental infantilism was given treatment. The outcome in this case was surprising when one bore in mind the enormous difficulties that had to be overcome. The young man has now lost all his tics, is cheerful, neat, orderly, and industrious. His mental growth has been marked and he is now trying for the first time to earn his own living and is succeeding at it. From the foregoing material and other cases not published I am impressed that all tics *per se* are of psychogenic origin and that their rational treatment should be along the lines of intensive mental analysis. The physical inciting agents which have been put forward as the alleged causes of tics produce a lowered mental tension and thus permit or allow the psychogenic mechanism to evolve the tic; it may safely be said that none of the alleged or obvious causes are the real causes of the tic. Its real motivation is *always* unconscious and flows out of the earliest instinctive demands of the individual sufferer. The acts in the tics are always infantile and partake of the infantile emotional reaction. The tics possess much of the senseless and incoordinate activities of the infantile impulsive movements. It has always been a difficult matter for writers upon tics to fit these crude and meaningless tic movements into the adult conscious life and activities of those possessing them. When we look upon these tics as psychophysical expressions of infancy which have been either lost from the domain of the will, running in automatic riot, or they have thrown off the yoke of control, under the incitement of shock or sudden stress, then their real meaning will come in a clearer light. Every tic is a psychobiologic fault in the individual's adaptation to his environment. This rule is without exception. The tic proves itself to be an inferior substitute, a neurotic adaptive symptom, for not meeting the adult purposes of life. Much of the professional and lay repugnance to observing and dealing with tiqueurs is no doubt due to our own conflicts with infantile thinking and acting with which we ourselves have more or less unsuccessfully coped. Probably the unconscious thought runs: "Now the tiqueur has become a man he should put away childish things."

*"Some Observations Upon the Etiology of Mental Torticollis"; "A Further Study Upon Mental Torticollis as a Psychoneurosis"; "Remarks Upon Mental Infantilism in the Tic Neurosis"; Medical Record, February 7 and 28 and March 28, 1914.

For years the clinician sought and found a physical basis for the tic. Apparently he was only lost in the maze of a dilemma when the tic came and went without even a shadow of a physical cause. Even more than the smile of Alice's cat, the tic both "came and went without the cat being present at all"—to paraphrase Carroll's Wonderland story. To-day an additional strain is placed upon our clinical adaption to the study of the tics. We must now search out the psychogenic mechanism in the neuroses and psychoses *though the organic fault be ever so prominent.* In mental medicine we must now search the psychogenic factors in biological life for the real motive of the profound degradation of physical functions in chronic convulsive disorders. The following case may be cited to fully illustrate the point:

An unmarried man of thirty was referred to me for study and treatment. The family was free from neuroses and psychoses except that the grandfather and father both had a decided tendency to incline the head to the left, the face being turned to the right; no real tic resulted in them, however. Our patient is the oldest in a family of three. He was born after an instrumental dry labor. He was a blue baby for several hours. He remained weak and puny throughout childhood. At about eighteen months he walked with a straddling, slovenly gait. "His knees were weak and he walked pigeon-toed." Various devices were tried to overcome the weakness of the legs, as shown in the gait. There was a marked spasticity in both legs, which was more pronounced in the left. The spasticity, the contracture in the calf muscles and the "shambling" gait were slowly overcome, and at the age of sixteen he was fairly rid of the major portion of the whole spastic syndrome. He was backward in learning to talk, which he began with difficulty at fifteen months. The speech was scanning and syllabic, and this defect still persists in part. Some of the cerebellar diplegic syndrome, which is still shown in the speech, awkwardness, and failure to properly apportion the range of smoothness of segmental movements of the extremities, the slight dysmetria and adiokinesis embraced under asynergy or incoördination of movements. The knee jerks are greatly exaggerated and a slight general spasticity is brought out in precise tests. The nature of the cerebellar injury in which the cerebrum probably also participated, as shown in the slowness and irregularity of mental development, was probably a slight grade of Batten's type.* In spite of this birth injury handicap the boy grew into a strong man whose endurance tests in long distance cycle riding is well known to the sporting world. Adolescence was uneventful; he prepared and entered a medical school and did his student work in medicine to the average of his class until the second year laboratory work required much microscopic study. He then more or less abruptly developed a "professional" torticollis. The head was inclined to the left and the face was turned upward and to the right; the brow was also wrinkled and a few short clonic movements occurred at the end of the complete rotation of the head. The muscles involved were the left platysma, sternomastoid, trapezius, and the deep rotators. The movement of the head and face in the tic was so characteristic of the purposeful one of looking through the microscope that from a casual relationship nothing seemed wanting between the cause and effect. The patient did not finish his examinations for the year and left for rest and treatment in the country.

It was thought that this patient had a mild form of cerebrocerebellar diplegia which entailed slow and delayed physical development, upon which an intense mental strain was placed by a severe test of getting a medical education, in the second year of which the arduous microscopic work brought on a professional tic of the torticollis type. Just at this point when our organic interest of cause and effect has been more or less satisfied and neurological science has little further interest, we shall make an attempt to discover the psychologic mechanism by which the tic movement really originated.

On close scrutiny we find a peculiar personality in a boy who apparently learned easily in school yet required special tutoring when he had to meet the regular admission requirements of a medical school. We find that while he had good mental powers he was slow in acquiring knowledge and in forming judgments. He was slow physically and could not sustain the time rhythm in a musical education. In adolescence he was continuously overactive in all sorts of sports but was always held back by his mother on account of his early lack of proper physical and mental development. He never had feelings of inferiority but was decidedly egotistical, with unbounded personal ambition. He was always of a stubborn and determined disposition. He was suspicious and sensitive, which traits still continue. He has always taken things too seriously. He was easily blocked by scruples and doubts in adolescence. He thought a great deal about his conscience but had difficulty in deciding things one way or the other; he had a great deal of indecision which made him easily discouraged. He was very finicky in his demands for order. He often had night terrors and continued to wet the bed until he was fourteen years of age. He often cried out in the night, saying "Take it away!" and claimed to be terrorized by animal dreams. In short, he had the underlying make-up of the obsessive neurotic.

Let us inquire into his psychosexual development. Patient was intensely mother-attached and when but a child of three or four he often said he was "never going to get married," or that he would marry his mother and then they would live by themselves to the exclusion of the father and the other children. He has always had dreams of accidents to the father. In many dreams the father lost his eyes, had his fingers chopped off, or was otherwise seriously mutilated (father castration complex). In literature, patient was most interested in Shakespeare's play of Hamlet. The ghost scene and the interview with the mother queen fascinated him.

While the father was sympathetic, he was of a practical turn of mind, and the patient always gained his sympathetic understanding from his mother. The isolation from other children during childhood which was largely brought about by his having been of a rather delicate physique, and the mother's extra solicitude in prohibiting boyish sports lest he come to harm made him even more dependent on the mother. His earliest recollections of the ideal situation with the mother was that of being in her lap and looking up in her face and having her pat his head. She never stroked it, but patted it at the back. Before puberty the mother told him about sexual matters and laid very heavy prohibitions upon him in many respects regarding his conduct with boys and girls; these limitations worried him considerably. About this time he succeeded in freeing himself from his mother's dominance and engaged very actively in athletic sports; he entered into cycle races, endurance contests, etc. His mother died when he was nineteen years old. Her death was a great shock to him and produced a very deep depression. He had many dreams of her which were most often those of health, vigor, and happiness.

A brother and sister relationship had existed

*"Congenital Cerebellar Ataxia (Cerebellar Diplegia)" F. E. Batten, *Clinical Jour.*, Vol. xxii, No. 6, London, May 27, 1903.

between the patient and his mother. People said that "he was the apple of her eye"; they often said to her, "How is your brother?"inferring that she was young enough to be taken for his sister.

Recently our patient has fallen in love with a girl whose family consists of three daughters, with all of whom the mother had been well acquainted. She had given approval of the family by saying to the patient that they were very nice girls, etc. The girl to whom he is now engaged and whom he had known for some years previous, had on more than one occasion after their closer acquaintance said that she thought our patient's mother was an ideal mother and that she liked her very much. This the patient thinks influenced him greatly in the further development of his love for the girl. Finally it may be said that she possesses much of the manners and physical make-up of the mother. In August, 1911, just before the attachment to the girl developed, his tic was at its worst. Immediately after, however, our patient began to improve rapidly.

To summarize: Patient had an intensive mother attachment; he received patting and caressing from the mother; there was a father antagonism and the mother laid great prohibitions on sexuality and boyish sports. These all kept our patient infantile. He had no love affairs whatever until late in adult life and never had anything to do with sexuality. Combined with this he had an unconscious desire to return to the mother for patting and caressing. It was found that the tic movement was the same kind that is generated by patting or tapping the head from behind. Having always been slow in coordinated movements and thoughts, the medical training required him to speed up, and in order to accomplish this he even took caffeine to keep awake. This situation steadily increased the nervous tension until the medical study was so fatiguing that a persistent, painful, "sticking" headache ensued. During the last few days at the medical school he had frequent dreams of the mother in which he revived the pleasant childhood experiences with her, the infantile pettings and caressings of the closest child and mother relations. He often stopped in the midst of hard study to indulge in day dreams and fancies of her, and pictured how pleased she would have been to know that he was fulfilling her desires in taking up a medical career, etc. As he became still more fatigued and even felt "muscle beatings and tremblings" in various parts of his body, he used to sink in his study chair and firmly close his eyes, thus striving to gain a respite from the aching fatigue by fancying that his mother patted his head or shoulder on the left side. At such times he made the tic movements in rhythm with the rhythmic fancy of her caressments. Soon after these orgies of pleasure the full tic movement came and he could not repress it by the strongest exercise of the will. In a few weeks it advanced to its climax, as related in our previous description.

The case is really similar to Case I of my first study of tics. In both men the libido remained infantile and mother attached; there was no masturbation, no heterosexual longings, and no real love affairs. Athletics helped both to repress the little sexuality that had escaped the mother's prohibition. In this latter case the mother's plan for a medical training was followed after her death, but the task was too great and the patient's unconscious libido escaped the penalizing task and went back to its infantile longings and derived its satisfaction there at a cost of a tic. The effort to continue his studies having lost its pursuit at adult adaptation, the dynamic force was also lost, and failure in the medical career resulted. The physical disorder at birth only paved the way for the final defect in adaption of an infantile libido to make successful an adult life work. Yet from the moment our patient made a love attachment to the girl who had been favored by the mother he began to improve; it was an adaption he could make and the disorder, now some eighteen months from its worst stage, is about "half cured." Our analysis has given the patient a new impetus and he feels he can now make rapid progress in knowing himself better and adjusting his life so as to build again the break in compensation of the mental torticollis.

84 East Fifty-sixth Street.

SOME RECENT WORK IN CARDIOVASCULAR DISEASE.*

By LOUIS FAUGERES BISHOP, A.M., M.D.

NEW YORK.

CLINICAL PROFESSOR OF HEART AND CIRCULATORY DISEASES, FORDHAM UNIVERSITY SCHOOL OF MEDICINE, NEW YORK CITY; PHYSICIAN TO THE LINCOLN HOSPITAL.

In a review of the work in cardiovascular diseases at Lincoln Hospital, one might examine the hospital records with much labor and gather a series of statistics, which might be of some interest and perhaps a little value. Or, one could recount the individual cases of remarkable interest that have been under observation, and these have been not a few, at least some of them having been permanently recorded in medical literature.

But it would seem that the matter of real interest is a consideration of how far the work in cardiovascular diseases at the Lincoln Hospital has reflected the progress of knowledge in this department of medicine, to be followed by an examination into the causes of failure, in so far as constructive criticism may be helpful in the future.

This is the first time that an attempt has been made to review cardiovascular disease as seen at the Lincoln Hospital and it has been made at the request of the chairman. During the fifteen years that I have been working there, a great deal has been accomplished by the profession toward the better understanding of cardiovascular disease. As far as lay in our power, this progress has been reflected by work at the hospital, by clinical teaching and papers read before societies and published in books and journals.

Fifteen years ago a text book on diseases of the heart was ordinarily divided into sections according to the particular valve affected. You found a section on mitral disease, a section on aortic disease and so on. As a slight concession to the general disturbances of the heart, there was a chapter on myocarditis, which was an indefinite diagnosis into which everything was thrown that did not belond in any other category. A few functional diseases were known. Angina pectoris included only the few instances where intense cardiac pain was present, accompanied by a sense of impending death. And that was about all. The great stress was laid upon the results of disease that could be seen after the patient was dead.

Fifteen years ago, there was dawning an interest

*Paper read before the Section on Practice, New York Academy of Medicine, December 15, 1914.

in cardiovascular-renal disease, in connection with so-called "high arterial tension," and the introduction of nitrites. The nitrites were much abused at that time. I remember often in the attempt to soften the pulse, we gave nitroglycerine in huge doses every half hour. Of course, these were cases of calcification of the arteries where the vasomotor system was not susceptible to the effect of nitrites.

At this time there developed a great interest in the symptomatology of cardiac disease, and in the next five or six years much attention was directed to the symptomatology and to the cardinal symptoms of heart disease—the enlargement of the liver, the character of the edema and changes in respiration.

And then there was a great deal of work on the finer points of physical diagnosis. Nearly everybody wanted to name some murmur after himself, and if he did not do that, he discovered some other physical sign to which he attached his name.

Then the blood pressure instruments commenced to come into use. About ten years ago, the men who were most interested in cardiology took up the use of the sphygmomanometer as a routine measure.

Before Fordham University Medical School was started, I had a Wednesday afternoon clinic, and we showed our cases. The physicans would come in from the neighborhood, and we talked over the theory of cardiovascular disease. Since then, the clinic has been given to the medical students.

But the greatest epoch was about six years ago, when MacKenzie published his book on the heart. A good many of us had read his work in magazine articles and had followed his co-workers, but none of us actually realized what MacKenzie had done for cardiovascular disease until he published the book, "Diseases of the Heart." That book revolutionized the whole conception of the pathologic physiology of the heart. It led us to a closer examination of the irregularities of the heart, and at one fell swoop put the name "myocarditis" in the scrap basket, where it remains to this day. As the name of a disease, myocarditis does not mean anything except in a limited number of cases and never did, and was simply a word used to cover our ignorance. If there is something the matter with the heart muscle it is usually the result of some general condition characterized by a disorder of some of its functions.

I cannot tell you when I lost my faith in cardiovascular disease as a purely local affection, but for a long time there had been a tendency among the workers in medical research to study cellular physiology rather than organic morphology. We came to realize that the physiology of the cell was the most important thing in the body, and that the physiology of the organs was more or less secondary to it, gradually gaining the idea that the changes found in organs were not diseases as such. Fibrosis of the heart and hardening of the kidneys and all the organs are not diseases, but the results of disease.

The disease itself is some disturbance of the nutritive function of the cells, of which the whole body is made up, which finally results in changes in the organs.

So we lost interest, in a measure, in what used to be called pathology. At least we called it "pathology," but it really was morphology. Morphology means the shape of things. The morphologist says, "Here are a lot of things that are round," and he proceeds to differentiate them according to shape. And that was what we used to call pathology.

Last Wednesday I went to a meeting of the New York Pathological Society, one of the oldest and most honorable societies in the City, which, ever since it began, has had among its members some of the best students in New York. Fifteen years ago the pathologists from different hospitals would bring organs and have them sectioned, bringing their microscopes to show the microscopical structures. At the meeting last Wednesday (I wish I had a program to show you), one man read a paper on "The Transmission Bundle of the Heart," another man read a paper on "Anaphylaxis," and still another a paper on the chemistry of the bile. Just two of the men brought pathological specimens. All the rest of the work was what might be called biochemistry, the chemistry of the cell—the fundamental changes that have to do with pathological physiology. So even the pathologists themselves (at least that group of men that constitute the Pathological Society) are interested in the life of the cell. In that way they are really studying the fundamental underlying diseases which result in changes in structure.

At the Lincoln Hospital last Thursday I lectured about a man with arteriosclerosis. This man had been in hospitals for a year, and had been treated according to the old traditions of the profession. He was regarded as suffering from morphological changes of mysterious origin. He was supposed to be suffering from hardening of the arteries, hardening of the kidneys and of the muscle of the heart. These things being permanent and that being considered his disease, nobody thought there was anything to be done for the man. So he dragged on for a whole year because the knowledge of morphology so affected the psychology of his doctors that they did not believe in curing a person with his disease.

Now if they had believed that he was suffering from a disturbance of metabolism, with the resulting changes in the arteries, and that this hardening (so long as it existed and could not be helped) was not worth bothering about, his outlook would not be so hopeless. The man was really suffering from cellular irritation. He showed the typical appearance of arteriosclerosis: He had the shininess of the conjunctiva of the eye, the pain in the chest on exertion; and passed a large quantity of urine. He carried a high blood pressure. He had been given a general diet, and took no exercise.

The natural history of this man in the light of what I believe to be the true philosophy of arteriosclerosis was this:—

Through some event in his history, which we were unable to elicit because he was not very communicative (or perhaps he did not know), but which, from the experience of a large number of other cases, I would put down either to some severe infectious disease, some attack of food poisoning or some great nervous shock, there was an alteration in his metabolism whereby his cells were no longer able to deal satisfactorily with the material which should have nourished them.

The cells are nourished by proteins. The proteins, (nitrogenous or albuminous food) pass into the body and but a very small portion of them remain in the body. That small portion, however, is infinitely necessary to the nourishment of the cell.

As long as the relation of the cells to proteins is normal, people go on, and as far as these things are concerned, they are well. The disease is started by an infectious disease (typhoid fever is followed in a great number of cases by arteriosclerosis), a

severe influenza, a gallstone condition (where a person is suffering from gallstones and is very badly jaundiced and reduced), an attack of appendicitis, or a period of life when there is tremendous worry.

One of these periods is the time when the disease starts. What takes place is that the cells become sensitized to food proteins, and from that time instead of being nourished the cells are irritated by the proteins and gradually destroyed. As long as the intake of the particular protein continues the disease advances, and the person cannot be well.

I saw to-day two men with very advanced arteriosclerosis. One of them came to me a year and a half ago suffering from a very high blood pressure, 270 mm. Hg., shortness of breath, swollen feet, and constant recurring attacks of severe cardiac pain. He considered himself (and all his medical attendants considered him) in great danger. He was very, very sick.

He was subjected to a phlebotomy of forty ounces of blood, he was put to bed for a week, and given castor oil every other day for three doses. I took out of his diet all eggs, fish, meat and stock soups, and told him to walk out of doors every day as much as he was able.

He has had his ups and downs, but at the end of eighteen months he presents the picture of good health, he is able to attend to his work, and as far as I can see is as well as he was six months ago. It took him about a year to get a readjustment of his organs. His blood pressure now is 190 mm. Hg., but he walks a great many miles out of doors every day, and is devoting himself to keeping himself alive.

Of course, when a man has a blood pressure of 270, angina, dropsy, and albumin and casts in his urine, he is a pretty badly damaged man, and all you can do is to teach him so to live that the progress of his disease may be checked.

This man seems to be sensitive to the proteins of eggs, fish, and meat. Any time he goes back to eggs he is sick. Of course, meat is out of the question—anyone would have told him to give up meat with his bad kidneys, but eggs and fish were just as bad in his case.

The other man came to me about the same time, with a history of having been perfectly well until one day he could not see out of one of his eyes. He went to an oculist who told him he had arteriosclerosis. I propounded to him the above theory of his disease: That he was suffering from a disturbance of metabolism, and that he should treat not his organs but his cells. I put him on a diet but he was not satisfied. He said he wanted to see other doctors, so he went to Europe and saw the best authorities in France, Germany, and England. He came back with the written opinions of the most famous doctors he could find in those countries. He canvassed all the different opinions of the various doctors as to the nature of his disease. It was very interesting because he said, "No one agrees with you entirely, but when I come to take the underlying thought in the minds of all these different doctors I think they all have the same idea, but you have put it more definitely than most of them. They all think it is due to a disturbance of metabolism, but they don't all carry it to the logical conclusion in considering it a cellular disease and not an organic disease."

We subjected this man also to the same treatment. We had to bleed him (I have forgotten how many times) when it seemed something more was going to happen to him. He has been very faithful to his diet, has taken castor oil at regular intervals, has kept out of doors, and is still alive enjoying himself.

At the Lincoln Hospital I teach the idea that these are cellular diseases and not purely organic diseases, and that we should try to cure them. Because you cannot improve the lesion does not mean that you cannot cure the disease.

There is no reason why many a hospital patient should not be well, but there is a psychology with which you have to deal. The hospital patient often has no ambition. He does not want to work for his health—and he would rather sit down and take medicine. The men referred to above were different—they wanted to get well. They missed the food poisoning and craved meat, but they were strong enough to avoid it. You—any of you—could give up meat and not miss it, but if you were poisoned by it you would miss it and crave it. It requires a good deal of strength of mind for a person with advanced arteriosclerosis to give up offending proteins.

The only people who do well with these advanced cardiovascular diseases are people with sufficient intelligence to appreciate the importance of the regimen. That is the reason the treatment of cardiovascular disease in the hospital is so hard because the patients do not want to get well and nobody expects them to get well.

So to sum up, I would say that in the fifteen years that we have studied cardiovascular disease in the hospital I have seen the transition from the study of the changes that are the result of the disease to the study of the disease itself, in other words, the disturbance of the physiology of the cell.

When I think of a meeting of the Pathological Society fifteen years ago and the meeting I attended last Wednesday the change is quite vivid. Now we are coming down to the fundamental causes of disease. You will probably all live to see the day when we will speak more definitely of the diseases of the cells and know more about them. Of course, now much is experimental. You put a little horse serum into a guinea-pig, and in forty-eight hours more serum will kill it. In other words, you sensitize the cells of the animal to protein and that protein becomes a violent poison. When a man becomes sensitized to meat, that man is poisoned by meat. Later on his cells may be destroyed and he develops cardiovascular disease.

The application of these advances in our knowledge of the pathology of the cell to these chronic degenerative diseases is to me one of the most interesting things I have run across in medicine.

I have the care of so many people who are suffering from all stages of arteriosclerosis who are well and have become free from all their symptoms by the discovery and removal of their protein poison that I cannot help but believe the theory.

There is another thing that has come out recently: The sensitiveness of cells may be local as well as general. There may be a localized anaphylaxis. That is very curious. You inject a lot of animals with serum, and some of them, instead of getting a general anaphylaxis, develop an inflammation of the cells of the eye, the kidney, or some other group of cells. This is possibly sometimes the origin of that mysterious condition known as albuminuric retinitis. In all these studies it must be remembered that bacteria act as proteins and that a focus of infection may act in the same manner as the continuous administration of a protein.

The McKenzie polygraph has been in constant use in my wards for some years, and at one time we made elaborate studies of sphygmomanometers. I present with this paper about a thousand ink polygraph tracings which are a graphic record of the nature and progress of the heart beat of a large number of cases, both in hospital and private practice. A technical discussion of these would be interesting, but I have chosen rather to recount our progress, or, at least, our change of opinion, as to the philosophy of cardiovascular disease, because that is what influences treatment which has too often been lost sight of in the intense study of diagnosis.

54 West Fifty-fifth Street.

THE INTERVERTEBRAL FORAMINA IN MAN.*

By HAROLD SWANBERG,

CHICAGO.

(From the Anatomical Laboratory, Chicago College of Medicine and Surgery.)

WITHIN the past quarter of a century various schools of practice have directed a great amount of attention from a therapeutic standpoint to the intervertebral foramina. Pathological changes occurring in or around these areas are responsible for nearly all the ills man is heir to, according to the claims of many. The entire philosophy of at least one school of practice is based upon the theory that practically all pathological conditions are due to pressure upon the nervous structures in the intervertebral foramina. A careful review of the literature reveals the surprising fact that there has not been published any study concerning the minute structure of these parts. We are told how the intervertebral foramina are formed, that they convey nerves, arteries, and veins, but as to the detailed structure of these apertures, the size of the nervous structures as compared to the foramina, etc., we are told nothing. In view of the above facts, a brief description of one of these foramina should be of more than passing interest.

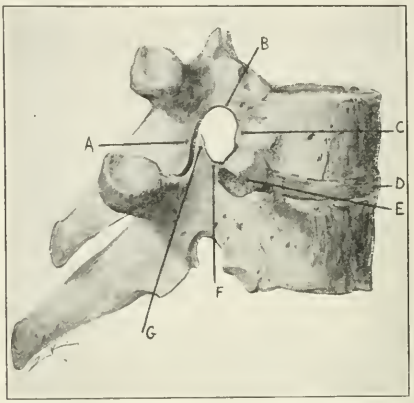


FIG. 1.—A right lateral view of the seventh and eighth thoracic vertebræ, with the intervertebral fibrocartilage connecting them, and the head of the right eighth rib. A—Inferior articular process of seventh thoracic. B—Root of vertebral arch (pedicle) of seventh thoracic. C—Body of seventh thoracic. D—Intervertebral fibrocartilage. E—Head of eighth rib. F—Root of vertebral arch (pedicle) of eighth thoracic. G—Superior articular process of eighth thoracic.

Specimen.—The necessary specimen was secured from a five-months-old male infant. At this age the intervertebral foramina are of such size as to

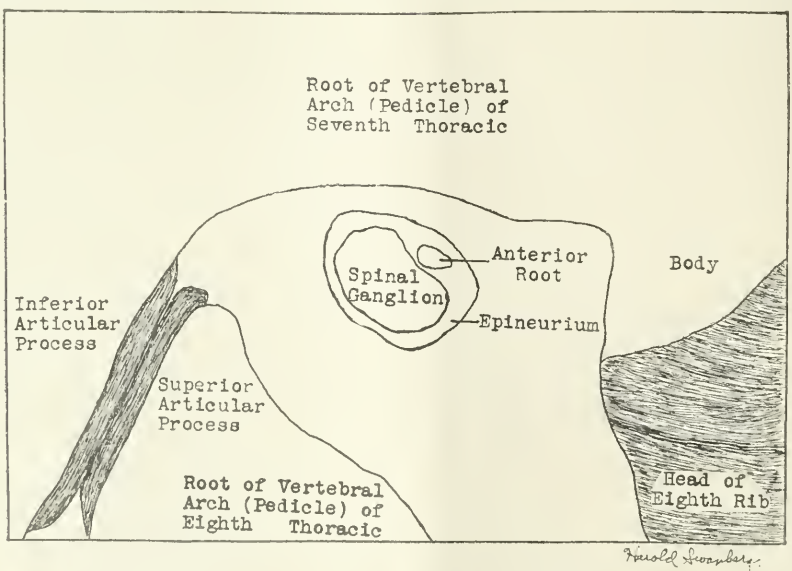


FIG. 2.—A right lateral view of the right seventh thoracic intervertebral foramen and its adjacent bony boundaries with the position and size of the roots of the right seventh thoracic spinal nerve. (Outline drawing from Fig. 3.)

*My book, "The Intervertebral Foramen," published in January of last year, reviewed in the MEDICAL RECORD, May 9, 1914, page 865, contains the first histological description of an intervertebral foramen and its adjacent parts to appear in the literature. The foramen described in this work was from a cat. In the MEDICAL RECORD, Nov. 14, 1914, page 852, I reported that I had made microscopic studies of several intervertebral foramina and adjacent parts in man, and had found them to be similar to the one described in the original work. The object of this article is to describe one of the above-mentioned intervertebral foramina of man, and to briefly summarize my findings concerning the most important facts of the anatomy and histology of this part.

be very suitable for microscopical examination. The infant had been normal in every respect until eight days prior to its death. At this time it developed a bronchopneumonia. The right seventh thoracic intervertebral foramen was selected for study. The right half of the seventh and eighth thoracic vertebræ, with the vertebral extremities (head and neck) of the right seventh and eighth ribs attached was used as the specimen. The specimen was put through the usual histological technique, the bone being decalcified with dilute nitric acid. It was then placed on a block with the part where the spinal cord and the bodies and laminæ of the vertebræ had been cut longitudinally resting on the block, and mounted in this position. The sections were cut approximately in the sagittal plane, from without inward, and labeled accordingly. Such sections cut the nervous structures almost transversely as they emerged from the intervertebral foramen, thereby giving a complete view of the foramen. Section 1, therefore, shows structures considerably lateral to the intervertebral foramen, while Section 49, the last one, is in the vertebral (spinal) canal. Forty-nine sections in all were prepared, there being an average of about 180 microns between each. Photomicrographs of only three of these sections (Sections 38, 30 and 23) are given in this description.

Description of Figures.—Figs. 1 and 2 are drawings which are shown in order that the reader may better understand the photomicrographs which follow. Figs. 3, 4 and 5, the remaining ones, are retouched photomicrographs of the right seventh thoracic intervertebral foramen and the area lateral to it. They are all equally enlarged. In the retouching no attempt was made to conceal the results of faulty technique, thus every part is shown practically identical with the original slides. Each figure corresponds to a section and the figures are enumerated from within outward; that is, reversing the order in which they were cut. Fig. 3, the first photomicrograph, is a section cut through the intervertebral foramen; the remaining two figures (4 and 5) are sections cut lateral to the intervertebral foramen.

Description of Fig. 1.—This figure shows a right lateral view of the seventh and eighth thoracic vertebræ, with the intervertebral fibrocartilage connecting them, and the head of the right eighth rib. The seventh thoracic intervertebral foramen is located between the seventh and eighth thoracic vertebræ. Bony boundaries of intervertebral foramen.—Anteriorly: Body of seventh thoracic vertebra above; head of eighth rib (below body). The external lateral part of the seventh thoracic intervertebral fibrocartilage also forms an anterior boundary, but this is not shown here, it being medial to the head of the rib. Posteriorly: Inferior articular process of seventh thoracic above; superior articular process of eighth thoracic below. Superior: Root of vertebral arch (pedicle) of seventh thoracic. Inferior: Root of vertebral arch (pedicle) of eighth thoracic.

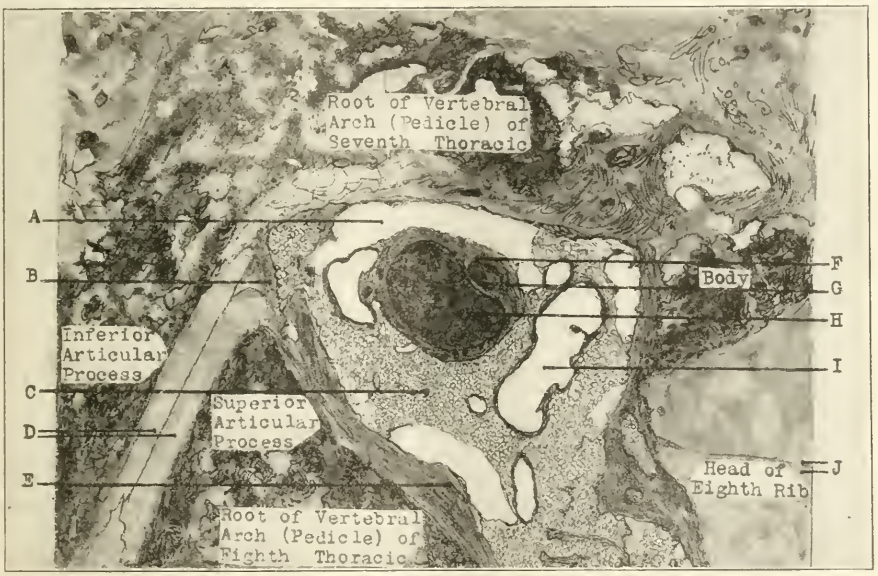


FIG. 3. (Section 38)—A right lateral view of the right seventh thoracic intervertebral foramen, and its adjacent bony boundaries. A—Vacant space. B—Capsular ligament. C—Fat tissue. D—Articular cartilages. E—Fibrous tissue. F—Epineurium. G—Anterior root of spinal nerve. H—Posterior root of spinal nerve (spinal ganglion). I—Blood vessel. J—Articular cartilages.

Description of Fig. 2.—This plate is an outline drawing of Fig. 3, and shows the right seventh thoracic intervertebral foramen and its adjacent bony boundaries, with the size and position of the roots of the right seventh thoracic spinal nerve. The intervertebral foramen has the same bony boundaries, and is shown in the same position as in Figure 1. The entire boundaries are not present. They are deficient inferiorly, owing to their projection at different levels. The darkened areas represent the hyaline articular cartilage. Articular cartilage on bony boundaries.—Hyaline articular cartilage is found on the following parts: (1)

Inferior articular process of seventh thoracic; (2) superior articular process of eighth thoracic; (3) body of seventh thoracic; (4) head of eighth rib. The articular cartilage is found on the articular processes where they articulate, and on the body of the vertebra and head of rib where they articulate. The size and position of the roots of the seventh thoracic spinal nerve are shown in the upper central part of the intervertebral foramen. The small anterior one is the anterior root, the large posterior one is the spinal ganglion of the posterior root. The roots are surrounded by epineurium. They occupy about one-fifth of the total area of the intervertebral foramen, and are free from any bony contact. The other structures in the foramen, fat cells, fibrous tissue, and blood vessels, are shown in the photomicrographs which follow.

Description of Fig. 3 (Section 38).—This figure is the most medial one shown in this series, and presents a right lateral view of the right seventh thoracic intervertebral foramen and its adjacent lymph spaces or channels convey lymph from the spinal cord. In all probability the lymph passes through the intervertebral foramina in these spaces.

(1) Nervous structures.—Anterior and posterior roots (spinal ganglion on posterior root). The position of the roots has been discussed in connection with Fig. 2. Each root is separately surrounded by the epineurium, which also serves at the same time to connect them. They are free from any bony contact and are embedded in fat tissue. (2) Blood vessels.—Numerous blood vessels of various sizes are embedded in the fat. (3) Fat tissue.—Fat forms the most abundant constituent of the foramen. (4) Fibrous tissue.—Fibrous tissue forms the epineurium of the nervous structures, periosteum of the bone, part of the walls of the blood vessels, and is a constituent of the fat tissue. The above occurs in all the sections. It is well to remember that all fat tissue has more or less fibrous tissue in connection with it. The capsular ligament, connecting the articular processes, is composed of fibrous tissue.

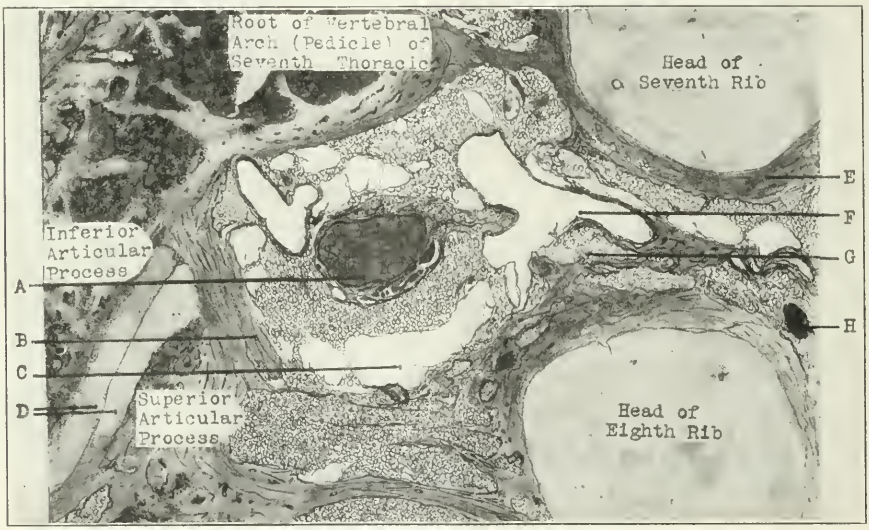


Fig. 4. (Section 30)—A right lateral view immediately lateral to the right seventh thoracic intervertebral foramen. A—Spinal nerve. B—Capsular ligament. C—Vacant space. D—Articular cartilages. E—Fibrous tissue. F—Blood vessel. G—Fat cells. H—Lymph node.

bony boundaries. It is shown in the same position as Figs. 1 and 2. The same general directions that were given in connection with the above figures will apply to this one. Bony boundaries of intervertebral foramen.—The bony boundaries are similar to Figs. 1 and 2. The reason for the deficiency of the bony boundary inferiorly was given in connection with Fig. 2. Articular cartilage on bony boundaries. —The articular cartilages are similar to Fig. 2. Contents of intervertebral foramen.—The contents are (1) nervous structures; (2) blood vessels; (3) fat tissue; (4) fibrous tissue, and (5) vacant spaces.

No lymphatic vessels can be recognized in these photomicrographs. Their presence can only be proved by special injection methods. So far as our present knowledge is concerned, the entire nervous system is alike in a lack of lymph vessels. Like practically all parts of the body, however, it has a lymph supply. All nerve cells are more or less surrounded by pericellular lymph spaces Perivascular (5) Vacant spaces.—Spaces occur at various situations in all the sections in which all tissue is absent. They are, no doubt, due to faulty technique, and probably represent areas where fat cells have been washed out in the process of preparing the specimen.

Description of Fig. 4 (Section 30).—This is immediately lateral to the right seventh thoracic intervertebral foramen. Bony relations lateral to intervertebral foramen.—Anteriorly: Head of seventh rib above; head of eighth rib below. Posteriorly: Inferior articular process of seventh thoracic above; superior articular process of eighth thoracic below. Superiorly: Root of vertebral arch (pedicle) of seventh thoracic. In this and in the following photomicrograph the position of the bony parts are named according to their relations to the cerebrospinal nervous structures. The head of the seventh rib has replaced the body of the seventh thoracic and the root of the vertebral arch (pedicle) of the eighth

thoracic has disappeared. Articular cartilages.—Articular cartilage is found on the following parts: (1) Inferior articular process of seventh thoracic; (2) superior articular process of eighth thoracic.

Tissues Lateral to Intervertebral Foramen.—The tissues present are similar to those in the former figure, except for the addition of lymphoid tissue. (1) Nervous structures.—The Spinal nerve. The anterior and posterior roots seen in the former figure have united and the spinal nerve is formed. It is surrounded by fat tissue and blood vessels. (2) Blood vessels.—Numerous blood vessels of various sizes are embedded in fat tissue, as in the former figure. (3) Fat tissue.—Fat is the most abundant tissue present. (4) Fibrous tissue.—The fibrous tissue is arranged similar to the former figure, except that it appears slightly increased in amount. (5) Lymphoid tissue.—A lymph node is present anterior to the head of the eighth rib.

Description of Fig. 5 (Section 23).—This is lateral to the right seventh thoracic intervertebral foramen, lateral to Fig. 4. Bony relations lateral to

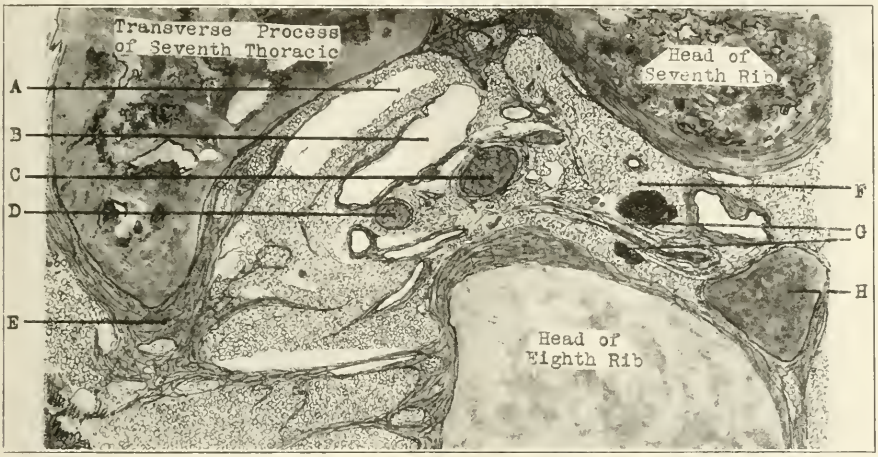


Fig. 5 (Section 23).—A right lateral view lateral to the right seventh thoracic intervertebral foramen, lateral to Fig. 4. A—Vacant space. B—Blood vessel. C—Anterior ramus (primary division) of spinal nerve. D—Posterior ramus (primary division) of spinal nerve. E—Fibrous tissue. F—Fat tissue. G—Lymph nodes. H—Sympathetic ganglion of sympathetic trunk.

intervertebral foramen.—Anteriorly: Head of seventh rib above; head of eighth rib below. Posteriorly: Transverse process of seventh thoracic. Superiorly: Transverse process of seventh thoracic. The transverse process of the seventh thoracic has replaced the root of the vertebral arch (pedicle), and the inferior articular process of this vertebra. The superior articular process of the eighth thoracic has disappeared. Articular cartilages.—None of the bones present articulate with one another, hence no articular cartilages are present.

Tissues Lateral to Intervertebral Foramen.—The tissues present are similar to the former figure. (1) Nervous structures.—1. Anterior and posterior rami (primary divisions) of the spinal nerve. 2. Sympathetic ganglion of the sympathetic trunk. The spinal nerve seen in the former figure has bifurcated into an anterior and posterior ramus. As is usual, the anterior ramus is much the larger in size. The rami are surrounded by fatty-fibrous tissue. Resting on the anterior surface of the head of the eighth rib, a sympathetic ganglion is present. Like all nerves, it is surrounded by epineurium. It also is embedded in fatty-fibrous tissue. (2) Blood vessels.—The blood vessels are arranged similar to the former figures and are embedded in fatty-fibrous tissue. (3) Fat tissue.—Fat remains the most abundant tissue. There is considerable loosely arranged fibrous tissue in connection with it. (4) Fibrous tissue.—The fibrous tissue is increased in amount. (5) Lymphoid tissue.—Two lymph nodes are present between the heads of the ribs.

Summary.—Intervertebral Foramen.—The most abundant constituent of the intervertebral foramen is fat tissue. The roots of the spinal nerve, including the spinal ganglion, which are situated here, are embedded in fat tissue. They occupy about one-fifth of the total area of the foramen. The blood vessels, which are several in number and of various sizes, are embedded in fat tissue. There is a small amount of fibrous tissue present.

Lateral to Intervertebral Foramen.—The most abundant constituent is fat tissue. It is, however, infiltrated with a more or less loosely arranged fibrous tissue, making a fatty-fibrous tissue. The spinal nerve, the rami (primary divisions) of the spinal nerve, and the sympathetic ganglion are present. They are all more or less embedded in fatty-fibrous tissue. The blood vessels, which are several in number, and of various sizes, as in the intervertebral foramen, are embedded in fatty-fibrous tissue. Several lymph nodes are present.

Conclusions.—Having spent considerable time, covering a period of over three years, studying various intervertebral foramina and their adjacent parts, microscopically and macroscopically, both in animal and man, I can briefly summarize my findings as follows:

The intervertebral foramina have a definite structure. Each foramen has the following contents: (1) Nervous structures; (2) blood vessels, *i.e.* arteries and veins; (3) fat tissue; (4) fibrous tissue, and (5) lymphatics. The nervous structures present are one of the following: (*a*) Spinal nerve; (*b*) roots of the spinal nerve, or (*c*) the rami (primary divisions) of the spinal nerve. The nervous structures are usually free from any bony contact and are embedded in fat tissue. They are small

in size as compared to the intervertebral foramen through which they pass. The greatest size I have seen was where the nervous structures occupied about one-third of the total area of the intervertebral foramen; the smallest size was where they occupied only about one-tenth. The size of the nervous structures in proportion to the intervertebral foramen is not the same throughout the vertebral column, but nature has in every instance provided an abundance of room for the passage of all the structures through this aperture.

Even in cases of severe ankylosis (in which the intervertebral disks and articular cartilages on the articular processes have entirely disappeared), or marked spinal curvature, where the intervertebral foramina are greatly reduced in size, there still remains sufficient room for the nervous structures to pass free from bony pressure. The nerves can be subject to bony pressure only in such cases as actual fracture, dislocation, tumor growth, or callous formation following a fracture. These, we know, are not of common occurrence.

The most abundant constituent of the intervertebral foramina is fat tissue. As has been mentioned above, the nervous structures are embedded in this fat. Fat, in the living subject, is in a semi-fluid condition. Thus we see that the nervous structures are embedded in a semi-fluid substance, one of nature's most efficient protective agencies. This seems such an admirable arrangement that it renders injury to the nerves almost impossible in this situation. Even should the intervertebral foramina be somewhat altered in size or position, there still remains sufficient room for the nervous structures and the fat surrounding them is still in a semi-fluid condition. Since nerves are composed of such a highly specialized tissue, and therefore are so vital, nature seems to use every possible precaution to protect them from bony pressure. This is the reason, no doubt, that the intervertebral foramina, in both animal and man, are so much larger than the nerves themselves.

I take this opportunity to acknowledge my indebtedness to my friend and preceptor, Harris E. Santee, A.M., Ph.D., M.D., Professor of Neural Anatomy, Chicago College of Medicine and Surgery, for reviewing this work.

704 South Lincoln Street.

INTESTINAL PARESIS:

ITS TREATMENT BY MEANS OF PITUITARY EXTRACT.

By ELMER H. KING, A.B., M.D.,

ALLSTON, MASS.

Definition.—Perverted function of the intestine, prominently characterized by loss of tone of the intestinal musculature, of variable extent, and by extreme gaseous distention of the paralytic gut, following actual obstruction, circulatory failure, or toxemia; wherein there is defect of drainage per anum but maintenance of the excretory function of the liver and of the intestinal mucosa; wherein the content of the intestinal lumen becomes extremely toxic by reason of defective drainage and consequent putrefaction; wherein the oral rather than the aboral end of the alimentary tract is utilized inadequately as the excretory vent; wherein absorption of virulently toxic material from the intestinal lumen, and the prevalence of a paralytic intraintestinal gas pressure, tend to perpetuate the stasis, and, if the condition be not ameliorated, to kill.

Etiology.—Intestinal parèsis arises under diverse sets of circumstances. The postoperative type engages our attention perhaps most commonly. A frequent experience, too, is the encountering of extreme paralysis of the bowel as the result of actual organic obstruction. There is, further, a small group of cases presenting actual functional obstruction; a segmental spasm of the small intestine for about an inch of its extent, possibly due to a reflex across the cord, or probably (1) to trauma of intrinsic plexuses. There is a large group of cases arising as the result of infectious toxemia; the tympanitic abdomen of typhoid fever, and the extreme distention occurring in the graver cases of pneumonia, are examples. Intestinal paresis is maintained as result of metabolic toxemia; extreme instances occur in nephritic toxemia having incidence with a failing heart muscle, or with postoperative vasomotor paresis, or with both; absorption of toxic, putrefactive excrement of the intestinal mucosa and the liver from the intestinal lumen, after stasis is once established, serves to perpetuate the bowel paralysis.

Predisposing are obesity, enteroptosis, adhesions which cripple the movements of the gut, cardiorenal disease, and infectious toxemia, with reference particularly to cases of postoperative incidence.

A preliminary, tentative, classification is offered: Intestinal Paresis: I. Arising as result of circulatory failure: (a) Vasomotor paresis, (1) postoperative (shock), and (2) following injury (shock). (b) myocardial insufficiency.[2] (c) Hemorrhage (extravascular). (d) Embolism and (or) thrombosis of mesenteric arteries.[2] II. Arising as the result of actual obstruction: (a) Organic. (b) Functional. (Dynamic ileus).[3] III. Arising as the result of infectious toxemia. IV. Maintained as the result of metabolic toxemia: (a) Nephritic toxemia. (b) Intestinal toxemia.

The cases are not always of pure type. Very frequently indeed they are not; the same case may have postoperative incidence, and may present, moreover, infectious toxemia, or metabolic toxemia and myocardial insufficiency. Nor is the classification comprehensive; isolated, rare instances occur of different etiology, as, for instance, a recently observed extreme case of lead palsy of the bowel. Osler[2] describes instances occurring in hemiplegia and following paracentesis abdominis.

Pathology.—The distended coils of intestine in intestinal paresis are familiar to all. Whether of functional or of organic origin, the end result would seem to be the same, if the condition be not ameliorated. The grave functional paresis requires as much and as prompt concern as the strangulated hernia or the volvulus; not a secondary operation, as some advise, but attention to the essential etiology and the injection of pituitary extract into a vein. The paretic bowel will usually not empty itself if an artificial anus be established. A vent is not lacking; the tone of the intestinal musculature is impaired or in abeyance.

The mechanism of the distention would seem to be clear: loss of tone of the intestinal muscle, and gas production by the action of putrefactive bacteria upon the intestinal content. The integrity of the bowel is liable to be compromised by the injurious pressure and by the infectious toxic content. Disintegrative changes occur, proceeding at times to gangrene or infection. Hemorrhage into the bowel occurs late and is probably related to the late black vomit and stools.

Earnest attention needs be accorded to the excretory functions of the intestinal mucosa and of the liver. That which we call fecal vomiting is not food residue; it is the excrement of the intestinal mucosa and of the liver, profoundly altered by intestinal putrefactive bacteria. Absorbed, it is virulently toxic, and tends to maintain intestinal paresis and to kill. Hence the need of early establishing intestinal drainage.

Symptomatology.—Detailed description of symptoms is quite unnecessary. In the grave case the distended tympanitic abdomen; the pain; the racing heart; the foul, putrefactive, copious vomiting; the hiccough; the anxious facies; the usual intolerance of the stomach for cathartics; the futility commonly attending the employment of enemata, and the abeyance or impairment of the passage of flatus and of liquid per anum are quite familiar. But there are varying grades of severity. The character of the vomitus furnishes a fairly reliable index of the gravity of a given case. In cases of lesser gravity, vomiting may be absent. Early vomiting is bilious; it may be black from an altered biliary excretion following ether anesthesia; in the graver cases it tends to become more and more offensive; later, if the patient live long enough, it may become black. The heart is prone to falter, often becoming intermittent. The hiccough is of decided interest by reason of an associated heart sign. In some instances, if the stethoscope be placed at the heart's apex, it may be observed that the hiccough is synchronous with the beginning of an extraordinarily powerful vagal arrest of the heart in diastole, which may persist throughout several heart cycles. In other instances the hiccough is double, in which case two synchronous, inhibitory impulses flow to the heart. The complex probably betokens trouble of the vagal nucleus.

Diagnosis.—It is quite essential in a given case to recognize the causation. The uncomplicated postoperative case is differentiated from the case complicated by infectious toxemia by the temperature, by the history, and by the pathology found present at operation. The case complicated by nephritic toxemia is recognized by a knowledge of renal and (or) cardiac insufficiency. Actual organic obstruction of the intestines, consequent upon operation, should be strongly suspected if, in the absence of extraordinarily grave shock, infectious or nephritic toxemia, myocardial insufficiency, or grave extravascular hemorrhage, pituitary extract, intravenously given, fail to empty the intestine, awaiting a reasonable length of time, employing the while appropriate treatment, for the return of possibly abeyant neural functions. The paretic bowel of the later stage of actual organic obstruction should be recognized. Cases of a type designated as possibly due to actual functional obstruction differ from the usual postoperative type in the character of the pain which occurs earlier, and is of agonizing, colicky type, associated with extreme spasm of the abdominal muscles, as contrasted with the steady distention pain of the usual case, which occurs later and is associated with a non-spastic distended abdomen; they differ also in the pulse rate, which is lower, 80 or thereabouts, as contrasted with the usual case in which the pulse rate is about 120. Both types resemble each other when loss of tone and distention occur late in the spastic type. From actual organic obstruction actual functional obstructional can be differentiated possibly by the outcome of treatment.

Complications.—Acute dilatation of the stomach occurs in postoperative cases and in infectious diseases, as typhoid fever and pneumonia. In intestinal paresis the stomach is pressed into service as the excretory channel for the excrement of the liver and of the intestinal mucosa and for the putrefactive products of this, notably gas. The mechanism of the distention would seem to be precisely the same as that for intestinal dilatation; loss of tone of the muscle and distention by gas derived, in this instance, from putrefying intestinal excrement. Treatment guided by these considerations will be casual rather than empirical. The prophylaxis is the treatment of intestinal paresis and of associated conditions. Pituitary extract given into a vein will commonly empty the stomach (produce vomiting) if this contain intestinal extrement, as well as empty the intestine. Gastric lavage may be employed after the administration of pituitary extract.

Acute dilatation of the heart occurs in cases of intestinal paresis. In some instances the sequence would seem to have been intestinal paresis and dilatation of the stomach, with acute dilatation of the heart closing the scene. The prophylaxis is treatment of intestinal paresis and of the associated shock, or of the possibly associated renal or infectious toxemia, not forgetting the faltering heart. The mode of death in intestinal paresis is commonly by circulatory failure; the majority gradually weaken; a few die suddenly from acute dilatation of the heart; a few suddenly from drowning following aspiration of their own intestinal excrement. Instances of infectious and metabolic toxemia complicating postoperative intestinal paresis are given in the appended illustrative cases.

Prognosis.—There is a certain definite mortality in untreated cases of intestinal paresis of the uncomplicated, postoperative type. In treated cases extreme concomitant shock probably absolutely governs the prognosis, although we have been fortunate enough not to meet such an instance. In complicated cases the prognosis may be absolutely conditioned by the complication. Infections, particularly grave postoperative peritonitides, are examples. The sequence, grave, operative, extravascular hemorrhage, postoperative vasomotor paresis, renal insufficiency, and postoperative intestinal paresis, with myocardial insufficiency following to perpetuate the renal insufficiency and intestinal stasis, furnishes an extremely grave prognosis. The prognosis varies with or without treatment; if both shock and intestinal paresis remain untreated, our mortality will be higher than if we direct measures against both; it varies, too, with or without treatment of the complications. The prognosis is worse in the obese, the enteroptotic, and the victims of adhesions which cripple the movements of the intestine.

Prophylaxis.—In the prevention of postoperative intestinal paresis the protection of the central nervous system against afferent impulses from the field of operation would seem to be of value. The foregoing proposition would probably include inflicting minimal trauma to tissues and to structures, probably also consistent speed in operating. Careful hemostasis is probably also helpful. In bad risks, choosing that type of operation which promises least spilling of the patient's blood would seem clearly the part of wisdom. In the after care, in cases in which the operation has been of sufficient gravity to warrant the assumption of presence of severe shock, early elevation of the foot of the bed, and the giving of

salt solution by rectum, unless strongly contraindicated, are in a large measure prophylactic. When the heart flags, as it so frequently does in shock, the incidence of intestinal paresis in heart disease might well be remembered. In chronic nephritics, careful preparatory treatment of circulation and of the kidneys is probably valuable. In infections the need of care for intestinal drainage is so obvious as to require no comment.

Treatment.—Action of pituitary extract: The current teaching is that pituitary extract directly stimulates smooth muscle tissue. Probably the extract does not add a single dyne of energy to the body, acting much like a catabolic enzyme, accelerating the velocity of energy production by smooth muscle. Its action upon the intestine is dependent upon some degree of integrity of the functions of smooth muscle, of the vagi, of the sympathetic, and of the intrinsic plexuses. When the neural functions are abeyant pituitary extract is useless; we have to await their return, employing the while appropriate treatment.

Justification for calling upon the smooth muscle, in a time of dire need, for a greater output of energy lies in this: in all probability the muscle function is not nearly as defective as are the neural functions. While objection to this procedure might be urged, as it is against any stimulation, that we are whipping up a tired horse, nevertheless the horse is good for it, the goal is soon won. A period of freedom from extreme gaseous distention and from pain, permitting sleep, follows; the stomach becomes tolerant of food, and energy stores can be repleted. At any rate, in by far the large majority of cases of uncomplicated, postoperative intestinal paresis, the intravenous administration of pituitary extract is promptly curative. The intensity of the action of pituitary extract is directly proportional to the speed with which the extract enters the circulation. That is, the stimulation of smooth muscle, by 1 c.c. of pituitary extract, thrown *en bloc* into the circulation, is tremendous; while if three or four minutes be consumed in intermingling the same quantity with the flowing blood in a vein, the stimulation will be decidedly more moderate. By-effects of pituitary extract are rise of blood pressure, dyspnea, air hunger, and the production of pallor. Vomiting may be expected, and welcomed, if the stomach contain intestinal excrement. The dyspnea and air hunger are rather distressing. Their intensity is directly proportional to the speed with which the extract enters the circulation; it varies, too, with the degree of pre-existing embarrassment of the circulation; they can be largely obviated by cautious and slow injection. In any event they are exceedingly transitory and negligible when contrasted with the lasting benefit secured in the majority of cases.

Technique.—A Record syringe of 2 c.c. capacity, glass barrel, and the 20-gauge needle are suitable. Sterilization of the skin, and of the syringe and needle, can be satisfactory obtained with a 2 per cent. solution of phenol in 60 per cent. alcohol. Filling the syringe with the solution, holding it with needle attached vertically, the needle upward, then emptying the syringe and allowing the solution to flow downward along the needle, have given unimpeachable sterilization. A vein near the elbow is usually available and suitable except in fat persons, in whom a vein on the back of the hand may be more available. Choosing the median cephalic vein, thus avoiding proximity to the brachial artery, is preferable. The sterilized needle and syringe are then filled with 1 c.c. of pituitary extract, and air is carefully excluded. While an assistant makes manual compression of the limb above to distend the selected vein, the needle is thrust upward in the long axis of the vein, making downward traction upon the skin at the same time with the unengaged hand. The slipping of the needle into the vein is usually easily appreciated. To make sure, the piston is withdrawn slightly; a spurt of blood into the barrel of the syringe demonstrates certainly that the needle has entered the vein. The injection is now begun, releasing compression above, and neglecting the blood which has entered the syringe, the rumbling of peristalsis is heard usually with the injection of the first few minims; soon flatus and liquid pass. If the bowel seem more refractory than usual, the speed of the injection can be increased. The patients usually wish the window open and to be fanned. The site of puncture need not be dressed. Bleeding is inconsequential. A high saline enema given just before the injection is helpful. It is essential to have the bed-pan under the patient before the injection.

ILLUSTRATIVE CASES.

Case I.—Postoperative intestinal paresis: M. G. H.,[1] white, female, aged 54; hysterectomy for fibroids January 17, 1914. Forty hours after operation the abdomen was distended, tympanitic, and tense; the heart racing; the pain and distress extreme; morphine ¼ grain had no appreciable effect; the stomach was intolerant of everything; vomitus was not yet extremely offensive; enemata had proved useless. One c.c. of pituitary extract intravenously given produced prompt, thorough, and copious evacuation of gas and of liquid per anum. The abdomen, which had been barrel-like and tense, became flat and soft. Thereafter the pulse improved, the patient fell into a refreshing sleep, and convalescence was uninterrupted by further bowel trouble.

During hospital interneships extending over the past two years, pituitary extract, intravenously given, has been employed in just this type of cases routinely and promptly upon the appearance of the syndrome, with none but the happiest results. No case of this type so treated has succumbed. Some there have been which at first have been refractory to pituitary extract alone; but these have yielded to the extract a few hours later, after adopting shock treatment. During a like period several cases on parallel services not so treated, or treated with pituitary extract intramuscularly given or not receiving the benefit of conjoined shock treatment, have succumbed.

Case II.—Postoperative intestinal paresis: M. G. H., white, female, aged 28; cesarean section at term for maternal dystocia March 14, 1914. Seventy-two hours later the full syndrome of intestinal paresis was present. Six enemata, castor oil, calomel, and eserine had been given. Sixteen hours before the bowel had proved refractory to pituitary extract intravenously given. The foot of the bed was elevated, and salt solution by rectum started. Five hours later one c.c. of pituitary extract intravenously given effected copious evacuation of liquid and of gas per anum. Thereafter there was no further bowel trouble.

In instances of grave shock in which the bowel is at first refractory to pituitary extract and in which a contraindication exists against raising the foot of the bed, or in which we come for the first time upon a case of great urgency, the intravenous administration of normal saline may be considered. Generous quantities, up to three pints, may be employed. Effort to move the bowel by means of pituitary extract, intravenously given, may be made

toward the completion of the intravenous administration of saline, while the blood pressure is still held up by this maneuver.

Case III.—Postoperative intestinal paresis complicated by infectious toxemia: M. G. H., white, female, aged 23; unilateral renal tuberculosis, two years' duration, secondary infection twelve weeks' duration. Nephrectomy July 14, 1914. Thirty-six hours later full syndrome of intestinal paresis present; pulse 140; enemata ineffective. It seemed imperative that something be done for the patient. Very cautiously, consuming five minutes, one c.c. of pituitary extract was given into a vein. With the injection of the first few minims, gas began to pass per anum, and continued to pass for the next five minutes. The nurse later reported a large liquid result as well. Convalescence was uninterrupted by further bowel trouble. This result was nearly ideal. The whole action of the extract, so far as subjective symptoms were concerned, was confined to the gut. The patient experienced no discomfort, except slight nausea.

The effect of infectious toxemia, complicating postoperative intestinal paresis, is to make the bowel more refractory to treatment, and to bring about recurrence of symptoms, after the bowel has been emptied thoroughly one or more times.

Case IV.—Postoperative intestinal paresis complicated by nephritic toxemia: M. G. H., white, female, aged 41; panhysterectomy for fibroids January 7, 1914. Thirty-two hours later full syndrome of intestinal paresis present, although several enemata had been given. Pituitary extract into a vein evacuated enormous quantities of gas per anum; two bed-pans were required for the liquid result. The later development of almost complete suppression of urine led to the belief that renal insufficiency had been a complication. Recovery.

The extreme reduction in the size of the abdomen in this case, and in Cases I, V, VI, and IX, as well as the liquid and gas results, make the contention that the extract empties the small as well as the large intestine more than probable.

In medical practice intestinal paresis occurs in cases of renal insufficiency, usually when the heart muscle fails. In surgical practice in chronic nephritics the renal insufficiency is further augmented with the incidence of the passive congestion of postoperative vosomator paresis. Intestinal paresis is so frequent as to be almost constant. Frequently the heart muscle fails as well. These instances furnish the gravest anxiety of which we are aware. The mortality is distressingly high. Probably the prognosis can be bettered by securing early and maintaining intestinal drainage, upon which the chronic nephritic is so dependent. Whatever is done to break the diabolically vicious circle must be done early. Pituitary extract into a vein will succeed in some instances if employed sufficiently early. Sodium bicarbonate solution into the rectum may be of service. All indications should be met.

In instances of conjoint intestinal paresis, and renal and myocardial insufficiency, if the bowel prove refractory at first to pituitary extract, the intravenous administration of normal saline to which 1 per cent. of sodium bicarbonate has been added, up to three-pint volume, may be employed. Effort to move the bowel by means of pituitary extract, intravenously given, may be made toward the completion of the intravenous administration of the sodium chloride-sodium bicarbonate solution, while the blood pressure is still held up by this maneuver. In instances, by far the more numerous, in which the putrefactive vomiting is sustained and copious, requiring compensatory supply of fluid to the patient, where the renal insufficiency is for solids, rather than for water, this practice is occasionally helpful. In other instances, in which the vomiting is not so copious, and the renal insufficiency is also for water, with possibly hydrothorax ascites, and anasarca, the practice may not be employed.

Case V.—Intestinal paresis following injury: M. G. H., white, male, aged 48; admitted August 7, 1913. Accidentally sustained contusions to left arm and hip, probably broken ribs as well. August 11, there had been no passage of flatus, nor of solid, nor of liquid, except returned enemata. The abdomen was barrel-like, tense. Pain extreme. Stomach intolerant. Vomitus offensive. Pituitary extract into a vein produced delivery of enormous quantities of gas. Two bed-pans were required for the liquid result. The abdomen became flat and flaccid. No further bowel trouble.

Case VI.—Intestinal paresis following extravascular hemorrhage: M. G. H., white, female, aged 33; curretted March 19, 1914, for hydatiform mole. Admitted May 9, 1914, for extreme uterine hemorrhage which had occurred the day before. Twenty-four hours after entrance abdomen markedly distended, bowel non-responsive to enemata, stomach intolerant. Pituitary extract into a vein promptly evacuated the bowel.

Case VII.—Intestinal paresis following actual organic obstruction: M. G. H., white, female, aged 33; panhysterectomy for chorioepithelioma May 15, 1914. Secondary operation May 21, 1914, for postoperative actual organic obstruction. A loop of the jejunoileum was found adherent to operation wound in abdominal wall and kinked. After the separation of adhesions, gut was returned without anastamosis. Extreme distention of the small intestine above obstruction. While the patient was still anesthetized, pituitary extract was given intravenously for shock. Copious evacuation of gas and liquid per anum followed at once.

Case VIII.—Intestinal paresis following actual functional obstruction: Maine Eye and Ear Infirmary. R. M., patient of Dr. W. E. Tobie. Appendectomy April 23, 1913. A few hours after operation patient experienced intense, agonizing, intestinal colic. Morphine ¼ grain relieved for four hours, when pain of the same character returned. Pituitary extract was given intramuscularly, but proved useless. Morphine was accordingly given, and repeated at four-hour intervals until the morning of the twenty-fifth, when the patient was found writhing in agony from his intestinal spasm. Distention was beginning, and the stomach intolerant. Pituitary extract was given intravenously; prompt evacuation of bowel followed, with permanent relief.

Certainty can by no means be maintained that actual obstruction existed in this case, yet the instance is typical of a small group of cases which seem to correspond, clinically, with the pathology found present by others.

Case IX.—Intestinal paresis following infectious toxemia: M. G. H., white, female, aged 45; admitted August 8, 1913, ten days' postabortum, criminally induced. Temperature, 103.2; pulse, 130. Smears from bloody uterine discharge showed streptococci in abundance. The full syndrome of intestinal paresis was present. Enemata proved useless. Accordingly pituitary extract was given into a vein the following morning with prompt result. Forty-eight hours later the condition returned. Pituitary extract was again successful. Thereafter enemata and catharsis proved efficient.

Contraindications.—In pneumonia the added load upon the heart of an increased blood pressure, and the constriction of the coronary arteries imposed by the use of pituitary extract, increases the distress of the patient. Yet the intestinal drainage can be secured when all else fails with pituitary extract carefully given and later held by vigorous catharsis and enemata.

Pituitary extract should be very carefully given when the heart rate is unusually high, 140 or more, when there is marked intermittency of the heart, or in the presence of cardiac decompensation. In angina pectoris, on account of the vasoconstriction produced by pituitary extract, its use is probably

absolutely contraindicated. In subacute peritonitis, as for example the puerperal peritonitides and in postoperative intestinal paresis occurring in chronic peritonitis, as for instance tuberculous peritonitis, pituitary extract is extremely useful. It would seem that we ought not to let a patient die from intestinal paresis, even in the presence of subacute or chronic peritonitis. In the acute cases, with grave intraabdominal lesions tying up the intestine, the extract is usually useless. Each case however is a kingdom unto itself and must be decided upon its own merits.

Conclusions.—I. Pituitary extract intravenously given will empty the intestines, both large and small, per anum, oftentimes the stomach as well, if this contains intestinal and liver excrement, promptly and thoroughly, in by far the large majority of uncomplicated cases of postoperative intestinal paresis.

II. Conjoined with treatment directed toward the essential causation in any given case of intestinal paresis, proving refractory at first to the use of pituitary extract alone, it will retrieve many lives otherwise forlorn.

III. In uncomplicated postoperative cases, its action is promptly curative, and far more efficient than morphine, with reference to permanency of effect, in relieving pain due to intestinal distention or to intestinal spasm. But in a few such cases the bowel will yield to pituitary extract only after reaction from grave concomitant shock.

IV. In any given case of intestinal paresis it affords an additional means of emptying the bowel, peculiarly applicable, transcending in efficiency any we have heretofore possessed.

V. It is possibly curative of functional, actual, obstruction.

In actual organic obstruction, after a vent is established or the continuity of the bowel is assured, it may be effective in emptying the paralytic section of the gut.

REFERENCES.

1. Murphy, J. B.: "General Surgery," Practical Medicine Series, Vol. II, 1914, p. 352.
2. Osler: "The Principles and Practice of Medicine," 8th edition, D. Appleton & Co., pp. 541-2.
3. Murphy, J. B.: "Gynecology and Abdominal Surgery," Kelley & Noble, Vol. II, p. 397.
4. Maine General Hospital, Portland, Maine.
5. Green, Kellogg, and Harvie: *Boston Medical and Surgical Journal*, April 17, 1913.
6. Crile: Keene's "Surgery," Vol. VI, pp. 157-9.

84 Franklin Street.

THE STREPTOCOCCUS PERIL.

By HENRY F. LANGHORST, M.D.

ELMHURST, ILL.

It is just of recent date that we have begun to see the protean rôle the streptococcus plays in human pathology. We have long associated the streptococcus with erysipelas, scarlatina, and septic conditions, but it is only of late that its intimate connection with rheumatism, chorea, gastric ulcer, nephritis, septic sore throat, and other diseases has been determined. The omnipresence of this organism, its ready convertibility and the havoc wrought by its attack, prompt me to start an active campaign against it.

Hamilton,[1] in an attempt to determine whether scarlet fever patients disseminated streptococci into the surrounding air or not, placed sterile Petri dishes filled with blood-agar before patients at a distance of 12 to 24 centimeters. The patients were asked to cough twice. Out of 50 cases examined 34 were found to expel streptococci by coughing, crying or breathing. In a similar test made on 50 normal adults 42 were found to expel streptococci. That scarlet fever is caused by a streptococcus has not been proven. Its intimate relation with this disease is however an accepted fact. Baginsky and Sommerfeld[2] found streptococci in the blood of the heart and internal organs in all of 82 fatal cases of scarlet fever. Hektoen[3] states "that the predominant feature of the bacteriology of the throat in scarlet fever is the constant presence of a large number of *Streptococcus pyogenes;* that the overwhelming majority of the so-called complications and of the deaths in scarlet fever are due to the invasion of the tissues and the blood by the microbe; and that in scarlet fever, even when mild, the organism gives evidence of systemic reaction to the streptococcus by variations in the streptococco opsonic index and probably also by the formation of streptococco agglutinins. There is therefore no escape from the conclusion that the *Streptococcus pyogenes* or some form thereof plays a most significant part in the scarlatinal process." Tunicliffe[4] has shown that the opsonic index for the streptococcus falls and rises as the disease advances or declines. Liverato[5] and Schleissner[6] both found complement-deviating substances in the serum of scarlet fever patients, using the streptococcus as antigen. The streptococcus has many specific tissue affinities; it may cause an inflammation of the skin, otitis, adenitis, angina, glossitis or nephritis. In fact it will cause any of the symptoms individually that are found in scarlet fever collectively.

An interesting phase of the streptococcus study is the mutability of this organism. Rosenau has worked out this idea and has transmuted a streptococcus into a pneumococcus. It is a well-known fact that certain strains of streptococci assume different cultural and morphological characteristics under certain conditions and environment. Rosenau[7] classifies the streptococci as follows, their virulence increasing in the order named: Hemolytic streptococcus, *Streptococcus rheumaticus, Streptococcus viridans,* pneumococcus and the *Streptococcus mucosis.* The hemolytic variety has an affinity for joint structures, while the viridans has an affinity for heart valves. By a shake culture on ascites dextrose agar, Rosenau[8] was able to isolate 3 strains of streptococci from the exudate of joints in acute rheumatic fever. The cultural and morphological characteristics of each strain are different, also the affinities of each strain have specific tendencies. When the rheumatic strains under cultivation revert to the hemolytic type they lose their affinity for the endocardium and pericardium, but acquire greater affinity for joint structure. Rosenau[9] has also found (*J. A. M. A.*, November 29, 1913) that at one stage of the virulence of the streptococcus the organism shows an affinity for the mucous membrane of the stomach, duodenum, and gall-bladder. He states: "The experiments on mutation show that when these and other streptococci are grown in symbiosis with other bacteria and under a low oxygen pressure, they may acquire new features, and that sometimes they undergo marked changes on passage through animals. . . . The importance of focal infections as a point of entrance of bacteria in general is quite well recognized, but the idea that the focus serves in addition as a place where bacteria can acquire new properties is not generally recognized and needs to be emphasized."

Writers on tropical diseases have frequently mentioned the fact that scarlet fever and rheumatism are practically never seen in the tropics. In an editorial in the *Journal of the American Medical Association*, April 25, 1903, the editor under the caption "Cosmopolitan Diseases in the Tropics" writes as follows: "The concluding chapter of Scheube's translated work on 'Disease of Warm Climates,' is devoted to medical geography or what the author calls 'cosmopolitan diseases.' It gives a compendium of the facts, so far as known to the author, of the distribution of certain general diseases, and this has been made the subject of an interesting editorial commentary in the *Indian Medical Gazette* of March, 1903. . . . One of the curious facts pointed out by both Schaube and the editor is the absolute absence of scarlet fever in the tropics. While it may be imported into such regions, it never spreads, and it would be interesting to know what special cause in the temperature or otherwise there may be for this peculiarity. Erysipelas which Schaube considers rare is not at all unknown in India, and pneumonia which is unevenly distributed, lacking in some regions, is almost as serious a disorder in Indian territories as it is in Europe and America. At the present day it has come to be more dreaded in some Indian jails and public institutions than even dysentery used to be. Another disease which seems to be lacking in tropical countries is acute rheumatic fever, not chronic rheumatism, and while it occurs it is by far less frequent among the natives than is the case in other climates. . . . If scarlet fever can not exist in warm climates there ought to be some fact to account for it that might very probably be of utility in its management where it does occur, and similarly with other disorders."

In an analysis of 100 cases of arthritis in laborers on the Panama Canal, Baetz[10] writes: "Some of the most noted authorities in tropical medicine declare that acute rheumatism and scarlatina are both practically non-existent among natives in the tropics. No one will deny that scarlatina occurs in Panama in imported cases only, but question would probably be raised as to the absence of acute articular rheumatism." His results show that out of 100 cases of arthritis, 63 were syphilitic, 28 were gonorrheal, 2 were dysenteric, 1 was tuberculous and 6 were undetermined. He further mentions that acute articular rheumatism was not encountered, nor was acute or chronic endocarditis present in the 100 cases. Overlander,[11] speaking of medical practice in the Canal Zone, says: "Measles and chicken-pox thrive well and do not differ in any essential features from the same diseases here. Scarlet fever is much less common and epidemics are short-lived. It has been stated that scarlet fever is not a tropical disease and certainly the statement is well borne out on the Isthmus." Otis,[12] in his article on diseases of Porto Rico, says "Eruptive fevers, except possibly scarlet fever, are found in Porto Rico, but are usually of a mild character." In a travel letter, Caldwell,[13] writing from China, says: "As in Japan, I found here also that true croupous pneumonia is a very rare disease. They have a ward connected with this hospital for the isolation of scarlet fever and diphtheria cases. But these diseases are so rare here that the beds in this ward are nearly always empty."

In answer to a letter, sent to the Surgeon General's office in Washington, inquiring about the statistics of scarlet fever in Japan, a report of the number of deaths from this disease was sent. From 1904 to 1910 the number of deaths were, respectively, 18, 36, 70, 126, and 339. The climate of Japan is not entirely tropical, and might correspond to that of our southern States. It is not unusual to have snow fall in Japan. This fact would mean that other influences, besides climatic ones, acted as repressive factors. We will now attempt to show what we believe to be the chief factor in the prevalence of streptococcal infections.

Rosenau[14] made an attempt to secure sterile milk from healthy cows by means of milk tubes. In spite of elaborate asepsis, he succeeded only in 5 out of 12 attempts. The milk in three of the failures was found to contain streptococci that were pathogenic for guinea pigs. He made tests with the sterile milk he obtained, inoculating it with strains of streptococci derived from both human and bovine sources. He found if the milk was kept at a low temperature, conforming with the natural conditions of the dairy industry, thereby delaying or preventing the growth of the germ, that the streptococcus was altered and its virulence increased. His tests prove that no raw milk is absolutely safe. For many years epidemics of sore throat have been identified with the milk supply of the affected community, the earliest reports coming from England. Swithbank and Newman[15] say: "We think it safe to assume that a year never goes by in which there are not outbreaks of sore throat or tonsilitis due to cream or milk." In 1897 an epidemic of sore throat was attributed to the milk supply in London. At this time staphylococci and streptococci were found in the milk. In 1908 there occurred in Christiana an epidemic which was also traced to the milk supply, streptococci being found in the milk. Darling[16] and Winslow[17] each reported the epidemic of septic sore throat, occurring in Boston in 1911. Over 1,000 cases were reported, and 48 deaths were attributed to the infected milk. Streptococci and pneumococci were the predominating organisms found by cultures from the throat and milk. In this epidemic it was not possible to obtain a record of any cases of tonsilitis in the dairy employes, the assumption being that the infection was primarily from the cows. In 1912 an epidemic occurred in Baltimore and Chicago. Davis[18] reports the bacteriological finding in the Chicago epidemic. He found a streptococcus that had a capsule and somewhat resembled the pneumococcus. Capps[19] (*J. A. M. A.*, June 15, 1912) found in the Chicago epidemic an unusual prevalence of mastitis in the cows of the dairies that were distributing the infected milk. Davis found pus and streptococci in the milk taken directly from cows with diseased udders. In an editorial in the *Journal of the American Medical Association*, March 14, 1914, the editor says: "There has been a tendency in the investigation of a number of epidemics to conclude that the cause of the infection in septic sore throat is the streptococcus which is discharged from the inflamed udder of the dairy cow into the milk, through which it is transferred to the throats of the milk consumers. The evidence for the foregoing theory of infection has hitherto been circumstantial rather than positive and direct. The outbreak of epidemic sore throat at Cortland and Homer, in the State of New York, during April of last year gave an opportunity to demonstrate the correctness of the commonly held view. North, White and Avery[20], in discussing an epidemic of septic sore throat in Cortland and Homer, N. Y., state that "the incidence of

the cases in the outbreak soon cast suspicion on the milk supply from one dairy. Over 70 per cent. of the cases in each community occurred among the patrons of a dairyman who was the only dealer selling milk in both places and who furnished less than 7 per cent. of the total milk supply. Adjacent towns had no cases, and further they received no milk from the suspected dairy. As the result of an inspection of the cattle belonging to this dairy, two cows which showed physical signs of udder inflammation were isolated from the main herd and the use of their milk was forbidden. For the first time in the history of the investigation of individual cows for the existence of udder inflammation we are told a centrifugal milk clarifier was used. By means of this apparatus the milk of all animals in the herd involved was examined and the sediment easily secured. The quantitative results in the case of the two suspected animals alone furnished sufficient evidence, by contrast with the milk sediment of the rest of the herd, to point conclusively to their udders as affected; and the microscopic examinations showing streptococci, bacilli, and phagocyting white corpuscles, discharged by the inflamed organ into the milk, completed the proof."

The symptoms of septic sore throat in brief are: chills, high fever, diffuse redness of throat with excessive secretion of mucus, enlarged lymph nodes, and the crypts of the tonsils filled with exudate; very often there is a membrane that cannot be distinguished from the diphtheritic one except by bacteriological methods. The complications are manifold, consisting of suppurative adenitis, otitis, arthritis, glossitis, nephritis, pneumonia, bronchitis, myocarditis, pericarditis, pleurisy, endocarditis, peritonitis, scarlet fever and scarlatinal eruptions. From the foregoing evidence it is safe to conclude that raw cow's milk is a decided menace to the public. Milk and cream are mediums for disseminating the streptococcus among millions of people. It isnot to be marveled at that the streptococcus is all prevalent in any community where the dairy industry flourishes. Until we have stringent laws governing the milk industry, sterilization or properly supervised pasteurization of milk should be universally enforced. The streptococci that are harbored in the throat may at any time assume pathogenic properties.

Being impressed with the close relation the streptococcus bears to scarlet fever, erysipelas, rheumatism and pneumonia, also with the work of Rosenau, in which he shows the many affinities and the mutability of the streptococcus, it was thought a good plan to make a geographical study of streptococcal infections. The hope is also expressed that this study may pave the way toward a better etiological understanding of scarlatina.

In order to explain the lack of streptococcal infections in the tropics, one must consider whether the chances for disseminating the germ there are as facile as in countries where these infections are common. An inquiry addressed to the Department of Agriculture at Washington asking about the dairy industry in tropical countries brought the response that as far as they were able to tell no dairy industry of any importance existed in the tropics. Dairying is only conducted as an adjunct to the raising of livestock. It is almost impossible to get milk in Japan. There are a few small dairies there that supply the foreign residents with milk, cream and butter. This statement comes from a member of the household of a former ambassador to Japan. Overlander, in his article on Canal Zone practice, quotes: "Of children's diseases, intestinal disturbances are common. Diseases of nutrition are more rare than one would suppose. Milk is scarcely to be had even at 40 cents (gold, 80 cents silver) per quart." It is thus shown that one of the main causative factors in the dissemination of streptococci is missing in the tropical countries. This fact suggests important prophylactic procedures. It is as important to eliminate the streptococcus from our dairy products as to eliminate the typhoid bacillus from our drinking water. We absolutely refuse to drink water that is contaminated, but are not at all squeamish about taking a little pus, manure, and virulent bacterial life in our milk. The streptococcus scourge in all of its phases is important enough to demand drastic sanitary regulations.

From the available knowledge on this subject our conclusions are as follows: The streptococcus is present in the majority of human throats (in this country). It has been proven to be the causative factor in acute rheumatism, erysipelas, and epidemics of septic sore throat. It leaves a trail of damaged hearts, kidneys, ears, joints, and other serious defects in its wake. It is so closely identified with scarlet fever that by eliminating the streptococcus we would take from scarlatina its chief instrument of destruction. It is not at all impossible to believe that the streptococcus, in some form, is the causative agent. Streptococcal infections, such as rheumatism, erysipelas and scarlet fever, are not established diseases in the tropical countries. Streptococci are widely disseminated by products of the dairy. The dairy industry in the tropics has not been developed. The pneumococcus, representing one stage in the mutation of the streptococcus, is a peril that is gaining in power every year. By eliminating the streptococcus we should expect a diminished activity of the pneumococcus.

REFERENCES.

1. Hamilton: *J. A. M. A.*, April 8, 1905.
2. Baginsky and Sommerfeld: *Berl. klin. Woch.*, 1900.
3. Hektoen: *J. A. M. A.*, April 6, 1907.
4. Tunicliffe: *Jour. Inf. Dis.*, June, 1907.
5. Liverato: *Cent. f. Bact.* liv. 422.
6. Schleissner: *Folia Serol.*, 1909.
7. Rosenau: *N. Y. M. J.*, February 7, 1914.
8. *Id.: Jour. Inf. Dis.*, January, 1914.
9. *Id.: J. A. M. A.*, November 20, 1913.
10. Baetz: *J. A. M. A.*, April 5, 1913.
11. Overlander: *J. A. M. A.*, March 15, 1913.
12. Otis: *J. A. M. A.*, September 27, 1913.
13. Caldwell: *J. A. M. A.*, February 3, 1900.
14. Rosenau: *Jour. Inf. Dis.*, November 14, 1912.
15. Swithbank and Newman: "Bacteriology of Milk." 1903.
16. Darling: *Boston M. and S. J.*, June, 1911.
17. Winslow: *Jour. Inf. Dis.*, 1912.
18. Davis: *J. A. M. A.*, March 16, 1912.
19. Capps: *J. A. M. A.*, June 15, 1912.
20. North, C. E.; White, B., and Avery, O. T.: *Jour. Inf. Dis.*, 1914.

Picric Acid Poisoning.—T. Koizami produced experimentally acute and chronic picric acid poisoning in rabbits and dogs. The acute poisoning gives rise to gastritis, nephritis, various hemorrhages, and abortion. The chronic poisoning causes diarrhea, loss of appetite, and albuminuria. The organism is able to convert picric acid into picramic acid which is nontoxic, and also into compounds containing sulphur and compounds containing glycocoll. Industrial picric acid poisoning has been observed in the laborers in powder factories, the symptoms being gastrointestinal irritation, conjunctivitis, and rhinitis; and picric, and more particularly picramic, acid being found in the urine.—*Sei-i-Kwai Medical Journal.*

A NEW VISUAL LITHOTRITE.

By JULIUS LONDON, M.D.,

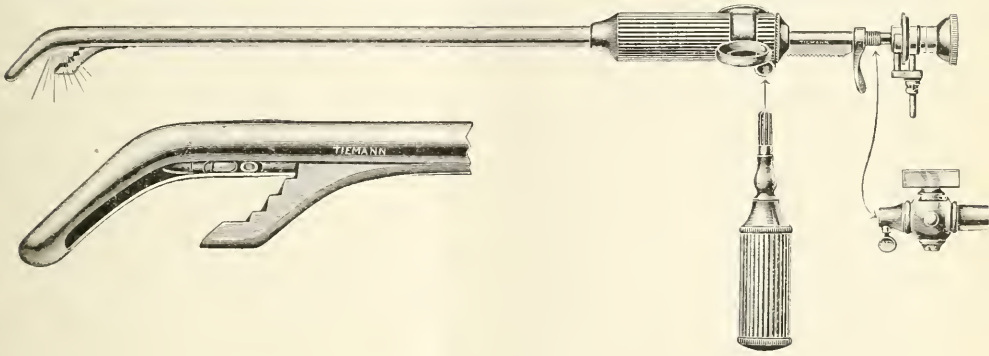
NEW YORK.

CHIEF, GENITOURINARY CLINIC, LEBANON HOSPITAL DISPENSARY; ASSISTANT, GENITOURINARY CLINIC, MT. SINAI HOSPITAL DISPENSARY.

In this preliminary report I desire to describe a visual lithotrite which I have devised and which consists of a cystoscope and a lithotrite with their respective accessories.

General considerations of lithotrites: Before describing my special device, I believe it best to undertake a review of the basic principles on which lithotrites are constructed. A lithotrite is an instrument used for crushing stone in the bladder; it is shaped like a curved sound, and composed of two blades, one, the outer or female blade, and the other, the inner or male blade. When the instrument is closed, the curved extremity is called the beak; the main body of the instrument is called the shaft, while the terminal portion by which the instrument is held is called the handle.

The female or outer blade is deeply grooved for the reception of the inner or male blade. When the latter is slightly withdrawn the beak opens and the halves are called jaws.



London's Visual Lithotrite

Depending upon the character of the work required of them, the jaws vary both in strength and construction. For fragmenting large, hard stone the male jaw has been made narrow with the idea of forcing its way through a stone which could not be penetrated by a wide blade. If the male blade have a toothed surface, each of the several projections will exert an effective wedgelike action on the calculus, and the fragments resulting will be discharged laterally. The female blade should be broad and heavy enough to stand the strain thrown upon it. For the purpose of crushing soft or small calculi or fragments, the jaws of the lithotrite are shorter, less heavy, and their opposing surfaces simply roughened. To prevent impaction of crushed material between the jaws of the lithotrite several expedients have been employed, the most important being the complete fenestration of the female blade, so that the crushed mass could be pushed right through the beak when the male blade was driven home. The objection raised against this fenestration is the resultant weakness of the jaw, especially when the stone is grasped on only one edge, as then the torsional strain on the female jaw is supported by only one bar, while if the female jaw is only partly fenestrated, the metal between the two edges acts as a buttress and distributes the strain to the entire jaw.

To obtain the advantages of the solid blade and to provide against impaction, the female blade has been made partially fenestrated at its base, with a corresponding spur on the male blade to clear the jaws on closure.

From the very first introduction of lithotrity, which was the forerunner of litholapaxy, the value of having control over the amount of fluid in the bladder was recognized and sporadic use was made of a hollow blade to accomplish this purpose. This received its highest development at the hands of Chismore, who not only crushed fragments, but also aspirated them through his lithotrite.

It should also be noted that numerous attempts have been made to employ visual control of the operation of litholapaxy, to which I beg leave to contribute my feeble efforts. In my lithotrite I employ two principles which I believe are fundamental in making for success in this work; these are: (1) A large size lithotrite. My present model is 30 French. (2) Making the opening in the male blade as small as possible, as the mechanical strength of the lithotrite varies directly as the cube of the thickness of the metal.

In discussing the lithotrite which I have devised we shall consider first the component parts and then the entire instrument assembled.

The male blade is 15½ inches long, tubular in character, the bore admitting a cystoscope size 15 French. Upon its upper surface the shaft is strengthened by a bar which terminates at its distal extremity in the male jaw. This is one inch in height, placed at an obtuse angle to the shaft, and terminates in a projection which is parallel to the base line and extends for three-eighths inch beyond the body of the jaw. Thus we see that the male jaw has a gooseneck appearance, the shaft of the blade corresponding to the body of the bird, the body of the jaw corresponding to the neck, and the projecting terminal tip to the head and bill of the bird.

At this point I desire to call particular attention to the fact that there is no spur at the base line of the male jaw. When we shall take up the use of the cystoscope through the lithotrite, the great importance of the removal of this spur in allowing us to retain a most comprehensive visual control of the entire male jaw at all times will be apparent. In order to obtain the wedge action so important in crushing large and hard stone, the

body of the jaw carries six alternating triangular notches, three on either side. The terminal projection is obliquely cut at its distal end in order that this also may exert a wedgelike action. At the proximal end of the shaft of the male blade the bar is thicker and carries a ratchet which is worked by a pinion. A small bar is also attached at this proximal end to serve as a thumb rest.

The female blade is composed of a tubular shaft 10½ inches long, a cylindrical handle at its proximal end and at its distal end the female jaw. This is a deep hollow, strengthened by a heavy metal back, in which there are two perforations, one at the base of the shaft, which is contiguous with the opening in the male blade, and the other near the tip, into which the projecting tooth of the male blade fits when the instrument is closed. To accommodate this projecting end on the male jaw, the terminal extremity of the female jaw is curved forward slightly, so that the increased diameter thus obtained can be supported by a solid metal tip. The handle is cylindrical in form, has a ring on either side to serve as a finger rest and a guard over the site of the ratchet for the pinion to work in.

When the lithotrite is closed, it is 16 inches long, 30 French in circumference, and has the appearance of a curved metal catheter, the opening through the male blade being contiguous to and in a straight line with the opening at the base of the female jaw. It is thus apparent that when the lithotrite is introduced into the bladder, this continuous channel will allow of free irrigation and distention of the bladder by fluid introduced through the instrument itself without removing it. By means of an aspirator attached to the stop cock the smaller fragments may be removed through this channel. If fragments become impacted at the base of the jaw, a stilet may be inserted to dislodge them. When only the front part of the jaws are in opposition, there is quite a fenestrum between the main bodies of the respective jaws, and the cystoscope can actually study the toothed surface of the male jaw in its entirety even with the terminal parts of the jaws touching. Furthermore through this fenestrum the bladder walls may be observed to make sure not to pinch them between the blades. This lateral fenestrum allows the fragments to discharge laterally while the two perforations in the female jaw afford additional facilities to prevent impaction.

Now we come to the joint use of lithotrite and cystoscope. After the lithotrite has been introduced into the bladder, the latter is distended with fluid introduced through the channel above described and the cystoscope, previously tested on the rheostat is inserted. In the first position the beak of the lithotrite points upwards with its jaws closed, while the cystoscope projects beyond the opening in the female blade and explores the bladder. When the stone is located, the beak is turned sideways, opened over the site of the calculus, and the latter is grasped. The cystoscope is slightly withdrawn and then the mechanical power, in form of rack and pinion, is applied. The instrument has a crushing power of (200) two hundred pounds. In applying the power, the beak is turned sideways or downwards, and the pinion inserted on the right side and rotated clockwise, as this is the most natural movement of the wrist.

The cystoscope is arranged on a straight stem, with a working length of (16) sixteen inches, it is 15 French in circumference. The distal extremity contains the lamp which is of the cold type; the objective has a focus of one and one-half inches with its axis directed (15) fifteen degrees forward from the right angle. The telescopic system conforms to the latest principles of geometrical optics, is of the double inversion type, and gives a corrected image. The electric connection is a sliding contact.

The mechanical features of my lithotrite are thus seen to be:

1. A large sized instrument with the smallest feasible bore for the cystoscope; this gives a large volume of metal to stand any reasonable strain thrown upon it.

2. The visual control of the male jaw is absolute even when the front parts of the blades are in contact.

3. Simplicity of construction and ease of application of mechanical power.

The lens system was made by Wappler and the lithotrite by Tiemann.

616 Madison Avenue.

Medicolegal Notes.

Practicing Suggestive Therapeutics Without a Certificate.—The Washington statute, Rem. and Bal. Code, section 8400, provides that "any person who shall practice or attempt to practice, or hold himself out as practicing medicine and surgery, osteopathy, or any other system or mode of treating the sick or afflicted in this state, without having, at the time of so doing, a valid, unrevoked certificate from the State Medical Board, shall be guilty of a misdemeanor. In criminal proceedings for practicing suggestive therapeutics without having such a certificate the defendant argued that this provision denies to those persons engaged in the practice of any system or mode of treatment not embraced within the terms "medicine," "surgery," and "osteopathy," as mentioned in the section, the equal protection of the law, in establishing an arbitrary classification and denying to those not within such classification the right to engage in a lawful contention. The same argument was made by the defendant in State v. Greiner, 63 Wash. 46, 114 Pac. 897, where the defendant was convicted of practicing chiropractic without a license, but the contention was not sustained. The court followed the Greiner case.

Suggestive therapeutics was held not to be the practice of any religious, nor "any kind of treatment by prayer." As practiced by the defendant it consisted of a laying on of hands upon that part of the body where the trouble is and "upon certain parts of the spine that control the nerves, or the nerves that control the organ," and giving certain suggestions which pass from the healer's mind to the mind of the patient, resulting in "certain vibrations" being sent through the body that are instrumental in effecting the cure. It was held that this brought the defendant within the act.—State v. Pratt, Washington Supreme Court, 141 Pac. 318.

Increase of State Health Officer's Salary.—Action was brought by the state of Alabama against the state health officer to recover the sum of $2,333.10 claimed to have been paid him by the state board of health in excess of his salary authorized by law. The Alabama Code 1907, § 698, provides that the State Medical Association shall constitute the state board of health. Section 704 declares that such board shall elect the state health officer, and fix his term and salary, provided that the salary shall not exceed $5,000 per annum; that such officer, under the direction of the state board, shall exercise general supervision over the county boards of health and county and municipal health officers. It was held that the state health officer, while an officer of the board, was not a state, county, or municipal officer within Const. 1901, § 281, providing that the salary of any officer holding a civil office of profit under the state, county, or municipality shall not be increased or diminished during the term for which he shall have been elected or appointed—State v. Sanders, Alabama Supreme Court, 65 So. 378.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, January 30, 1915.

THE WORK OF THE UNITED STATES PUBLIC HEALTH SERVICE.

THE report of Surgeon General Blue of the United States Public Health Service for 1914 has been published recently and provides even more satisfactory reading than usual. In consequence of the appropriation by Congress of a fund for field investigation of public health matters the scope of the work of the Service has been considerably enlarged. The administrative supervision of the work is conducted through the seven divisions of the bureau as follows: (1) Scientific research and sanitation; (2) Foreign and insular quarantine and immigration; (3) Interstate quarantine; (4) Sanitary reports and statistics; (5) Marine hospitals and relief; (6) Personnel and accounts; (7) Miscellaneous. In the limited space at disposal it would be impossible adequately to discuss the report in detail, so it must suffice to pass briefly in review the more important features of that part of the report devoted to the consideration of the work done and in progress by the Division of Scientific Research and Sanitation.

As mentioned before, the Division of Scientific Research, owing to the granting of increased funds, has been very actively engaged during the year in investigations in connection with public health matters. Among the diseases investigated in the several laboratories and in the field during the year were beriberi, diphtheria, endemic goiter, hookworm disease, leprosy, typhoid fever, malaria, pellagra, trachoma, tuberculosis, typhus fever, and certain occupaticnal diseases. In addition systematic investigations of rural sanitation, school hygiene, industrial hygiene, and health organization and administration were taken up and enlarged.

The investigations of water supplies and sewage have included three distinct lines of study, namely, pollution of rivers and coastal waters, disposal of sewage, and treatment of industrial wastes. Among the most interesting studies undertaken was that of endemic goiter in the Appalachian Mountain region. Of 13,836 school children examined in West Virginia and Virginia by Dr. I. Clark, 1,234 cases of goiter were found, or 8.91 per cent. In Virginia of 6,432 school children examined 817 cases of goiter, or 12.7 per cent. were detected. Of these cases less than one-tenth of 1 per cent. was among school boys, girls being mostly affected. As a result of his studies Dr. Clark was inclined to conclude that the extensive prevalence of the disease in rural communities, where families are widely separated and have different water supplies, tends to preclude the possibility of the infection being due to a water-borne living excitant. It can, however, bear some relation to the water supplies, there being a possibility that the affection is caused by a deficiency of certain chemical substances.

The investigations regarding malaria were widespread and in keeping with the gravity of the situation with respect to this national problem. The plan of campaign decided upon against this disease was (1) to make the communities visited understand the situation, and (2) to give practical advice to correct the defects noted. Trachoma is prevalent in several of the Southern States and especially in Kentucky. Dr. John McMullen has been sent to Kentucky to direct operations for the treatment and prevention of the disease. In view of the fact that trachoma is essentially a surgical disease, it has been found necessary to establish hospitals for the treatment of patients. These have proved very successful, but more are needed. The prevention of trachoma is practically synonymous with education in regard to the importance of sanitation, fresh air, and dietetics. Accordingly the service has taken steps to disseminate such information far and wide.

As in former years special attention has been paid by the service to typhoid fever studies. Although the prevalence of the disease in the United States appears to be undergoing a gradual reduction, this country still holds an unenviable position in this respect. The typhoid fever investigations of the Service during the year have been concerned with both urban and rural conditions. Improved sanitation has been mainly responsible for the decrease of the disease in cities, but in rural districts generally conditions favorable to its spread exist. "In fact the sanitation of rural communities is one of the most important problems of the nation." City methods of sanitation are not feasible in country districts and thus rural sanitation depends for its advancement largely upon the observance and practice of sanitary principles by the individual citizens. In order to inculcate into the minds of country dwellers the importance of the observance and practice of these principles, they must be educated in this direction. The Public Health Service is conducting an educational campaign of this description. Work in connection with the study of leprosy has been carried on during the year at Kalilu and at Kalawao, Hawaii.

The above is a necessarily inadequate and incomplete survey of the work performed by the service and recorded in its report for the year 1914. The Public Health Service of this country has done and is doing extremely valuable work in the interests of the health of the community at large. That its labors are appreciated by the public and the medical profession is sufficiently shown by the keen interest taken in the literature sent out under its auspices and by the fact that its educational influence has borne and is bearing fruit.

THE PRESERVATION OF SERA INTENDED FOR INTRASPINAL USE.

The intraspinal administration of sera is not entirely free from danger since a few deaths have occurred which can apparently be blamed on the serum alone. This fact of course does not detract from the great value of such sera in the treatment of disease, notably meningitis. Nevertheless an earnest attempt has been made to determine what factor can be held responsible for these unfortunate results. The first explanation advanced was that the serum had been injected in too large quantities or too rapidly and that the ill effects were the results of increase in the intraspinous pressure. Within the last two years, however, another explanation has been advanced and vigorously urged by one group of investigators. They admit that increased pressure has its influence but hold the opinion, and support it with experimental evidence, that the chief cause of the collapse that may appear is not this pressure but the presence in the serum of a preservative, usually tricresol in a strength of three-tenths per cent. This preservative when brought into direct contact with the respiratory center is apparently much more toxic than when introduced into the circulation and is thought to produce a paralysis of that center. Hale has suggested that chloroform be used instead of any of the phenol group.

The subject is of great importance since intraspinal medication is coming more and more into use with the introduction of the newer remedies and with the recognition of the fact that few drugs introduced into the circulation are secreted into the spinal canal. Auer has been carrying out experiments recently in an effort to establish the action of these preservatives. He used (*Jour. Exper. Med.*, 1915, xxi, 43) dogs and monkeys for this purpose, anesthetizing them by his method of intratracheal insufflation. Injections were always given by syringe in order to approximate average clinical conditions. Briefly stated, he found that intraspinal injections of sera, with or without preservatives, produced qualitatively the same effects upon the medullary centers in the monkey and the dog. The effects differed quantitatively "with the preservative employed, with the dosage, and with the species of animal used, the monkey being strikingly more resistent than the dog. . . . The respiration is first increased both in amplitude and rate for a short period of time then, particularly in the dog, the amplitude decreases and the rate slows and the respiration may even stop for a shorter or longer period of time. The blood pressure shows an initial rise followed by a gradual drop of varying degree." Because he used the intratracheal insufflation method he was able promptly to institute artificial respiration and thus was able to revive his animals in a comparatively short time—twelve minutes in a severe case. Since spontaneous respiration was established so quickly, Auer thinks that the effect on the respiratory center is not paralysis but inhibition, essentially a very different process. In the monkey the effect of the preservative was much less, the results being due, apparently, largely to pressure, since the symptoms were quickly relieved when the fluid was permitted to escape from the spinal canal. In spite of this fact, absorption of fluid from the spinal canal in monkeys seems to take place with remarkable rapidity, since one animal weighing only 2,835 grams received on one day 15 c.c. of chloroform serum and 6 c.c. of tricresol serum, and on the next day 21 c.c. of chloroform serum, 23 c.c. of tricresol serum, and 10 c.c. of Ringer's solution without showing any ill effects. Auer is of the opinion that ether or chloroform would be a better preservative for such sera. Not only is their effect much less depressing, so far as one can judge from a study of the respiration and blood pressure, but also they can be largely removed by warming the serum before use. A separate series of experiments demonstrated that 0.3 per cent. tricresol, 0.3 per cent. chloroform, and 0.3 per cent. ether affected the opsonin content about equally when tested after one week, one month, and three months, so that it may be assumed that the effectiveness of the serum as a therapeutic agent would be the same with any of these substances. He closes with this exceedingly wise advice: "When intraspinal injections are given in the human being it would seem advisable to be prepared to withdraw part of the injected fluid and to administer artificial respiration if necessary. For a safe withdrawal of fluid the gravity method is best; for artificial respiration Meltzer's apparatus for pharyngeal insufflation is recommended."

INCREASING TRACHOMA.

Over four years ago we had occasion to refer in these columns to the increase of trachoma in Cuba since the conclusion of the Spanish-American War. (Medical Record, December 23, 1911.) From the data available at that writing it appeared that immigration had been an important factor in this increase. Since then other reports from widely different sections of North America make it seem likely that the disease is spreading in a manner to warrant the conclusion that other factors more important than immigration are concerned. Thus King (Public Health Reports, Dec. 18, 1914), in giving the result of his investigations among the school children of Porto Rico, notes a rapid increase of late years which is in nowise attributable to immigration. He thinks one of the potent factors in this increase has been the fact that the school system has expanded from an enrollment of 26,000 in 1899 to 182,766 in 1913-1914, thus bringing thousands of school children into close association who would otherwise scarcely have been thrown together at all.

That this cannot be the only factor in the spread of the disease is shown by the fact that it scarcely enters at all into the situation in the continental United States. Thus the recent increase of trachoma in the mountain regions of Kentucky, Tennessee, and Virginia has not been accompanied by a corresponding increase in attendance upon the rural schools. Neither has immigration been a factor in these regions. From a study of all the avail-

able reports it would seem that about the only conclusion as yet warranted is that trachoma is on the increase throughout North America and the West Indies, but that the cause of this increase has not yet been accurately determined. In the meantime a careful search for details concerning the so-called ravages of the disease fails to discover great cause for alarm. All the investigators apparently agree that the majority of the persons found afflicted are free from annoying subjective symptoms of any kind, and it would seem that serious complications such as pannus and ectropion, with their resulting impairment to vision, are chiefly encountered among the very dirty and ignorant classes.

The more we read the reports of the investigators the more we are impressed with the idea that the purely sociological aspects of trachoma loom larger than the strictly medical.

INCOAGULABILITY OF THE BLOOD IN HEMOPTYSIS.

In 1913 E. Magnus-Alsleben reported the observation that occasionally the blood expectorated by tuberculous patients fails to a greater or lesser extent to clot. Others have since noted the same phenomenon. The blood thus expectorated contains several clotted particles, and the fluid portion remains fluid in spite of the addition of calcium salts, serum, and tissue extracts. Blood extracted from the patient's arm shows at the same time the normal power of coagulation. Small quantities of normal blood added to hemoptysis blood have no effect in exciting the coagulation of the latter, while large quantities of normal blood, equal in amount to one-half of the hemoptysis blood, cause a delayed coagulation.

In the *Zeitschrift für klinische Medizin*, Vol. 81, Nos. 1 and 2, Magnus-Alsleben reports the results of his further experiments along this line. He finds that the saliva is not responsible for this inhibition of the power of coagulation of hemoptysis blood. The saliva, as well as extracts of body organs and tissues with the exception of the female genitalia, tends to promote coagulation. On the other hand, products of the autolysis of organs inhibit coagulation. Extracts of diseased organs tend to retard coagulation, just like the autolysates of healthy organs.

The above results seem to suggest that during the course of tuberculosis there are formed in the lung substances that inhibit coagulation. It has been shown by a number of investigators that blood which has been retained in the pleural cavity for a short time or which has been allowed to flow slowly over the surface of a lung, loses the power of coagulation. The cause of this phenomenon is as yet veiled in obscurity. It is quite probable that the same factor which is present when the autolysate of healthy lung retards coagulation is also operative in the case of the inhibition of this power when blood is in contact with the pleural endothelium. In the former case, however, the effect is one of mere retardation, while in the latter case the effect is one of absolute inhibition. The phenomenon observed in the case of hemoptysis blood is one of inhibition rather than of retardation.

Beriberi and White Bread.

Over two years ago Little described a form of neuritis which is fairly prevalent in Newfoundland and on the coast of Labrador where many of the natives live on a restricted diet consisting largely of highly milled white flour. Little, at that time and again later, was of the opinion that the disease was true beriberi, and more recently Ohler (*Jour. Med. Research*, 1914, xxxi, 239) reports experimental results that bear out Little's conclusions. Ohler fed chickens on various diets over fairly long periods of time and found that when the food consisted exclusively of white bread, either with or without yeast, hominy, or milled rice, the fowls developed polyneuritis gallinarum in from five to six weeks. On a diet consisting of whole wheat bread or of wheat grains, or even if cracked corn or wheat was given once a week to birds on the white bread diet, they remained apparently perfectly well, and on autopsy showed none of the signs of the disease. Two birds that were starved for thirty-eight and fifty-six days respectively failed to show typical symptoms or postmortem findings. It is of course not settled that beriberi and polyneuritis gallinarum are identical diseases, but it would seem that the two conditions are sufficiently alike in their course and etiology to permit of satisfactory conclusions. The evidence certainly seems to point to the fact that white bread as a sole article of diet is undesirable in that it apparently is lacking in the necessary vitamines. It does not, of course, demonstrate that white bread is undesirable when taken in conjunction with other articles of food which will supply the missing vitamines. The evidence has gradually accumulated, and this work has added to it, to prove that beriberi is definitely one of the "deficiency diseases," and that the question of its complete eradication is merely one of the supply of the proper food in the districts in which the disease is prevalent, together with the persuasion of the people (not always an easy matter) to use the food thus supplied.

Diagnosis of Typhoid Fever in the Field.

The necessity for a rapid and accurate diagnosis of typhoid fever at the front gives a good opportunity to estimate the value of the tests employed in civil and hospital practice. In the military supplement to the *Muenchener medizinische Wochenschrift*, December 8, Rhein announces his experience in 100 cases of this fever, and is so satisfied with urinary tests that he is silent as to serodiagnosis. Ehrlich's original diazo test is too complicated for employment here, but Weiss' modified diazo reaction is not open to this objection. To perform this the urine is so diluted that its color almost disappears. To this dilution (usually effected by adding from 2 to 3 parts of water) from 3 to 10 drops of a 1 1000 sol. of potassium permanganate are added. If the resulting reaction is positive, a distinct golden yellow coloration appears, due to oxidation of the urochromogen, a normal constituent of the urine. In negative outcome we see either no color change or a slight brownish coloration. In all cases in which the old diazo reaction can be obtained the Weiss modification above described invariably holds good. In doubtful cases (of which there were 10 per cent.) with the original diazo, the Weiss diazo was positive. The author believes that the latter resource can be still further simplified.

The Medical Reserve Corps.

In Great Britain, at the present time, the lack of trained army surgeons is considerably felt. With all the good will in the world it is impossible for a civilian practitioner to be able to fulfill the duties which fall to the lot of an army surgeon without some experience of such duties. In the *Military Surgeon* for December, 1914, Dr. Henry C. Coe, of the Medical Reserve Corps, U. S. A., makes a final protest against the inactivity of the Medical Reserve Corps as at present constituted and conducted. He points out that a certain amount of training yearly is indispensable to fit a civilian for an army surgeon's work, which training the members of the Reserve Corps do not receive. Attention is also drawn to the fact that the government should take cognizance of the existing unsatisfactory state of affairs and see to it that the Medical Reserve Corps should receive as adequate training as is possible.

News of the Week.

Relief for Belgian Physicians.—Dr. F. F. Simpson, treasurer of the Committee of American Physicians for the Aid of the Belgian Profession, makes the following report for the week ending January 23, 1915. Diplomatic arrangements have just been completed whereby drugs and instruments for civilian physicians may be sent into Belgium. Recent advices from Dr. Herbert Spencer of London show that our Belgian colleagues are literally starving. Three hundred additional boxes of food have therefore been purchased at a cost of $660.00. The following contributions have been received during the week:

Dr. W. A. Coventry, Duluth, Minn.	$10.00
Dr. A. William Reggio, Boston, Mass.	25.00
Dr. Edward B. Heckel, Fittsburgh, Pa.	25.00
Dr. T. R. Williams, Punxsutawney, Pa.	10.00
Dr. J. Knox Simpson, Jacksonville, Fla.	10.00
Sonoma Co. Medical Society, Sebastapol, Cal.	50.00
Anonymous—E., Pittsburgh, Pa.	10.00
Dr. A. B. Hirsh, Philadelphia, Pa.	5.00
Dr. Henry Eastman, Pittsburgh, Pa.	10.00
Dr. H. S. Steensland, Syracuse, N. Y.	2.00
Washington Co. Medical Soc., Marietta, Ohio.	25.00
Dr. Lewis S. Pilcher, Brooklyn, N. Y.	25.00
Dr. M. Iverson, Stoughton, Wis.	5.00
Dr. A. H. Traver, Albany, N. Y.	5.00
Dr. Carl B. Drake, St. Paul, Minn.	5.00
Dr. Leonard Freeman, Denver, Colo.	5.00
Dr. Howard C. Taylor, New York, N. Y.	25.00
Dr. Walter F. Donaldson, Pittsburgh, Pa.	5.00
Deer Lodge Co. Medical Soc., Anaconda, Montana.	75.00
Dr. W. S. Zibberman, Spartansburg, S. C.	10.00
Dr. H. MacVicker Smith, Pittsburgh, Pa.	5.00
Dr. Ethel D. Brown, New York, N. Y.	5.00
Dr. Brown Pusey, Chicago, Ill.	25.00
Total	$377.00
Previously reported receipts	1,414.00
Total receipts	$1,791.00
Previously reported disbursements $990.00	
Disbursements week ending Jan. 23 660.00	
Total disbursements	1,650.00
Balance	$141.00

To Abolish Medical License Examinations.—Announcement is made that a bill is to be introduced into the Nebraska legislature permitting graduates of the medical department of the State University and of Creighton University to practise in the State without the formality of an examination by the examining board.

Physician Fined for Neglecting a Court Summons.—A judgment was recently obtained against a physician of this city and as it was not satisfied the doctor was ordered to present himself in court to be examined in supplementary proceedings. He failed to appear, offering as an excuse that his work at the clinic was of so urgent a character that he could not neglect it. The judge held that the excuse was invalid and fined the physician $100 for contempt of court and threatened to imprison him if the fine was not paid within thirty days.

Opposed to Compulsory Vaccination.—A bill has been introduced into the New Hampshire legislature repealing all the sections of the public statutes relating to the compulsory vaccination of school children. It is naturally opposed by the physicians and health officers of the State as well as by all others whose mental faculties are sufficiently nimble to enable them to appreciate the relation of cause and effect.

Trade in Blood.—The therapeutic resort to transfusion is becoming so frequent in the hospitals of this city as well as in private practice, that there is getting to be quite a demand for healthy donors. Several college students are said to have received lately from $25 to $50 for eight ounces of blood.

Chicago Woman Physician in the Belgian Red Cross.—It is stated in the *Women's Medical Journal* that Dr. Caroline Hedger, formerly in charge of the infant welfare work in Chicago, and her assistant, Miss Janet Hall, have sailed for Belgium, to take charge of the work of caring for homeless children, under the Belgian Red Cross. The Chicago Women's Club paid the expenses of Dr. Hedger and her assistant. They carried with them 10,000 doses of typhoid vaccine, donated by a Chicago woman physician, 10,000 vaccine needles, and $700 worth of dressings given by the Red Cross.

Prizes Offered for Motor Ambulance Designs.—Mr. Henry S. Wellcome, founder of the Wellcome Bureau of Scientific Research, in London, has announced that the bureau will provide the sum of £2,000 to be distributed in the form of prizes for the best plans and designs of a body for, and improvements in, field motor-ambulances. The sum mentioned will be divided into a first prize of £1,000, a second prize of £500, a third prize of £300, and the remaining £200 will be awarded in smaller sums. The first three prizes are for a complete design of an ambulance-body which will carry, in comfort and safety, four wounded lying on stretchers of British Army regulation pattern, or eight wounded sitting, or two lying and four sitting, in addition to the driver and orderly attendant. The body must fit a standard pattern motor-chassis for field motor ambulances. The Commission reserves the right to award the whole or any part of the remaining £200 for details, such as an ingenious method of springing, an invention which could be applied to any motor-chassis, an ingenious method of storing arms and equipment, a novel system of lighting, mechanical devices for self-haulage, etc. The competing designs must be received by the Commission not later than June 30, 1915. All details of conditions may be obtained from the Secretary of the Ambulance Construction Commission, 10 Henrietta street, Cavendish Square, London, W. The competition is open to citizens of all nations.

Examination of Dentists for the U. S. Army.—The Surgeon-General of the Army announces that examinations for the appointment of acting dental surgeons will be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Missouri; Fort Logan, Colorado, and Fort McDowell, California, on Monday, April 12, 1915. Application blanks and full information concerning these examinations can be procured by ad-

dressing the "Surgeon General, U S. Army, Washington, D. C." Acting dental surgeons are employed under a three years' contract, at the rate of $150 per month, with traveling allowances. After three years' service, if found qualified, they are promoted to the grade of dental surgeon with the rank of first lieutenant, and receive thereafter the pay and allowances appertaining to that rank. Applications must be in the possession of the Surgeon-General at least two weeks before the date of examination. There will be nine vacancies to be filled.

Physician Fined for Neglecting to Register Births.—At the instance of the Board of Health of New York City a physician has been fined $100 for failing to register the birth of a child within the limit of ten days. The defendant claimed that he did not have the first name of the child, and as the custom in the Hebrew faith is to withhold the naming of a child until after circumcision, this fact prevented him from filing said birth within the prescribed time. The court, however, held that this was not a valid excuse, as the certificate could have been filed without the given name, the latter being added by the parents later, and as this was not the first offense the extreme penalty was enforced.

A New Medical Society.—On January 12 a number of physicians resident in Charlevoix, Antrim, and Emmet counties, Michigan, met at Petoskey and established the Tri-County Medical Society. The officers of the Emmet County Society were continued as officers of the new organization. These are: *President*, Dr. Moorman of Pellston; *Secretary-Treasurer*, Dr. G. W. Nihart of Petoskey.

Hospital Notes.—A bill has been introduced in the Nebraska legislature appropriating $150,000 for the construction of a hospital to be under control of the Omaha Medical College, the medical department of the State University.

The Mountainview County Tuberculosis Sanatorium of Tacoma, Wash., was opened on January 11, thirty patients being admitted.

Fire in the upholstery shop of the State Hospital at Elgin, Ills., early in the morning of January 16 caused some alarm to the inmates, but there was no panic and all responded promptly to the orders of the fire drill, leaving the building without disorder. The fire was extinguished without having done much damage.

Removals.—Dr. Sigmund Epstein of this city has removed to 15 West Forty-fourth street.

Dr. Max Strunsky of this city has removed to 236 West Seventieth street.

Smallpox in Vienna.—A despatch from Rome says that hemorrhagic smallpox is spreading alarmingly in Vienna. Within a week, it is asserted, 151 fatal cases have been reported.

Proposed Change in the Massachusetts Registration Law.—The Massachusetts Board of Registration, in its latest annual report, urges an amendment to the medical license law, making the possession of a medical degree from a reputable college approved by the Board a prerequisite to admission to examination for a license to practise medicine.

The Cutter Lectures in Preventive Medicine for the year 1915 will be given at the Harvard Medical School by Dr. Victor C. Vaughan, Professor of Hygiene and Physiological Chemistry and Dean of the School of Medicine and Surgery of the University of Michigan, and Dr. Joseph Goldberger, Surgeon, United States Public Health Service, Washington, D. C. Dr. Vaughan will lecture on "The Phenomena of Infection" on April 14, 15, and 16. Dr. Goldberger's subject will be "Diet and Pellagra," and will be given in one lecture on April 2. These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine, and that they should be delivered in Boston, and be free to the medical profession and the press. Others interested are cordially invited.

Harvey Society Lecture.—The seventh lecture of the Harvey Society course will be delivered on January 30 at 8:30 P.M. in the New York Academy of Medicine, by Dr. Hans Zinsser, Professor of Bacteriology, Columbia University. The title of the lecture will be "The More Recent Developments in the Study of Anaphylactic Phenomena."

The Late Dr. L. Bolton Bangs.—The following memorial was adopted at a stated meeting of the Medical Society of the County of New York, December 28, 1914: "In the death of Dr. L. Bolton Bangs, on October 4 last, the medical profession has lost a notably representative member, and the community a sterling citizen who stood high in the esteem of his contemporaries everywhere. Dr. Bangs was graduated from the College of Physicians and Surgeons, New York, in 1872. After serving on the interne staff of Bellevue Hospital he and the late Dr. William T. Bull, always close friends, studied together in Vienna and in Berlin. On his return he became associated with the late Dr. Fessenden N. Otis, thus becoming identified with the pioneer period of genitourinary surgery in this country, long before the science and art of urology had been developed or had even begun to be differentiated from the then more comprehensive field. Dr. Bangs wrote but little in the early part of his career; apparently he waited until an accumulated experience could furnish material for his papers and give weight to his conclusions. A remarkably keen and discriminating power of clinical observation, made that accumulated experience noteworthy and won for his writings a deserved recognition. In 1898, in collaboration with Dr. W. A. Hardaway, he edited the 'American Text-Book of Genito-Urinary Diseases, Syphilis, and Diseases of the Skin.'

"Hospital appointments and official positions in various medical societies were given to Dr. Bangs in no moderate measure. At the time of his death he was consulting surgeon to five hospitals in Greater New York, and was an Emeritus Professor of the New York Post-Graduate Medical School and Hospital. The constructive character of his work during the years of his active connection with that institute as the Professor of Genito-Urinary Surgery from 1889 to 1894, will live in it forever, though the sacrifices he made for its welfare have become somewhat forgotten in the intervening years. From 1898 to 1901 Dr. Bangs was professor of Genito-Urinary Surgery in the University and Bellevue Hospital Medical School. In deference to his health he resigned—much to the regret of all, both faculty and student body.

"Always an enthusiastic worker, and enjoying the inspiration that teaching gave him, he threw himself so completely into the careful preparation and presentation of his lectures and clinics that he won the admiration, regard, and responding enthusiasm of his students, both postgraduate and

undergraduate. It was said of him: 'His skill and knowledge are unquestionable, and, in addition, he has that rare quality of a successful man—modesty.' To this we may add: 'He was resolute, moderate, clear of envy, yet not wanting in that finer ambition which makes men great and pure.' Alert, resourceful, quick to perceive and to comprehend, apt in illustration, fluent in speech and elegant in diction, generous, sympathetic, whole-hearted, high-minded, and clean, no wonder that friends, the associates in his office, students, and patients admired and loved him. During the last three years of his life he worked on, giving comfort in mind and body to many; but the loss to himself in physical and mental energy was greater than could be restored. As was his wish, he died in harness.

"Such were the career and the personality of him whom we do well to honor as we can and may this evening. Absorbed by his profession and jealous of its reputation; devoted to his patients and unsparing of himself, both brain and body, for their sakes, he was the ideal physician in that he taught the youth, ministered to the sick, and did well his part to sustain a high standard of intelligence, of culture, and of ethics within and without the profession. Your committee, therefore, would resolve, that in these or some similar words, The Medical Society of the County of New York record its appreciation of Dr. L. Bolton Bangs, the man, the physician, and the teacher, and that it expresses thereby its sense of the loss it and the profession have sustained by his death. Your committee would further resolve that this tribute be spread upon the minutes and that the secretary be instructed to forward a copy to the bereaved family."

Signed: James Pedersen, *Chairman*, Joseph B. Bissell, James R. Hayden.

This memorial was adopted also at a stated meeting of the New York Urological Society, on December 2, 1914, and at a stated meeting of the Genito-Urinary Section, New York Academy of Medicine, on December 16, 1914.

The Late Dr. H. Seymour Houghton.—The following minutes were adopted at a stated meeting of the Medical Society of the County of New York on Monday evening, December 28, 1914: "During a period of seven years it was the good fortune of our Society to have the official help of Dr. H. Seymour Houghton. He served as a member of the Committee on Discipline, as second vice-president, as first vice-president, as president, as chairman of the Board of Censors, and as a member of that Board. During this period problems of great gravity arose. It was necessary to hold protracted and oft-repeated committee conferences and special meetings of the Society itself were held. The well-being of members of the Society and the dignity of the profession, as represented in the Society, were in large measure dependent upon the way in which these problems were met. Dr. Houghton gave to this work a combination of good qualities which is seldom found: absolute integrity, sound judgment, broad sympathy, great executive ability, high professional attainment. These qualities were unsparingly given to the Society. But for his magnanimous nature and his far-seeing judgment, the troublous times in which he labored might have been far more disturbing for the Society and the profession which it represents.

"The individual members of the Society are sad in the loss of a warm personal friend, and the Society as a whole sorrows at the loss of a most valuable officer and adviser. It is the wish of the Society to record its feeling of sadness and to express to the members of Dr. Houghton's family its heartfelt sympathy."

Signed: Charles N. Dowd, M.D., *Chairman*, Brooks H. Wells, M.D., Charles G. Kerley, M.D.

Obituary Notes.—Dr. Levi Francis Warner of New York, formerly a Civil Service Medical Examiner, and one of the Board of Police Surgeons, died in St. Luke's Hospital on January 20 after a short illness, aged 50 years. Dr. Warner was graduated from Williams College in 1885, and from the College of Physicians and Surgeons, New York, in 1889. He was physician-in-chief to the New York Dispensary for a number of years, and was a member of the American Medical Association, the New York State and County Medical Societies, and the Alumni of St. Luke's Hospital, and visiting physician to St. Francis Hospital.

Dr. John D. Cronmiller, for 55 years a practitioner at Laurel, Md., died at Baltimore, on January 4, at the age of 82 years. He was graduated from the University of Maryland School of Medicine in the class of 1857.

Dr. William P. White of Louisville, Ky., a graduate of the University of Louisville, Medical Department, in 1869, a member of the Confederate Army, serving throughout the Civil War, and formerly health officer of Louisville, died at his home, from pneumonia, on December 27, aged 71 years.

Dr. Walter De Witt Boggs of Altadena, Cal., a graduate of the Long Island College Hospital, Brooklyn, in 1910, died at his home on January 5, aged 32 years.

Dr. Charles Smith of Riverside, Conn., a graduate of the Long Island College Hospital, Brooklyn, in 1890, and a member of the American Medical Association and the Connecticut State and Fairfield County Medical Societies, died at his home on January 8, aged 45 years.

Dr. Thomas Smith Middleton of Chicago, Ill., died at the home of his son, Dr. Claude R. Middleton, at Mount Hope, Pa., on December 29, at the age of 47 years. He was graduated from the Medico-Chirurgical College of Philadelphia in the class of 1897.

Dr. John Harry Swaving died of apoplexy at Pottsville, Pa., on December 30 at the age of 48 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1889. He was a member of the Schuylkill County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. William James Allen died of nephritis at Landisburg, Pa., on January 2, at the age of 54 years. He was graduated from the Baltimore University School of Medicine in the class of 1886. He was a member of the Medical Society of the State of Pennsylvania and the Perry County Medical Society.

Dr. Charles Barclay Warder died of heart disease at Philadelphia on January 5 at the age of 51 years. He was graduated from Jefferson Medical College in the class of 1885 and from the medical department of the University of Pennsylvania in the class of 1888. He was at one time Medical Director and a member of the Board of Managers of the John B. Stetson Hospital.

Correspondence.

A NEW AND GREATLY SIMPLIFIED METHOD OF BLOOD TRANSFUSION.

To the Editor of the Medical Record:

Sir:—In my article with the above title published in the Medical Record last week, the following paragraph in reference to Dr. Weil's use of sodium citrate was omitted:

"Dr. Weil stated that he used 1 c.c. of 10 per cent. solution of sodium citrate to 10 c.c. of blood and had transfused citrated blood up to 250 c.c. This dose, however, is from my experiments entirely too big and might prove to be a toxic dose in the average transfusion of 1200 c.c."

R. Lewisohn, M. D.

OUR LONDON LETTER

(From Our Regular Correspondent.)

1915—NEW YEAR'S HONORS—B. P. CHANGES NOW IN FORCE — PROFESSIONAL SECRECY — OPIUM SMUGGLING — TYPHOID INOCULATION — BEIT FELLOWSHIPS—OBITUARY.

London, January 8, 1915.

1915—the date is becoming familiar. In the New Year's honors list the profession obtains a P. C., a C. M. G., some representatives in the new decoration (the Military Cross), some Indian and sanitary distinctions, besides knighthoods.

The new B. P., so we speak of the new edition of the pharmacopœia, is now in full force and prescriptions are required to be written and dispensed according to it, unless distinctly otherwise ordered. I have previously reported its main changes, but may refer again to one or two of the most important. The additional drugs inserted number 43, but the omissions are 168; of the later the active principles of some are substituted. Changes in strength of powerful medicines are more likely to give rise to errors, and so are demanding more attention. Tr. Opii is one-third stronger, and being sold as laudanum to the public has often been the cause of fatal poisoning, and as often the profession has urged that its sale should be restricted. This will be in some degree accomplished by the change, for the increase of strength removes it from one schedule to another under the Poisons Act, and consequently requires the vendor to take additional precautions and enter every sale in a special book with the purchaser's signature. Tr. Aconiti is twice as strong and Tr. Strophanthi four times, as formerly. On the other hand, Tr. Digitalis is reduced by 20 per cent. and Tr. Nucis Vomicæ by 50 per cent. Metric notation is recognized for those who prefer it, and will perhaps gradually come into use. A number of drugs which have been largely prescribed under trade names are among the additions under their chemical names, *e.g.* aspirin (acetylsalicylic acid).

The annual report of the Medical Officer of the Local Government Board was issued on Monday. During the year 1913-14 no fewer than 284,668 pathological specimens were examined on behalf of various local authorities. This is equivalent to 7.71 per 1,000 of the populations concerned. The expenditure in the same year on the laboratories where this work was carried out is stated to have been above £23,000 or £1 per 1,600 persons in the populations. But Manchester is said to have spent £1 per 337 and Sheffield £1 per 339 of their respective populations. In England and Wales the hospitals and other institutions providing medical treatment for the sick number approximately 2,233, having a total of 214,069 beds, or 1 bed per 168 of the population. The Poor Law Infirmaries are not included in the foregoing figures. The number of these beds devoted to infectious diseases is stated as 28,105. In lunatic asylums there are 109,024; in institutions for the feeble-minded, 11,559, and in consumption hospitals an uncertain number provided by local authorities.

The doctor's secret is an expression often used to signify what is rather his patient's secret, and most medical men in the course of practice become acquainted with facts that they have no right and no wish to divulge. The honor of the doctor is involved, and no class of men is more scrupulous in that respect. Now and then, however, the question as to whether a higher duty than that due to the patient can supersede it becomes a burden to the doctor, and the point has been discussed from time to time for many generations. It has always been held that in ordinary circumstances the medical man must maintain inviolate a secret entrusted to him or which has become otherwise known to him in the course of the practice of his profession. The law admits the obligation, but seems to limit it as to grave criminality. The strongest case is that of murder, a knowdelge of which may be discovered by him unintentionally or may conceivably be confessed to him in the course of his attendance. This is an extreme case and so unlikely to occur as to suggest mental aberration in the self-accuser. There would be other considerations, but the main one is whether duty to the State ought to supersede duty to the patient, and, if so, at what point, for obviously the extent to which an individual might be involved in any act differs enormously, as also does the degree of criminality. In regard to less grave crimes the variations will be greater, as may also the opinions formed, although it may be held that the same principles should rule all cases.

This subject has just been revived by Mr. Justice Avory in charging a jury on the case of a woman accused of murder by inducing abortion. This eminent judge, taking what may perhaps be termed without prejudice the legal view, laid down that in such circumstances it was the duty of the medical man to communicate with the police. The deceased clearly died as the result of an illegal operation. Three medical men attended her and to one at least she confided the name of the person who performed the act. No information was given. The woman died without any deposition being taken or any statement made on her death-bed which could be used in a court of law. "No one," declared the learned judge, "would wish to see disturbed the confidential relation which exists, and which must exist, between the medical man and his patient," but he added there are cases in which the "time to preserve that confidence must be subordinated to the duty cast upon every good citizen to assist in the investigation of a serious crime, such as is imputed to this woman."

This general statement is causing no little discussion among medical men, not a few of whom maintain that it goes beyond, if not in opposition to, the traditions of the profession—traditions which have been recognized by other judges, among whom Hawkins is constantly quoted. Others are ready to endorse Mr. Justice Avory's remarks to their full extent. The difference is reflected in our medical

journals, and it seems probable that no settlement of the matter will be reached, but after the vain effort to elucidate it we shall find ourselves as uncertain as heretofore—each man obliged to follow the dictates of his own conscience as to his duty in each individual case he may be called upon to determine.

A report of the Colonial office issued this week refers to the efforts to check the smuggling of opium out of Hong Kong to countries which prohibit the importation of the drug. The governor of the colony pronounces the policy of controlling the sale of morphine, cocaine, and other preparations, which was maintained throughout the year 1913, to have been successful. Over 5,580 ounces of morphine and over 1,760 of cocaine were seized during the year, all destined for China or neighboring ports.

Answering a question last night in the Upper House, the Lord Chancellor said that inoculation against typhoid was not compulsory but the medical authorities were so convinced of its benefit and placed such stress upon it that of two men who wished to see active service the one who elected to be inoculated would be preferred to the one who declined.

The trustees of the Beit Memorial Fellowships for Medical Research have elected Drs. E. G. Fernsides, E. P. Poulton and Mary Gore Micklethwaite to the Fellowship; each is conducting research in London hospitals. Each Fellowship is of the annual value of £250 and the tenure is usually for three years. In exceptional circumstances the trustees have power to grant an extension for a fourth year.

The death is reported, on the 19th of December, of Dr. Klaus Hanssen, of Bergen, where he was chief physician to the municipal hospital and whose work in connection with tuberculosis made him known through other countries.

Mr. Thos. Bryant, the venerable consulting surgeon to Guy's Hospital, with which as student and surgeon he was connected throughout his life, died the latter part of December, aged 86. He was Surgeon Extraordinary to Queen Victoria and Surgeon in Ordinary to King Edward. He took the membership of the Royal College of Surgeons in 1849. Four years later he passed to the Fellowship. Subsequently he was elected a member of the council and in due course of the Court of Examiners. In 1890 he was chosen as president of the college and in two subsequent years was re-elected to that office. During his surgeoncy at Guy's he occupied the chair of surgery for thirteen terms. After thirty years' service at the hospital he was made consultant.

In the course of his career he was president of several societies, among them the Royal Society of Medicine, the Clinical, the Hunterian, and the Medical Society of London.

His "Practice of Surgery" was for many a year a favorite text book. His "Diseases of the Breast" and his "Intestinal Growths" will be also known to you as will his Lettsomian, Hunterian, and Harveian lectures.

Fleet Surgeon H. Harrison Smith, M.D., St. And., 1848, R. N., died January 4, aged 90. He joined the Naval Medical Service in 1848 and retired in 1870. He was awarded a Greenwich Hospital Pension in 1888.

Sir Robert M. Simon, M.D., F.R.C.P., J.P., physician to the Birmingham General Hospital, died December 22, aged 64. He was a Cambridge graduate, where he became at one time an examiner, an office he also filled at the Birmingham University. In 1910 he was knighted. He was a magistrate for Warwickshire as well as for the city, where he spent so much of his life. Last year on resigning his hospital appointment after 35 years' service, he was presented with an address and his portrait, which hangs in the Board room. You may know his "Ingleby Lectures on the Common Skin Diseases." He also wrote some articles on "Brass Founders' Ague."

Col. William Johnstone, C.B., M.D., R.A.M.C., retired, died Dec. 26, aged 71. He entered the army in 1865, served in the Transvaal in 1878, and took part in the Zulu war, 1879-80. He retired in 1892, but was recalled during the South African war and served as assistant director of the Medical Department at the War Office.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 14, 1915.

1. On Ovarian Transplantation; with Report of a Case of Implantation Into the Uterus with Resulting Pregnancy. M. Storer.
2. A Study of the Epilepsy of Dostojewsky. L. Pierce Clark.
3. Occupational Disease and the Public Health. D. B. Armstrong.
4. Modification of Technic for Hare-Lip Operation. W. E. Ladd.
5. Partial Tenotomies by the Todd-Harmon Method. H. Lowell.
6. The Treatment of Pneumonia in Children. Report of 104 Consecutive Cases. H. W. Dana.

1. Pregnancy Following Ovarian Transplantation.—M. Storer presents an interesting discussion of this subject. He states that a dozen or more cases have been reported of pregnancy following the grafting of the ovary into the uterine wall of an individual in whom the tubes had been occluded or removed. There have been reported three cases of living children born as the result of the heterografting and three or four pregnancies terminating in miscarriage as the result of the same procedure. In these cases of heterografting one must face the suspicion that a tiny piece of the original ovary may have been left behind. The author reports the case of a woman, aged twenty-four, who had both tubes and one ovary removed on account of an acute gonorrheal salpingitis of a month's duration. The author transplanted the single ovary into the uterine wall. Sixteen months later there were definite signs of pregnancy, but the patient miscarried at three and a half months.

2. The Epilepsy of Dostojewsky.—L. Pierce Clark analyzes the life and writings of the late Russian novelist, Dostojewsky, as a contribution in support of the author's theory that the essential defect in the epileptic makeup is in the affective sphere of the mind in which there exists an emotional infantilism due to a defect in the development of the psychosexual life. The settings of the epileptic fit suggest that the latter represents an unconscious desire to return to the state of the libido comparable to that of the culmination of the sexual act.

New York Medical Journal.

January 16, 1915.

1. Modernized Proctology. S. G. Gant.
2. Prevention and Treatment of Suppurative Ophthalmia. C. Graef.
3. Neurotic Disturbances After Accidents in Relation to Workman's Compensation. T. A. Williams.
4. The Practical Prevention of Tuberculosis. M. E. Lapham.
5. Some Considerations of Heredity. S. D. Ingham.
6. For Better, For Worse. C. H. Duncan.
7. An Economic View of Disease. B. F. Rea.
8. Practice in a Mexican Mining Camp. W. Hartz.
9. A Case of Xanthin Calculus. J. Rosenbloom.

1. Modernized Proctology.—S. G. Gant states that

the common practise of purging patients the night before operation ensures that the field of operation will be bathed with liquid feces, which delays the work, contaminates the wound, soils the dressings, and makes the patient uncomfortable subsequently. In simple operations on the rectum, as for hemorrhoids, fissure, fissure and polyp but a few minutes are required to prepare the patient. Eight ounces of soapsuds are injected into the rectum to bring away the solid feces, after which the mucosa is mopped over with peroxide of hydrogen or other antiseptic. Local anesthesia is dependable, is indicated in 75 per cent. of all rectal operations, and is best accomplished by means of a 0.12 per cent. solution of eucaine. In the postoperative treatment the author keeps his patients on a normal diet, does not order a laxative unless the stools show a tendency to hardness, when he prescribes mineral oil, fruit, or other laxative. The practice of universally cauterizing wounds no longer obtains; they are drained and not packed. If healing is tardy, wounds are stimulated by leaving in contact with them a gauze pledget moistened in a solution of silver nitrate, 6 per cent.; ichthyol, 10 per cent., or balsam of Peru, 20 per cent. The rational treatment of strictures to-day consists in dividing them under local anesthesia when low down, excising the affected gut when higher up, or performing colostomy in inoperable cases. In the treatment of fistula proctalopists prevent fecal incontinence by dividing the anal muscle at a right angle, draining instead of packing the wound, and by trimming off the mucous membrane or skin edges so that they do not project into the wound and prevent union of the sphincter ends. The author's method of treating fissure consists in splitting the anal canal under eucaine anesthesia. Uncomplicated thrombotic hemorrhoids can be laid open, cutaneous hemorrhoids excised, and internal hemorrhoids radically operated upon under local anesthesia.

6. **For Better, for Worse.**—C. H. Duncan uses this title for his thesis that certain phenomena observed in the breeding of animals are applicable to the human species, namely, the impregnated woman acquires certain physical and mental attributes of her consort. Children by a second husband sometimes have features resembling those of a first husband. There is a strong featural resemblance between couples who have been married for many years. In thoroughbred horses the colt by a second stud is said to have "a drop of cold blood in his veins" if the mare ever had had a colt by an inferior stud. The author advances the view that during copulation the female absorbs, in addition to the generative cells, certain elements from the spermatic fluid, which elements have a decided effect in improving her own health and also to a certain extent in molding her to conform to the physical and mental status of the male partner. This line of reasoning suggests the thought that there may possibly be some therapeutic justification for the use of testicular extracts in the treatment of some of the functional disturbances of celibate women.

Journal of the American Medical Association.

January 16, 1915.

1. Concerning the Results of Operations for Brain Tumor. Harvey Cushing.
2. Three Cases of Extraperitoneal Cesarean Section. G. Gellhorn.
3. Various Types of Lues. A Clinical and Laboratory Study. The Abelin Reaction. Direct Subdural Injections. W. E. Robertson and J. V. Klauder.
4. Osteoplastic Surgery of the Face. W. W. Babcock.
5. Renal Infection. A Further Experimental Study of Its Relation to Impaired Ureteric Function. W. H. Barber and J. W. Draper.
6. Necrotic Bone and the Subsequent Changes Which it Undergoes. D. B. Phemister.
7. Coxa Vara Adolescentium Traumatica. A. Steindler.
8. Coxa Vara. J. Ridlon.
9. Separate Renal Function. Observations as Determined by the Ureter Catheter and Phenolsulphonephthalein. G. G. Smith.
10. Hematogenous Kidney Infections. G. MacGowan.
11. Acute Unilateral Hematogenous Infections of the Kidney. J. H. Cunningham, Jr.
12. Autogenous Vaccines in Treatment of Sciatica. F. C. Zapffe.
13. A Lateral Pressure Splint for Fractured Neck of the Femur. G. Chandler.
14. An Apparatus to Assist in the Application of Dressings About the Hip. H. W. Meyerding.
15. Simple Adaptation of Pocket Flash-Light for Ear and Eye Examinations. R. A. Fenton.
16. A Cheap Electric Heater. E. von Adelung.
17. A Clinical Method for the Quantitative Estimation of Sugar in Small Amounts in the Blood. M. Kahn.
18. Suggestion of Clock Dials on Anesthesia Chart. F. St. C. Reilly.

1. **Operations for Brain Tumor.**—Harvey Cushing is of the conviction that to group together all the operations for all tumors which arise anywhere in the cranial chamber and to consider percentages gained by such a process, is largely a waste of time and a possible abuse of figures. Unquestionably the time has come to concentrate upon individual lesions in individual situations if, through comparative studies, one is to increase technical facilities and improve mortality results. Specialization with some knowledge of neurology; skilled assistance, for intracranial operations are not star performances, familiarity with the safe and respectful handling of the central nervous tissues, which is best acquired by the experiences of the experimental laboratory; and painstaking, scrupulous technique are the chief elements of success. An observance of these things will not make more tumors accessible, but it will permit the removal of those that are accessible to be more often accomplished and render those that are not, capable in a larger percentage of cases of being safely palliated.

2. **Extraperitoneal Cesarean Section.**—G. Gellhorn points out that the classical Cesarean section and its modifications are adapted only for cases in which there is no infection, in which the membranes are intact or recently ruptured, and in which previous examinations and attempts at delivery have been strictly avoided. In the so-called "unclean" cases the extraperitoneal operation originated by Thomas in 1870 and recently rehabilitated by Frank is the operation of choice. It is to make an incision into the lower uterine segment instead of the fundus, and to exclude the operative field from the rest of the peritoneal cavity. It has not fully fulfilled the hopes it excited, and patients already infected cannot be saved by it. Brilliant results, however, are obtained in suspected cases, and even more so when the operation is employed in aseptic ones. The author gives the details of three cases, and describes the technique used. It is, strictly speaking, a transperitoneal method. The parietal peritoneum is first incised, then the visceral peritoneum is pushed off the lower uterine segment, and finally, by stretching the parietal peritoneum to the uterus, the free abdominal cavity is excluded, and the operation rendered extraperitoneal. In the classical Cesarean section there are, beside the scar and adhesions, copious bleeding during the operation, the escape of amniotic fluid and meconium into the peritoneal cavity during the section, and the possible leakage of uterine fluid later on. In the extraperitoneal method the postoperative adhesions are not conceivable and the temporary protection of the abdominal cavity by suturing the parietal peritoneum to the uterus prevents the escape of fluids. After the operation the parietal peritoneum completely covers the field, and the contractions of the uterus cause the peritoneal sutures to disappear, leaving an unbroken peritoneal surface. There is only one condition in which the extraperitoneal method does not offer advantages over the others, and that is in

placenta praevia. In such a case the incision through the lower uterine segment would open the enormous dilating blood sinuses, which would render orientation and proper check of the hemorrhage difficult.

7. **Traumatic Coxa Vara.**—A. Steindler reports ten cases of this condition in children in which the cause assigned was traumatic separation of the epiphysis. At a certain period, say from the ninth to the sixteenth year, epiphyseal separation may occur with or without a preexisting or coexisting rickets, and may be followed by a deformity known as coxa vara adolescentium. The casual trauma may be and often is slight. The loss of function in these cases is never absolute or immediate, except in cases of great violence or injury. The points of significance for diagnosis are as follows: Injury to the hip of moderate extent, such as a fall or wrench; an intermediate period of functional freedom; no or very mild subjective symptoms; the late and gradual development of the coxa vara deformity with increasing disability, and the age of the patient. The author does not believe that absolute reliance can be placed on the *x*-ray evidence, inasmuch as very slight lesions will not show any more than they do in injuries to the spine which are followed by Kümmel's post-traumatic kyphosis.

The Lancet.

January 9, 1915.

1. A Communication Between the Two Ventricles of the Heart Occupying an Unusual Situation. T. Wardrop Griffith.
2. Some Conditions that Simuate Chronic Appendicitis. J. Morley.
3. Pneumoperitoneum of Three Days' Duration Following Resection of a Carcinomatous Rectum; Evacuation of the Gas and of a Pelvic Abscess; Recovery; No Recurrence After Five Years. J. D. Malcolm.
4. Osteoplastic Resection of the Skull in Decompression Operations on the Brain. S. Mort.
5. A Third Outbreak of Epidemic Poliomyelitis at West Kirby. G. Jubb.
6. Anteriovenous Aneurysm of the Femoral Vessels, Following Bullet Wound Through the Left Thigh. W. M. Willis.
7. The Value of Tuberculin as an Addition to Sanatorium Treatment. N. D. Bardswell.
8. Leper Houses and Mediæval Hospitals. C. A. Mercier.

1. Unusual Communication between Cardiac Ventricles.—T. Wardrop Griffith describes the anomaly found in the heart of a man who had died at the age of 30. The abnormal opening between the ventricles did not occupy the site usual in such malformations, but was farther forward under the aortic cusp from which the right coronary artery opens. The explanation of this anomaly is apparently found in the hypothesis of the dual origin of the right ventricle, which is said to develop from two chambers—the ventricle proper and the bulbus cordis. The interventricular septum has similarly a double origin, which accounts for two different types of openings between the ventricles.

2. Conditions Simulating Chronic Appendicitis.—J. Morley believes that Lane's ileal band, apart from inflammatory changes that may occur in it incidentally, is of little or no importance in the occurrence of disease, and that the many ingenious operations devised for dealing with it are the outcome of misdirected enthusiasm. Jackson's pericolic membrane may, however, give rise to symptoms simulating chronic appendicitis, though less commonly than many who write on this subject would have one suppose. In the greater number of these cases the symptoms are due not to the membrane but by the abnormal mobility of the cecum and ascending colon. Inflammatory bands are not rarely met with in the region of the cecum, both as a result of old-standing appendicitis and as a sequel of former tuberculous inflammation. Perhaps the commonest cause of an erroneous diagnosis of chronic appendicitis, the author says, is right chronic tuboovarian disease.

3. Pneumoperitoneum.—J. D. Malcolm reports the case of a woman, aged 60, in whom three days following the resection of a carcinomatous rectum, there developed pneumoperitoneum. Recovery followed evacuation of the gas and of a pelvic abscess, and there was no recurrence of malignancy after five years. The interest of this case lies chiefly in the pneumoperitoneum. It is inconceivable to the author that gas could escape from the intestine into the peritoneal cavity through any opening, however small, during a period of three days without an escape of organisms which would induce a general peritonitis. There is also no evidence that gas can escape through the wall of the healthy intestine, and it would seem therefore that the gas developed in the peritoneal cavity, which could occur only from the action of some aerogenic organism. Many descriptions of such organisms have been published, but only two are generally recognized as producing gases in the tissues apart from putrefactive changes. These are the *Bacillus aerogenes capsulatus* of Welch and the *Bacillus œdematis aerobius* of Sanfelice.

4. A Decompression Operation.—S. Mort has devised an operation which is described as a preliminary resection of a flap of soft tissue and bone in the usual way; this is followed up by "pepper pot" trephining of the flap raised. This can be done effectively and quickly with a burr, perforations three-eighths to one-half inch in diameter being drilled at close intervals from the interior of the reflected plaque, right through the osseous tissue, but not including the soft parts. The bone flap will then be a sort of retaining cage of a basket-like, fenestrated, or pepper-pot texture. This cage, the author thinks, should efficiently retain the brain without risk of hernia and yet with satisfactory relief from pressure.

British Medical Journal.

January 9, 1915.

1. Nerve Concussion Due to Bullet and Shell Wounds. A. H. Tubby.
2. The Treatment of Infantile Paralysis: A Study in Biology. W. MacKenzie.
3. A Field Hospital in Belgium. J. H. Beavis and H. S. Souttar.
4. Anomalous Case of Enteric in an Inoculated Subject. E. A. Bourke and S. Rowland.
5. Appendicitis Treated with Anticolon-Bacillus Serum and Vaccine. A. Cowan Guthrie.
6. The Warble-Fly—Hypoderma. A. E. Shipley.
7. Medical Work in the Early Seventies in a County Infirmary in Ulster. G. St. George.

1. Nerve Concussion Due to Bullet and Shell Wounds.—A. H. Tubby defines nerve concussion as a damage to a nerve trunk without actual destruction of the axis cylinders; the damage consisting in an effusion of blood between the fibers, following compression of the nerve against a bone by the rapid passage of a foreign body in the immediate neighborhood of the nerve; or the damage may not amount to hemorrhage, being a mere anemia or hyperemia of the nerve. As the result of the lesion there is a partial and irregular paralysis or paresis of the muscles supplied by one nerve trunk. But complete recovery of power, the author says, usually ensues within a short time after the receipt of the injury.

2. Treatment of Infantile Paralysis.—W. MacKenzie recommends the use, in the early stage of this condition, of thymus extract, in daily doses of 15 to 20 grains to a child, basing this practice upon the fact that the thymus gland is at its maximum when muscular action and co-ordination are developing. This treatment is merely accessory to the basic measure, rest, which must be immediate. After the acute stage the paralyzed muscles must be re-educated along the line of the acquisition of their proper function.

4. **Typhoid Fever Following Antityphoid Inoculation.**—E. A. Bourke and S. Rowland report the case of a British private who had been vaccinated against typhoid fever in March, 1914, and again on November 10, 1914, just three days previous to his admission to the hospital. There was a history of three days' malaise; blood culture was negative; a few days later the temperature became normal, and on November 19 the patient was discharged for observation. Two days later he was readmitted, complaining of slight headache, slight cough, and pains in joints; he had had a chill just previous to admission. The temperature was 104°; the pulse 92, and the respirations were 32. There was a slight, transient patch of bronchopneumonia. No other physical signs developed. For two weeks the temperature oscillated between 100° and 104°, when it dropped to 97°. It then rose to 99° to 102° for two weeks, after which it remained at 97° to 98°. During the last week he had several rigors, followed by cyanosis and signs of heart failure. He had slight pyorrhea, which improved under treatment. During the second and third week of his illness he had slight diarrhea, which was not typhoid-like. Emaciation, especially towards the end, was a marked feature of his illness. During the first four weeks the pulse remained between 80 and 90, but for the last week it rose to 100 to 110. Blood cultures made on November 14, 24, and December 4, were all negative. The diagnosis was not established until December 21, when examination of the urine showed it to be full of typhoid bacilli in agglutinated clumps. On December 22 the patient had two hemorrhages from the bowel; the blood was bright red. There was never any abdominal tenderness or distention, and no splenic enlargement; and there were no rose spots; moreover, except during the first few days there was no headache and the tongue remained clean throughout. The patient died from heart failure on December 24. The mind remained clear up to the end. On post-mortem examination about a dozen typical typhoid ulcers, mostly healing, were found in the ileum; all other organs were healthy. Typhoid bacilli were recovered from the gall bladder which contained a rich, pure culture of these microorganisms.

5. **Appendicitis Treated with Anticolon-Bacillus Serum and Vaccine.**—A. Cowan Guthrie has employed this method in 22 cases which apparently recovered without the necessity of operative measures. Most of the cases were in the acute stage; a few of the patients showed symptoms of chronic appendicits; and in one patient there was pain in the cecal region for two years after the appendix had been removed. The author's method of treatment was based upon the supposition that appendicitis may be due in some measure to infection by the *Bacillus coli*. The most suitable dose was found to be 20 c.c. anticolon-bacillus serum; 10 c.c. should be injected subcutaneously first in the right and then in the left hypochondriac region. A few days later 100 million colon-bacillus vaccine should be injected in a similar way into the deltoid region. This is supposed to prevent recurrence. As organisms other than the *B. coli* may be the determining cause of this disease, the "fixation of complement test" should be tried, using the patient's serum and the most probable organism (*B. coli*, pneumococcus, streptococcus), a corresponding serum or vaccine being used. The anticolon-bacillus serum is supposed to act chiefly as an antitoxin, also as a counterirritant, causing local leucocytosis. It has also probably a physical effect, changing the equilibrium in the surrounding fluids and thereby producing increased osmotic pressure and favoring phagocytosis of the bacilli, as has been shown by Leduc.

Berliner klinische Wochenschrift.

December 14, 1914.

New Facts About Old Opium Alkaloids.—Pohl devotes his attention chiefly to papaverine and narcotine. The latter must not be confounded with "narcophin," which is a mixture of narcotine, morphine and meconic acid. The art of potentization of opium alkaloids by mixing them in various proportions is an outgrowth of Bürgli's well-known method of prescribing, which has given the author contradictory results. Of isolated narcotine we know that it relaxes the isolated intestinal musculature if injected into the peritoneal cavity; and that in large quantities it stimulates the respiration. Of far more significance is papaverine, which has been studied as thoroughly by Pal and others. In 1904 the author discovered that this alkaloid can lower the temperature. Small doses paralyze the intestine, but do not seem to check diarrhea. We know that a small addition of codeine greatly enhances the action of morphine on the bowel. As papaverine is enabled to relax the intestine, the drug was tested on the excited uterus, and Halban has recently checked an abortion with papaverine. To a certain extent papaverine resembles atropine in its action on the bowel, although much less toxic; and is also in part antagonistic to adrenalin. It lowers the blood pressure from the very outset, and has been tested with doubtful results in conditions accompanied by high blood pressure. Pal recommends it in angina pectoris. The problem of the field of papaverine in therapy is of unusual interest, because the German army must economize on morphine, and this is practicable only when substitutes are able to fill some of its indications. Can papaverine be of service here? There is rapidly acquired tolerance for this drug, as is the case with morphine. Papaverine is probably decomposed *in toto* in the organism, save when large fatal doses are given, in which case some of the drug appears in the feces. To conclude, what we know of papaverine leads us to believe that it can relax smooth muscle fiber to a variable degree, and as soon as the doses and mode of administration, synergists, etc., can be worked out for mankind, the author says, the drug should be found of value and do some of the work of morphine.

Vascular Suture in Military Surgery.—Jeger has performed suture of blood vessels eight times upon wounded in the fortress of Przemysl. The author had but recently published a classical work on blood vessel surgery. His present paper was carried to Berlin by an aviator. Authorities in general hold that blood vessel suture is indicated in war service in but a very small proportion of cases, because as a primary operation it is impracticable in dressing stations and field hospitals, and even if this were not the case there are contraindications. The author agrees with this in the main, and especially when it concerns those without the necessary technical skill. Yet he was able in five of his eight cases to save the patients' limbs. In one case which parallels one recently reported from Bucharest, the arm was almost totally detached, and required reimplantation as well as vascular suture. These two cases (author's and Janu's) seem to represent in actual practice that which Carrel and other students of expérimental vascular surgery have pronounced almost impossible. The author did no harm whatever, for in one of his eight cases the conditions made suture an impossibility, while a second patient died of an intercurrent complication. A third case did fairly well but finally came to secondary amputation. End to end anastomosis was done six times, lateral anastomosis twice.

Münchener medizinische Wochenschrift.

December 15, 1914.

Diseases of the Circulatory Organs in Warfare.—Grober, now at Metz, considers the effects of warfare on the presumably healthy circulation of the soldier. These begin notably among the older men during mobilization. The overexertion and hardships of warfare tend to fatigue the circulation and reveal the existence of "inferior" heart and blood vessels—in other words, cardiac weakness. The affected subjects may be quite unaware of their condition. The pulse is small, weak and slow, inferentially with very low blood pressure. Anhythmia was not noted. The cardiac area was amplified without lowering of apex beat. The impression made was that of a dilated left ventricle. Sudden movement after rest may cause murmurs. Heart morbidity in civil practice is not encountered in warfare save in rare instances. Typhoid fever occurring in troops, and, perhaps, dysentery, injure the myocardium. Damage to the heart by way of the nervous system is naturally expressed in various ways, as in civil practice. Psychic trauma caused an acceleration of pulse up to 140 and profuse sweats. Arteriosclerosis is naturally to be expected after the war, and this is a predominant fear. The Germans, and especially the French, are seeking to prevent this condition by using prophylactics like potassium iodide. The author does not believe in this possibility. Treatment of weak circulation in troops in the military hospitals consists chefly of personal hygiene, notably rest. The soldiers usually go back to the front after three weeks.

Treatment of Senile Gangrene with Ultraviolet Rays.—Kriser has recently been using the "artificial high sun," otherwise the Bach-Nagelschmidt modification of the Kromayer Quarzlamp, in some miscellaneous surgical cases and tested the resource incidentally on a case of senile gangrene, due to arteriosclerosis in a sixty-year-old subject. The gangrene had been preceded for months by severe pains in the limb, and was spreading over the foot so that it was clearly an amputation case. Prolonged raying with actinic rays, varied at times by the warm rays, completely healed the condition in two months. There was almost a complete restitutio ad integrum, the gangrenous areas having been replaced by thin white scars. The rays at first increased the pains, but these exacerbations were followed by remissions. The cure was evidently due largely to the fact that this form of radiation has been known to lower the blood pressure permanently.

The "Artificial High Sun" in Military Medicine.—Thedering first mentions natural high sun exposure, which paved the way for artificial substitutes. Its possibilities were first brought to notice through the brilliant results of Rollier in surgical tuberculosis. Next in order torpid ulcers were made to heal. In the present war it is being used extensively in military hospitals for ragged and gangrenescent wounds. The quartz lamp rays are said to have only a superficial action, but in some cases they may be used in concert with x-rays. Gangrenous sores may be quickly rendered inodorous, probably through ozonization. It has not yet been shown that the artificial solar rays are bactericial.

Deutsche medizinische Wochenschrift.

December 17, 1914.

Treatment of Pneumonia, Pleurisy and Bronchitis with Menthol-Eucalyptol.—Berliner refers chiefly to military morbidity. He has made a trial of this remedy, said to be valuable in the pulmonary infiltrations of tuberculosis, in acute pneumonia at the front. Pohl had succeeded also in showing that menthol is able to control experimental pleurisy. The cases of pneumonia at the front appear as a rule after a sudden chill, followed by fever of 40 deg. They receive daily a gluteal injection of 1 c.c. or a point more of a solution to be described later. The temperature begins to fall soon afterwards, and is often normal by the third day, and the infiltration in many cases can no longer be recognized. The use of the remedy is continued for a week. It has been shown that menthol has properties as a heart stimulant. Professor Küttner of Breslau has used the author's remedy with great success in several cases of postoperative bronchitis. But the promptest results of all are seen in pleurisy. Unfortunately the author's solution is to be kept secret. We know that it contains menthol and eucalyptol, and he confesses that he has improved the original formula by adding a little acetanilid and salicylate of antipyrin. To give a patent for a remedy intended for the defenders of the Empire would seem at least highly unpatriotic, and the author mentions no patent nor manufacturer. Thus far he has only used a name involving probably no proprietary rights. The outbreak of the war has prevented further research, so that the author is by no means ready to report fully on his solution.

Hypodermic Promoters of Peristalsis in the After-treatment of Gynecological Laparotomies.—Frankenstein mentions in this connection atropin, the peristaltic hormone, and the water soluble glucoside obtained from cascara sagrada (which has been marketed for several years under a proprietary name). All these substances are efficacious in postoperative paralysis of the intestine. His paper is written chiefly in the interest of the cascara derivative which he has used in 172 consecutive laparotomies immediately after operation, and with the best results. Similar good results have been obtained from a proprietary derivative of senna, but this is somewhat painful to inject, the author fancies.

Radium Treatment of Cancer.—Rupp sums up as follows: Should we subject to treatment operable or only inoperable cancers? If one could go by certain cases one might say that there is no further use for the knife. For example the author cured a young woman of a very large genital cancer, and in a relatively short time. Bumm, however, has first rayed operable cancers, and then extirpated them, finding cancer cells and nests in active state, although the rays penetrated to a depth of 4-5 cm. Hence, first operate, then radiate. For in theory, at least, we can use this treatment with success in advanced cases. Unfortunately, cancers which readily metastasize, like those of the breast, cannot often be influenced by these measures.

Preventive Measures Against Tetanus.—Hufnagel in a brief communication to the editor records that in the Field Hospital at Namur 2,193 wounded had been received between September 11 and November 30. Of this number 27 developed tetanus. On and after October 15 all wounded received prophylactic injections of serum (20 antitoxin units). From October 15 to November 30 not a single case of tetanus developed in an inoculated subject. The number inoculated was 1,195, the majority of whom were severely injured.

Visceral Lesions Following Acute Pancreas Death.—Carlo Grande finds that in the sudden death resulting from acute lesions in the pancreas or the introduction of its ferments into the peritoneal cavity there are focal lesions in various organs of the body. The nature and distribution of these lesions suggest that pancreas death is the result of an intoxication by proteolytic ferments.—*Archivio per le Scienze Mediche.*

Insurance Medicine.

Life Insurance and the Wassermann Reaction.—Jacobsthal discusses the reaction from a double viewpoint. First, is the patient syphilitic when he applies for insurance; or is he quite free from syphilis? This is a simple problem which may be settled by a simple test. Second, if syphilitic, what is the prognosis, from a simple test and from repeated testing. In the second case an extra premium might be charged if certain standards were respected, as age of patient, date of inspection, length of treatment period, negative Wassermann reaction. The companies, however, would find this too complex to be practicable. A practical routine procedure is to add five years to the age of the syphilitic applicant, suggested evidently by the actuary in estimation of the extra risk. In other words, a man who applies for insurance and has a positive Wassermann reaction pays the premium of a healthy man five years his senior. Overmortality from syphilis is overcorrected by undermortality of the tuberculous, etc. This, however, is not ethical toward the normal policyholder who really pays a tax every time one of these syphilitic risks dies of his disease. But we really know very little about the overmortality from syphilis. It may be much higher than figures show. We cannot tell how much of actual disease, aneurysms, etc., is due to this affection. Syphilis cannot be compared with some of the similar maladies because it is in no way foreordained, and is due to contributory carelessness or something akin to it, which moreover involves a violation of the moral code.

On the other hand it would not be just to refuse syphilitic applicants unconditionally. In the great capitals syphilis is so very common that such a rule would seriously endanger the insurance business. Compulsory Wassermann reaction tests would have ruinous consequences. Besides the syphilitic especially needs insurance, because he is more exposed to premature death, and must provide for his family upon that contingency.

In theory all applicants should be subjected to a Wassermann reaction test, but this is an operation, demands consent from the applicant, and a special fee for the examiner. All this is against the tendency of the day, which is to restrict the medical examiner's activities. The author personally adheres to Schottmüller's viewpoint (already stated in these columns).

The author believes that the luetin reaction of Noguchi will be of use in insurance examinations, inasmuch as in late syphilis it is often positive when the Wassermann reaction is negative.—Blätter für Vertrauensaerzte der Lebensversicherung, 1914, Vol. V, Nos. 4 and 5.

Alcoholism with Reference to Life Expectancy.—Alcoholism presents so many stages or degrees and phases that it is an extremely difficult problem in life insurance. Statistics are very useful when they are founded upon the right basis and the proper premises have been used in their preparation. Patton shows that each individual presents a physiological resistance, different from that of all other individuals, to outside influences and most of them show a varying resistance to different outside influences. An individual's resistance to the same outside influence differs with his age, occupation, state of health, time of day, relative time since food was taken, also the amount and character of the food used, exercise, sleep, and many other conditions. The above statement holds true for alcohol and tobacco. The length of time and amount and frequency of the liquor used have much to do with its systemic effects. The Prudential Life Insurance Company, of which Dr. Patton is the Associate Medical Director, drew the conclusions that the premium charge contemplated the average risk and that this included the moderate drinkers or those who did not exceed Anstie's limit.

Among those who may be regarded as immoderate drinkers are: (a) Those who drink regularly in excess of Anstie's limit or who may, because of individual susceptibilities, be unduly affected by that amount or less. (b) Those who occasionally become hilarious and these, if under twenty-five years of age, should be accepted on some limited plan if found physically satisfactory and careful investigation shows no fixed habit, if they are well established in business or steadily employed, give no history of excess for two years, and are not now drinking beyond the moderate limit. (c) Those drinking to intoxication regularly or periodically should not be accepted. Reformed drunkards or graduates of any cure or institutional treatment as a rule are undesirable risks. If they are considered at all there should have been a lapse of ten years, and the following factors should be kept in mind, viz., applicant's age, social condition and environment, the duration and degree of the habit, thorough investigation by non-medical sources, and a careful report by a competent medical examiner upon the physical and mental conditions, for each individual applicant is a law unto himself. Doubtful cases are to be referred to one of the medical officers for a final decision.

The above methods, Patton says, work very successfully and there are few cases that call for the final decision of a medical officer alone. There is no attempt to divide the cases into abstainer and non-abstainer classes. The Anstie theory referred to is that a certain amount of spirits is harmless and may be consumed in the body with little or no danger, providing the amount is below a certain limit.—Medical Section, American Life Convention.

History Taking in Life Insurance.—Powell tells of a case where a man desired insurance. He was about thirty years of age, present physical condition, habits, and family history were first class; but about eight years ago he was treated for some "stomach" trouble lasting several months, a very indefinite condition. Eight years ago, no recurrence, a man in perfect health at the time of his examination, would any medical examiner lay much stress on such a history? He was unreservedly recommended. The medical directors, however, with their rules of selection desired to know more of this stomach trouble and requested the applicant to obtain a statement from the physician who treated him at the time. The physician lived in another State, but in time a statement was received in which the company was advised that the applicant had been under the care of this physician in an insane asylum for a period of almost a year, and that if he had treated him for stomach trouble it was of such mild and transient character as not to appear in his notes. This shows the value, Powell says, of careful and painstaking history taking.—*Denver Medical Times*, October, 1914.

Book Reviews.

Diseases of the Bones and Joints. By Leonard W. Ely, M.D. Associate Professor of Surgery, Leland Stanford Junior University, San Francisco, Cal. With 95 illustrations. Price, cloth, $2.00. New York: Surgery Publishing Company, 1914.

Ely has long specialized in this field, has done much valuable original work, and is thus well qualified to bring out the important diagnostic and therapeutic points peculiar to diseases of the bones and joints. In addition to possessing the requisite knowledge he is also endowed with the happy faculty of presenting his material in a clear-cut, logical manner, is never verbose, and yet the essential facts are couched in such language as to catch and retain the interest of the reader. In the author's words, "The work represents an effort to present the subject as briefly as possible, dealing with the various diseases, in the matter of space, very much as their relative frequency. It is intended primarily for the general practitioner, but, contrary to custom, instead of furnishing that long-suffering and very important person with a mass of detail, and with many methods of treatment from which he may choose, attempts to lay down broad general principles, with the evidence on which they are based, and then to show how these principles may be applied. * * * The book upholds strongly the idea that a comprehension of the pathology of disease is a prerequisite for treatment." In accordance with this statement he lays the foundation by first describing the anatomy, physiology, and pathology of bone and joints, then proceeds to the discussion of acute arthritis, chronic arthritis of various types, ankylosis, acute and chronic diseases of the shafts, and concludes with a short chapter on new growths in bone. For the benefit of those desiring to pursue any topic further, Ely has given many references in the text and occasionally appended short bibliographies. The illustrations are generally good and the book should appeal strongly to the class for which it was intended and to those who wish to refresh the memory upon essential points without going into too much detail.

Guiding Principles in Surgical Practice. By Frederick-Emil Neef, B.S., M.L., M.D., New York City. Sextodecimo; 180 pages. Price, cloth, $1.50. New York: Surgery Publishing Company, 1914.

This little book conveys just the information that the young operator must have if he is to start right in the practice of surgery. If, as *should* be the case, he has already served as interne on the surgical side of a good hospital, he will find this a most interesting outline for the review of the principles and procedures that he has seen demonstrated during the course of his service; but if one is to attempt surgical work without having had a hospital experience a work of this kind becomes an absolute necessity if disastrous results are to be avoided. In this work we find directions for the preparation of the patient, the preparation of the surgeon and his assistants for aseptic work, the choice and preparation of all the materials used in the operation, such as instruments, suture material, dressings, etc., considerations affecting the choice and method of administering the anesthetic, where and how to make the incision for abdominal and pelvic cases, the steps of the operation, the closure of the incision, the application of dressings, the after care of the patient under varying conditions, and the consideration of many other subjects of equal importance. Generally speaking, the advice is sound; but we deplore the recommendation of chloroform and, above all, anesthol as the anesthetic of choice when ether, especially in inexperienced hands, has been proven beyond question to be infinitely safer. Marginal headings and an exceptionally full index make reference to any particular point easy, but those for whom such a book is suitable should familiarize themselves with its contents from cover to cover.

Bakteriologische Untersuchungen des Keimgehaltes im Genitalkanale der fiebernden Wöchnerinnen mit Berücksichtigung der Gesamtmorbidität im Laufe eines Jahres. By Dr. Maunu af Heurlin. With 3 plates and 17 tables. Price 12 marks. Berlin: S. Karger, 1914.

This work is based on material studied in the well-known clinic at Helsingfors and presents an extended study of the bacterial contents of the genital canal of the puerperal woman with special reference to the morbidity occurring during the subsequent year. From the study of a series of over 2000 cases he found that the total morbidity in the year after delivery was generally higher in summer, but with two well-marked exacerbations during November and December and also in April. Where a genital cause for the fever was found the cases were irregularly distributed through the months; whereas, those in which extragenital infection was present showed a gradual increase from September to April and a corresponding diminution from April to August. The monograph is apparently a very valuable contribution to the always interesting subject of puerperal infection, but it would have been desirable for the author to present his conclusions in a more concise form.

Kurzgefasstes Handbuch der Gesamten Frauenheilkunde; Gynäkologie für den Praktischen Arzt. Edited by Dr. W. Liepmann, Privatdozent für Geburtshilfe und Gynäkologie an der Friedrich-Wilhelm-Universität in Berlin. Bd. II. "Pathologische Anatomie und Histologie der weiblichen Genitalorgane in kurzgefaster Darstellung." By Dr. Oskar Frankl, Laboratoriumsleiter an der k.k.l. Universitätsfrauenklinik (Vorstand Hofrat Schauta) in Wien. With 113 illustrations in the text and 34 colored plates. Price 30 marks. Liepzig: F. C. W. Vogel, 1914.

The present volume is one of six which presents in a very complete form a manual of gynecology and obstetrics by a number of well-known German writers. It is the aim of the editor, Dr. Liepmann of Berlin, to incorporate a consideration of both obstetrics and gynecology in the same work, claiming that this specialty demands a study of all phases of woman's existence, beginning with the differentiation of the sexes and ending with the final stages of her life. He has divided the subject into two main sections, dealing with the anatomy, histology, development, bacteriology, pathological anatomy, and physiology, each in a single monograph, and devoting a separate volume to the technique of operations, diagnosis, therapeutic methods, and dietetics. Two volumes are also given up to the practical aspects of gynecology and obstetrics, which present the modern therapeutic methods in gynecology. This detailed consideration the editors justify by the fact that as a rule insufficient amount of attention is given to the same, either by descriptions or illustrations. The latter have been given particular attention by the editors and are worthy of particular consideration.

The volume herewith referred to deals with the pathological anatomy and histology of the female genital organs in which the various pathological aberrations of uterus, placenta, tubes, ovaries, vagina, perineum, and pelvic connective tissue are considered in great detail and illustrated by a large number of very excellent colored plates. Although unsuited for detailed review, the volume may be commended to the American student for its great attention to detail and the excellence of both text and illustrations. It is unusual in most gynecological manuals for the author to devote the necessary consideration to the obstetrical aspects of the diseases of women, and such works as the present can only serve to accentuate the value and necessity of considering this important topic in a class entirely by itself. Both the editor and the individual contributors to this volume, therefore, deserve particular credit for their labors.

The Philosophy of Radioactivity, or Selective Involution. By Eugene Coleman Savidge, M.D. New York: William R. Jenkins Company, 1914.

The author expounds his philosopsy of the universe. He sees in the spiral nebulæ the process of upbuilding of the radioactive substances going on. These formed, the process of back-swing begins—"matter unwinding to lower density," by successive expulsions of helium atoms, the atomic weight decreasing thus, four at each expulsion. The author opposes to this process, "quality winding to higher velocity," from disparate motions, to auditory qualities, then to visual qualities, ad infinitum.

Into the intracacies of his philosophy, however, we cannot go. The work evinces a comprehensive acquaintance with the literature of radioactivity, and represents a philosophy *sui generis*. The book is not, indeed, altogether easy reading, largely because the author has found it necessary to evolve what almost amounts to a new vocabulary, which until one has mastered it, renders prograss somewhat slow. Nevertheless, in these days when books are largely carpentered together out of other folks' traditional unwisdom, it is refreshing to come across one having the merit of originality.

Society Reports.

PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Sixty-sixth Regular Meeting, Held Friday, Dec. 4, 1914.

The President, Dr. W. B. James, in the Chair.

Three Interesting Tumors of the Skull.—Dr. Robert Abbe presented these cases. In the first case, a small-celled sarcoma of the skull had disappeared after being one year under radium treatment. The patient, Mr. J., 41 years, builder, had noticed two depressions on the top of his head where he had previously had a blow against a beam, when raising his head suddenly. His surgeon found a soft growth, which on operation was too vascular to be removed. The man was referred to Dr. Abbe for radiotherapy. On operation to remove a piece for examination, he found a soft tumor raising the scalp from the dura, more than an inch and a half. The skull was entirely wanting at the site of the median half of the right parietal bone, and the defect extended across the median line for more than an inch. The diameter of the bone defect was irregularly 2 inches by 4 inches. The edges were sharply punched out. Microscopically the growth was sarcoma of the round cell type. Treatment: radium was at first used externally. Later, it was used through small punctures: long platinum and other tubes of radium were inserted into the soft tumor mass and a simultaneous cross firing was given by external applicators. No severe reaction occurred, but slow subsidence of the growth took place during three following months. The tumor had shown apparent cure during the past year. The dura was now flat and soft with smooth bone edges and no trace of tumor could be discovered. The patient was now in perfect health.

The second patient, Miss D., aged 41, was referred to Dr. Abbe for sarcoma of the upper jaw. A small piece of the tumor had been removed above the gum and was reported osteosarcoma, involving the antrum. Examination showed a great hyperplasia of both alveolar portions of both maxillæ, with exostosis of the front of the right. Incidentally a prominence of the frontal bone and curious twist of the left forearm gave suspicion of Paget's disease. The *x*-ray picture showed great hypertrophy of all the cranial bones and of the left ulna and right femur which were distorted in length and curvature. The right antrum was well opened and cleaned of hypertrophied tissue which was reported to be round cell sarcoma, although the bone showed no sarcoma. A liberal use of radium followed the surgical cleaning out of the cavity and one year later the patient was reported to be in fine health and with no evidence of the disease.

The third patient, Miss R., suffered from a metastatic thyroid cancer of the skull. Since childhood the patient had had a large goiter. For some months she had had two tumors on the skull, one parietal, one frontal. On examination each was found to be the size of a small orange, 3 inches in diameter and two in thickness, firm and vascular in consistency. The bone edge was found to be sloping on to the tumor. The patient was reduced in health. Removal of the parietal tumor was first undertaken and proved to be a very bloody operation. It had entirely replaced the bone and rested on the dura. It contained much bone and was imperfectly removed from the diploetic edges into which it grew. The base had to be curetted from the dura. After due interval to convalesce from the exsanguination, the frontal tumor was removed with the same imperfection. Long spikes of bone grew up through the tumor as well as the granular dissemination through the tumor and showed again the diploetic growth extended beyond the margins of operable tumor. The only hope of benefit lay in the subsequent use of radium. While the wounds were still open a heavy post operative treatment of radium was given, using some 300 milligrams of pure radium bromide. Both wounds healed promptly. The patient's health was perfectly restored and the scars were now soft, smooth and flat. Ten months after radium treatment the patient was still free from any trace of disease. The goiter was no smaller, but Dr. Abbe was endeavoring to influence it by radium without operation unless forced to it by increase. The pathological examination showed a type of cancer of the bone with thyroid structure, and therefore typical metastases.

Dr. Brannan asked if the first patient had ever had any cerebral symptoms.

Dr. Starr asked if the patient had ever had any convulsions; on being told no, he said that the dura could not have been involved.

Dr. Abbe said the patient had never had tingling, numbness, or any cerebral symptoms. Radium had not injured the dura; he had left the radium tube in 21 hours; the tumor had slowly subsided in the course of 3 months; this could be said to be a definite disappearance of a malignant tumor which was rapidly enlarging. A case of Dr. Starr's, on the other hand, a glioma involving the skull, and twice removed from the brain, did not yield to radium treatment; it was a different type of tumor. The small-celled sarcoma yielded to radium treatment.

Dr. Starr said that in this connection he would like to mention a case of his which was very interesting. The patient came to Dr. Starr from Dr. Prout of Summit, suffering from motor aphasia and a slight spasm of the right side of the face and hand. Diagnosis of tumor was evident. Dr. Hartley operated on him at the N. Y. Hospital and found an infiltrating glioma. He did not feel justified in attempting to remove it because he would have had to remove the cortex and the patient would have been deprived of speech and would have had paralysis of the face. The tumor increased in size and 6 months later Dr. Hartley operated again and sliced off a large section, but there was a recurrence. After Dr. Hartley's death Dr. Kenyon operated and removed a portion of the tumor but did not try to take it out because it was so extensive. The wound healed with considerable difficulty. A year later the man came back suffering as before with more paralysis and was quite hemiplegiac, although he was able to come in from New Jersey. Dr. Starr took him one year ago to Dr. Abbe who took an interest in the case. Although the scalp was very thin he thought it better to insert radium tubes into the tumor itself. This was done at St. Luke's Hospital, but the radium did not have any effect. The man grew gradually worse and died last May. Dr. Abbe had treated him 6 months. Dr. Starr had hoped that as this was an infiltrating tumor it might have been successfully treated by radium. In this case it was of interest to know that radium had been thoroughly tried and found to be useless.

Dr. Brannan said that Dr. Abbe had remarked on the vascularity of the tumor in this case. Did that interfere with the insertion of the radium?

Dr. Abbe said he never let bleeding interfere. The pressure of the radium instantly stopped bleeding.

Dr. Brannan asked if the radium did that.

Dr. Abbe said no; it was just the pressure of the tube.

Dr. Thompson said he had seen an interesting case of a parietal tumor in a negro. The *x*-ray showed it to be simply over the external table. It gave no symptoms. The man had had it many years. It was as large and hard as half a billiard ball and produced a very curious deformity of the skull. The cause was unknown. The man had had no injury. The *x*-ray showed it to be simply a bony overgrowth.

Dr. Abbe said that in regard to emanation tubes, which were sometimes used, they were pinhead sized glass bulbs and lost their effect after 4 days. He knew of one reported case of glioma that had been relieved by radium and he would try it again. There were different ways of using it; different quantities and methods. Two points impressed him in these cases: in round-celled sarcomata there was a specific action of the radium in a certain number of cases; and, second, he thought that probably in lymphoid structures there was a greater effect than on fibrous structures. In one of his cases (the cancer of the head), it was a metastases of a thyroid tumor. This was a glandular structure and might more easily yield to radium and might account for this particular type of tumor being relieved. He had had two other cases of round-celled sarcoma of the skull which showed the same good results from radium, but these were complicated by other conditions, which led to a quick ending.

Dr. Starr asked Dr. Abbe if he had had any effect in Graves' disease and thyroid hypertrophy?

Dr. Abbe said he had used it in many cases. He thought it a good way to reduce the gland by fibrosis and atrophy after radiation. In one case recently he inserted two radium tubes into each lobe and left them in two or three hours. He was not prepared yet to report on the many cases he had treated during the

last twelve years. There was one case, an enormous goiter which had disappeared under this treatment nine years ago and had never recurred. After two months the disappearance was absolute and complete.

Pylorectomy for Chronic Perforating Gastric Ulcer; Acute Perforating Duodenal Ulcer.—Dr. GIBSON presented these cases. The first patient, W. P., male, aged 57, was admitted Feb. 9, 1914, to the Surgical Service of the New York Hospital. He had had symptoms referable to the stomach for the past 30 years with constipation, epigastric pain, acid eructations, belching of gas, and at times vomiting. Recently the attacks had come oftener and had been more severe. A year ago a particularly severe attack had lasted three months. Two months ago condition recurred so severely that patient had to give up work. He had lost twenty-five pounds in two months. Physical examination showed a man of emaciated appearance. Inflation of the stomach showed an enormously dilated stomach, the lower border reaching nearly to the pelvis. Gastric analyses showed a great amount of fasting contents with changed blood in large amounts; no free acid; low total acid and presence of lactic acid. Ewald test meals showed little abnormality, but presence of occult blood. *X*-rays showed marked retention at the end of twenty-four hours. A pylorectomy for chronic perforating ulcer of the pylorus with stenosis was performed February 9, 1914. Convalescence was complicated by a biliary fistula, after which the patient improved rapidly. Microscopic examination of the specimen showed no carcinoma. The patient was discharged March 13, 1914, weighing 135 pounds. On October 22, 1914, the patient reported he had gained forty pounds. He was in best of health, strong and vigorous and able to eat anything. He had to use no cathartic. The *x*-ray picture at this time showed good drainage of the stomach; after one hour and a half almost empty; three hours and a half, empty; six hours and a half, stomach empty. Dr. Gibson said the case was reported to illustrate the advantages of believing that a stomach lesion with a history as given should be considered a surgical condition at the outset. The patient's daughter, in this instance, while under treatment by Dr. Gibson, described her father's condition with the request for a recommendation of a stomach specialist. He advised her to bring the patient directly to him and before he saw the man he had an *x*-ray taken. With the facts obtained the diagnosis was complete and no time had to be wasted with unnecessary details.

The second patient, H. D., fifty-one, salesman, was admitted February 11, 1914, with a history of chronic stomach trouble for five years, with increasing severity in the last two years. He had occasional hemorrhages, fourteen in two weeks. He had bad general health. There was a history of lues and alcohol. Onset of present illness began with sudden, severe, cramping pain in epigastrium twenty-four hours previous to admission. He vomited several times. He managed to work some that day. He went to bed that night and next morning had extremely severe pain. He fell on the floor and thought he fainted. On admission a median laparotomy was performed and a duodenal ulcer, juxtapyloric, was found. Closure was satisfactory; no stenosis. There was considerable viscid material in the upper abdomen which was sponged out. The abdomen was closed without drainage. Time of operation was twelve minutes. Convalescence was disturbed by a wound infection. Patient was discharged March 17, 1914. On June 8, 1914, patient reported. He had a sinus leading down to the right about three inches, with a moderate amount of discharge. He felt well and looked well. His tongue was clean and he had gained twenty pounds. On November 23, 1914, the patient's condition was exceedingly good. He had gained forty-seven pounds since the operation.

Dr. GIBSON said he had never felt it necessary to do gastroenterostomy for the cure of the ulcer itself. He did not believe there was enough stenosis occurring to warrant doing gastroenterostomy. He believed it was very seldom indicated. The second case, W. P., he thought at first might be carcinoma of the stomach; however, he had an *x*-ray taken of the man before he even saw him and when the man appeared the diagnosis was made. Dr. Gibson showed a new clamp for gastroenterostomy work. It was more simple and effective, he said, than many enormous clamps he had seen used for many years.

Dr. PECK said he congratulated Dr. Gibson on the brilliant results obtained in his cases.

Dr. BREWER said he agreed with Dr. Gibson in general in not doing a gastroenterostomy for perforation. He did not do gastroenterostomy unless imperative. He had, however, had one case of ulcer of the duodenum in which the involvement was sufficient to make him believe there was stenosis after closure; in this he did gastroenterostomy. In another similar case he did not do it. In the last case the man later had to have gastroenterostomy to save his life. In regard to the possibility of recurrence: in one case, a young, thin man had a perforation which had existed for a number of hours; the upper abdomen was full of stomach contents and the condition was serious; a closure of the ulcer was done without gastroenterostomy; there was no evidence of stenosis; the patient made a good recovery and reported for a number of weeks in good condition. Six or eight months later the ambulance received a call to a tenement house. The ambulance surgeon found this same young man in bed. He said he had a "perforated duodenal ulcer" and wanted to be taken to the hospital as quickly as possible, as he had recognized his symptoms, and though his condition was good he knew there was no time to be lost. The perforation was nearly in the same place. Dr. Brewer said he closed the perforation and did a gastroenterostomy in the hope that there would be no further recurrence. The man had a few symptoms after that, but he believed that operation prevented recurrence.

Dr. GIBSON said he had a word to add about gastroenterostomy. It might help in the case of another ulcer. Ulcers were sometimes multiple. Unless there was stenosis, gastroenterostomy was hardly justified. He knew a Denver man who had three perforations following gastroenterostomy, so that it could not be considered a safe cure against perforation.

Case of Pituitary Disease with Unusual Eye Symptoms.—Dr. KNAPP presented this case. In this patient, instead of bitemporal or usual homonymous hemianopsia, there was complete blindness in one eye, while the other eye was perfectly normal, not even change in color perception was present. The *x*-ray showed complete obliteration of the sellar fossa with destruction of the clinoid processes. The tumor had evidently broken through the capsule and extended along the right optic nerve. The woman was suffering from headache. That was the only symptom at present. She had had amenorrhea for nine years. There was no particular gain in weight.

Dr. STARR asked what was the carbohydrate test in this case, and if thyroid were being tried.

Dr. THACHER asked if the headaches were severe and if there were any abnormality in the distribution of hair.

Dr. EWING asked what the treatment would be.

Dr. KNAPP said in reply to Dr. STARR that the carbohydrate test had not been done. He had recently learned that less reliance was being placed on this test than before. He wished to get the opinion of the meeting as to the advisability of using thyroid. In reply to Dr. Thacher he said that the patient had lost some hair. In regard to treatment Dr. Knapp said he thought it was important to watch the other eye and if the field in that eye showed involvement, an operation should be considered.

Dr. EWING said that a monograph by Courtellemont, a French alienist, was the most complete presentation of hypophyseal tumors that had yet been published. He first recommended opotherapy; that is, treatment by some of the glands of internal secretion; next, radiotherapy; third, surgery.

Dr. ABBE said that to put in radium tubes through the sphenoid fossa was safe and easy. It had been done in Germany with success.

Dr. STARR said that he had had a case coming to clinic, a boy of fourteen years of age, with tumor of the hypophysis cerebri. He had improved very much on thyroid given in varying doses, running up to a point where he got rapid pulse and lost appetite; in fact, he was kept on the point of being poisoned by thyroid. He had lost the headache and stopped vomiting four months ago. The optic nerves looked very much better than at the start. He had had a partial bilateral heteronymous hemianopsia. The fields of color vision had improved. It seemed as if the boy would make great improvement. He had a very queer shaped head, very large; a slight hemiplegia; a peculiar dryness of the skin; no hair on pubes, and was sexually undeveloped.

Case of Multiple Myelomata.—Dr. THACHER presented an interesting case from the records of the Roosevelt

Hospital. The patient, male, forty-three years, was admitted October 1, 1914, with a diagnosis of nephritis, with some backache. He had had a pain in his back for two months previous to admission, and pain in the back of the chest. When he had lain in bed for a few days the pain disappeared. He was a little tender over the lowest thoracic vertebra and the highest lumbar vertebra. Physical examination showed the knee-jerks markedly increased; slight patellar clonus; marked ankle clonus; no changes in sensation; no Babinski; no Kernig; abdominal reflexes normal; some tenderness to pressure over the lowest ribs; no changes in sensation or pain on touch in that region; there was a slight kyphosis about the junction of the thoracic and lumbar regions. A lumbar puncture was made and there was found a slight cell increase (12 to 14). Noguchi, Butyric acid test strongly positive. Wassermann test twice negative; twice upon spinal fluid positive. He had had a chancroid six years before and was treated by a druggist; no other treatment. It was thought that he had tuberculosis of the spine, but a neurologist said that there was no lesion of the cord and a surgeon said that there was no Pott's disease; a radiologist said that the *x*-ray of the vertebra was normal. The urine was then tested for Bence-Jones protein and it was found abundantly. As this occurred very rarely except in multiple myelomata a search was begun for bone lesions and the *x*-ray pictures were again looked over. It was then thought that lesions could be detected in the ribs. Myelomata occur by preference in the red marrow of thin bones and there appeared to be some slight thickening of the ribs, with an appearance of the ribs being full of bubbles.

At autopsy this was found to be due to invasion. Dr. Leaming said that a place in the angle of the scapula looked as if it were bubbly, but that the underlying lungs might produce that appearance. He thought the appearance in the skull very much more characteristic. He found unevenness in the density of the skull. Finally a lesion was found in the lateral view of the spine. There was a Pott's deformity, not due to tuberculosis. During the patient's stay in hospital the hemoglobin varied very much, according to reports, so that pernicious anemia was thought of, but careful study of the blood did not bear this out. The examination of the blood was often made. Before Bence-Jones protein was found in the urine a blood report was sent in with a differential count of 52 per cent. polys and 46 per cent. lymphocytes; the day after Bence-Jones albumin was discovered, the blood count was altered, and 55 per cent. polys were counted, with 10 per cent. lymphocytes and 32 per cent. plasma cells. The former count should have been similar. After the patient had been in the hospital the pain and tenderness in the back almost disappeared. In one spot of the ribs a spontaneous fracture was later found by *x*-ray. During his stay an extreme salivation occurred with diminution of urine at the time of salivation. He spat out 49 ounces per day at one time, with 10 to 25 ounces urine passed. There was no Bence-Jones albumin in the spinal fluid or in the saliva. The man died on November 26, 1914, of malnutrition and asthenia. At the postmortem examination the bones were found to be very friable.

Dr. Brannan congratulated Dr. Thacher on his very careful study and presentation of the case.

Dr. Ewing said that cases of plasmoma, so called, in the group of myelomata were interesting on account of the difficulty of determining whether one dealt with a true neoplasm or an inflammatory process. In this lesion there was a very wide distribution and the mildly aggressive type was different from the destructive neoplastic type. One wondered whether the milder type developed into the more malignant. He was inclined to think the two types distinct. The cells were most likely different. Some years ago Dr. Norris had shown one extremely malignant case of this type of tumor at the Pathological Society, with many metastases. In the typical myeloma there were supposed to be no metastases, but the literature contained many exceptions so that one could not place much reliance on the presence or absence of metastases. He asked if there were any nucleated red blood cells.

Dr. Thacher said the sections under the microscope showed largely plasma cells and the case had not been sufficiently studied to show any nucleated red blood cells; there were none in the circulating blood.

Senile Paraplegia.—Dr. M. A. Starr read this paper. (See p. 169.)

Dr. Dana said he thought Dr. Starr was right in stating that senile paraplegia had not been adequately studied. Senile paraplegia was only a clinical term and stood for several different things, as Dr. Starr had shown. In the speaker's experience he had met two rather distinct groups of cases. In one there was a flaccid and the other a spastic, or rigid paraplegia. In the flaccid type the patient progressively but intermittently grew weaker in the legs, the muscles wasted, the gait was feeble with short steps and great difficulty in going up and down stairs. There was sometimes lumbar pain. The patients sometimes improved, but eventually became helpless, though the progress was slow. Dr. Dana made an autopsy in one case and found very marked arteriosclerotic changes in the anterior horns of the lumbar region with softening. He thought that in the flaccid senile paraplegias there was always arterial sclerosis of the anterior vessels with softening and at times small hemorrhages. The other type of senile paraplegia was of a rigid character, the patient's legs were stiff; he could not raise the toes from the ground; there was a shuffling gait, suggestive of paralysis agitans. Gowers had described these cases and they were not unfamiliar on the streets. In one case which he had studied there was no change in the reflexes, except diminution with absence of one ankle-jerk. The disease was very slowly progressive, and there were no signs of Parkinson's disease. The spastic type he thought might be explained by supposing a general involvement of the posterolateral as well as the anterior arteries. He had not seen any cases which he thought were neuritic or dystrophic. Such groups as Dr. Starr described might well exist, but histological proof was needed.

Dr. Abbe said he had seen such a case as Dr. Starr had described, of a lady, whom he had watched for five or six years, with a gait becoming more and more shuffling, with paralysis of the feet. Dr. Billings had seen her and had assured him that she was undoubtedly a case of spinal sclerosis, which seemed to him to explain the condition. The process was an ascending one and recently had involved the upper extremities, resulting in paralysis.

Dr. Huddleston said he had seen one case in a man seventy-six years of age corresponding to the first type mentioned by Dr. Starr, that involving the muscles of the legs. The patient presented no spinal symptoms and no neuritic symptoms, but progressive weakness so that at times he could hardly stand on his legs, but there were periods of marked improvement. It would be very interesting, he said, to have an explanation of what was the cause of this curiously varying muscular power.

Dr. Starr said that these three cases he had described were typical of a number of cases that had occurred in the past five or six years. The reason he had brought this matter up was because for the past two or three years he had been accustomed to make a general diagnosis of arteriosclerosis, but cases had accumulated, and in some cases he had been surprised to find that, as Dr. Dana had said, they had improved. If there were degeneration of the spinal cord they could not improve, therefore he came to the conclusion that some of his diagnoses were wrong. Distinctions should be made and a more careful classification established.

He had, therefore, used three entirely distinct cases: (1) myelomalacia; (2) a neuritic type (on account of the changes along the nerves, with anesthesia); (3) muscular type—sufficiently different characteristics to make a distinction between the three cases. Dr. Dana's fourth class, the spastic type, was allied to paralysis agitans. Dr. Starr had never seen these without some manifestation of stiffness and tremors of the hands, or stiffness of the face, characteristic of paralysis agitans, which occurs with or without tremors. This was a well recognized type.

Dr. James said that the apparent assumption that these cases could not be improved because they were arteriosclerosis was not justified, because clinical conditions due to arteriosclerosis elsewhere in the body could be improved.

Dr. Miller asked about the Wassermann reactions; for it would be interesting to know whether luetic infection played any well marked rôle in these cases?

Dr. Starr said that the only case in which a Wassermann had been done had been one simulating locomotor ataxia; this Wassermann was negative.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held December 15, 1914.

DR. JOSEPH C. ROPER, IN THE CHAIR.

Rheumatoid Arthritis.—Dr. BEVERLEY ROBINSON presented this paper. He said that to him rheumatoid arthritis seemed a better name than arthritis deformans, and it was so considered by many who had written most convincingly about this strange affection. It was not rheumatism and it was not gout, but it had the form of rheumatism frequently and the marked deformity of the joints was not apparent always in the beginning of the disease. It had been claimed that rheumatoid arthritis was of infectious origin, but the plausibility of this statement was not supported by facts which were convincing. Notably also the salicylates, which were unquestionably of great value in the treatment of rheumatism, had very little remedial value in rheumatoid arthritis. As to gout, they never found the well marked attacks primarily in the big toe and later the deposits of urate of soda there, in the ears, or elsewhere and, further, the excess of uric acid either in the blood or urine was not found. It was not invariably true that persons suffering from rheumatoid arthritis were run down in health. After describing the symptoms of rheumatoid arthritis, Dr. Robinson emphasized the variability of the symptoms as characteristic of the condition. It was not always the case that a deposit around a joint could be recognized by palpation, and for this reason such joints were often declared to be rheumatic or gouty. Later on the deposits became more pronounced and the cases became the patients of the general surgeons, or orthopedists, and the general practitioner was set aside. Massage, proper mechanical exercises, orthopedic appliances, and rarely operative interference were of service in helping restoration of a function in a measure. To arrest or neutralize the underlying causative factors in the case, we must appeal to a wise and comprehensive judgment of all the efficient elements involved. Overwork, poor food, mental anxiety, frequent confinements, damp, cold, insanitary surroundings, often played a part and a decided one in promoting the development of the disability. On the other hand many cases were found among the well-to-do where none of these factors played a part. At times a lack of exercise seemed to be the cause, and yet when proper exercise was supplied the disease was not arrested. It was true that cutting off much alcoholic stimulant, certain rich wines, and excess of meat had appeared for a while to promote a better state of health, but nevertheless the symptoms returned after a time. The writer concluded that he did just as well with his patients when he placed upon them only limited restrictions as to beverage and food. Some of these patients did very poorly when too much moderation was inculcated. Arbuthnot Lane had claimed that ileocolostomy gave curative effects on the one extreme and Pemberton, at the other, believed he cured these patients by a measured and careful dietary, while the writer did not believe that these extreme laboratory ideas put into practice would endure. In searching for a specific cure for these cases, the author affirmed his belief in the good effects of a dry, warm, bracing atmosphere, woolen underclothes, nutritious, ample, and varied diet, moderate daily exercise in the open air, and a few well-selected drugs if required. Among these the glycerophosphates of lime and soda, cinchona bark with kola, in a palatable tonic wine, were most serviceable. He believed that the benefit derived from the glycerophosphates furnished a clinical reason for the belief that impaired nerve force was directly reponsible for causing not only joint disability, but also the many accompanying symptoms of a general character which were incident to the march of the disease. He felt confident that patients subject to this affection were benefited by a sojourn at Sulphur Springs, Sharon and Richfield, in this country and Aix-les-Bains in France, but he did not advise drinking the water or taking the baths. Such patients must not go to the seashore, nor to the immediate vicinity of the Great Lakes. In the winter they did well in Georgia or South Carolina, or at one of the well known inland resorts. A winter in New York was not favorable to them. Small doses of aspirin internally, massage, dry heat, stimulating liniments, or electricity for the limbs or joints were all helpful. Dr. William Benham Snow claimed that electrical treatment had given an excellent series of cures. But as to any permanently curative effect being produced, that the writer had rarely seen while the patient remained near the seashore, summer or winter. In closing Dr. Robinson quoted from a recent article on this subject as follows: "Laboratory studies alone, although of great value, have very definite limitations; and the importance of considering all practical sides of the situation ought to be perfectly obvious; particularly it seems the many commonplace mistakes which are responsible for a large proportion of failures deserve discussion and prominence occasionally." Many of the new suggestions and new treatments were not a particle better, nor even so good, as what was already known and had stood the test of time.

On the Relation of Blood Sugar to Glycosuria in Diabetes.—Dr. ALBERT A. EPSTEIN said that by means of a serial study (at short intervals) of the blood plasma, it was possible to demonstrate that the blood volume in both normal and diabetic individuals was subject to considerable variations as a result of the ingestion of food and fluids. A serial study of the blood sugar made at the same time, showed that the percentage of sugar in the blood might go up or down as a result of a concentration or dilution of the blood, respectively. That was to say, a decrease in the relative amount of blood plasma (which pointed to a concentration of the blood) could be responsible for the increase in the percentage of blood sugar; and conversely, an increase in the relative amount of blood plasma (pointing to a dilution of the blood) might cause a decrease in the percentage of blood sugar. In order therefore to ascertain the true state of a glycemia or hyperglycemia it was necessary to determine the exact state of dilution or concentration of the blood and to correct the percentage of sugar found by examination, by allowing for the relative concentration or dilution of the blood, *i.e.* the relative increase or decrease in the blood volume. Unless this correction was made, the percentage of sugar found in the blood did not serve as an exact measure of a glycemia or hyperglycemia. Employing this method of calculation in the study of the blood sugar in diabetic patients, a parallelism was found between the hyperglycemia and the glycosuria, provided the renal elimination was in no way impaired. Patients exhibiting evidences of impaired renal function or the presence of renal disease failed to show a definite parallelism between the glycosuria and the hyperglycemia. The lack of parallelism in such cases was naturally due to a lessened permeability of the kidneys for sugar. In cases of diabetes with normal or unimpaired renal elimination, the variation in the daily or hourly elimination of sugar was not due to a unique or haphazard function of the kidneys, but was the result of variations occurring in the true state of the hyperglycemia.

Dr. ARTHUR BOOKMAN said that Dr. Epstein's work and his conclusions had interested him greatly. The most important was the stress laid on the relation of the total quantity of blood to the percentage of blood sugar. The point he made he believed was that in many cases increase or decrease in percentage of blood sugar was only apparent, because if they knew the total quantity of circulating blood they would find that percentage increase in sugar was compensated by a decrease in the total quantity of blood and *vice versa*, so that the *total* amount of blood sugar remained practically stationary. This would be an extremely important point in physiology and demanded therefore careful examination. He said he was familiar with the methods Dr. Epstein had used. Was the information they could give us sufficiently reliable to warrant their acceptance of the conclusions Dr. Epstein had drawn? The method of sugar estimation was that of Benedict, modified by Dr. Epstein for use on samples obtained by finger puncture. He had used this in clinical work and found it convenient for this purpose. It was not, however, absolutely accurate. Because of unavoidable technical variations alone, he believed they must allow for an error averaging probably as high as 10 per cent. even with careful work. Aside from this, picric acid and alkali reacted to other substances besides glucose, whose aggregate in the blood might be important. Another error was introduced by the fact that a single sample of blood might fail to give an average of the blood sugar percentage in the whole circulation. Other observers had found differences in blood from an artery and the corresponding vein. Dr. Bookman had found differences, often large ones, in the blood taken from the finger tip and the arm vein almost simultaneously. Now as to Dr. Epstein's methods of estimating variations in the total quantity of blood. There could be

no doubt that variations did occur, but they were not sufficiently informed as to their extent and causes, because they had no reliable clinical method of determination. Dr. Epstein offers no experimental proof that measuring the space occupied by sediment and fluid in a hematocrite specimen gave them such a method. Quite independent of variations in the blood quantity changes in size and compressibility of the erythrocytes which must occur from chemical and physicochemical changes in the blood, would to some extent influence the length of the plasma column. Local circulatory changes would also influence the proportion of red blood cells and plasma. Professor Stewart had shown that a variety of factors could modify the blood flow in the hands, and that it might even differ in the two hands simultaneously. Furthermore, Dr. Epstein had told them nothing as to the relation of the plasma volume of the blood he used for his determinations to the average in the circulation elsewhere. Unless this be constant his method could not yield reliable data even as to the proportion of cells and plasma alone. It was difficult therefore to agree with Dr. Epstein that he had given them a satisfactory measure of the total quantity of blood. Attractive as his conclusions were, therefore, they seemed to require further proof. Until this was brought it would remain probable that variations in the percentage of sugar did really mean as a rule variations in the total quantity of blood sugar.

The following were contributions by the medical staff of Lincoln Hospital:

Auricular Fibrillation with Unusual Response to Strophantin.—Dr. ALBERT VANDER VEER reported this case. The patient was a woman, married, 29 years old. She had smallpox when a child, rheumatism at ten years with recurrent attacks every few years since then. For the past three years she had had attacks of palpitation of the heart and dyspnea. For three months had had dull pain in the epigastric region and for several weeks dyspnea and pain over the liver. She was admitted to Lincoln Hospital, Nov. 15, 1914. The physical examination showed a patient poorly nourished, cyanotic with extreme dyspnea and marked venous pulsation in the neck. There was impulse heaving over the entire precordium with a thrill at the apex whose time could not be definitely determined. The heart was enlarged about one-half inch to the right of the sternum and six inches to the left with apex in the sixth interspace. On auscultation the heart was rapid and irregular with a systolic murmur at the apex and several other murmurs whose time could not be definitely determined. Heart was beating about 176, pulse 66 and very irregular, giving a pulse deficiency of 110. There was no fluid in the chests and no edema. The liver was enlarged 2 inches below the costal margin and not pulsating. After one day's rest in bed the heart was 135, pulse 72, deficiency 63. Patient was then given .001 gm. strophanthin intravenously. In five minutes, heart 107, pulse 60; ten minutes, heart 87, pulse 71; fifteen minutes, heart 84, pulse 83; thirty minutes, heart 78, pulse 75.

The patient was relieved of her dyspnea in five or ten minutes. Next morning (Nov. 17) heart 45, pulse 45; afternoon heart 41, pulse 41. Patient was comfortable. Nov. 18, heart 62, pulse 58. Put on one digipuratum tablet each night.

For about a week the heart stayed around 59, pulse 57. Patient was then up and around the ward, heart about 70, pulse 64. She was transferred to the surgical division and an epulis removed from the lower jaw. She was discharged from the hospital several days later, heart 76, pulse 69. On discharge from the hospital the examination of the heart showed, apex in the sixth space about five and one-half inches from the mid line, right border at right border of the sternum. A faint presystolic thrill and murmur inside apex, marked diastolic thrill at apex, with loud systolic and diastolic murmurs heard best at the apex but also at the base and along the left side of the sternum.

Pernicious Anemia.—Dr. VANDER VEER reported this case.—The patient was a male, married, and gave no history of tuberculosis or malignancy. Nothing of importance in his previous history until 1907 when he had a fracture of the thigh from which he recovered with no disability. He was a moderate drinker. Five weeks before admission to the hospital he was hit in the side by a piece of flooring. The blow was not a hard one as it did not break a pair of glasses carried in his pocket. Until this time he had felt perfectly well but after a few days he began to have dyspnea and the pain in the side bothered him considerably. In five weeks he lost about twenty pounds, felt very weak and noticed that he was becoming pale. On admission to the hospital, June 15, 1914, the physical examination showed a man well nourished but very pale, weight 170 lbs., teeth in fair condition, pupils equal and reacting, heart enlarged about an inch to the left, faint systolic murmur at the apex, lungs negative, liver and spleen not enlarged, marked tenderness over ninth and tenth ribs below left nipple, no fracture made out, knee jerks normal and no ataxia. Blood examination: hemoglobin 25 per cent., red blood cells, 1,890,000; color index 0.7. Four normoblasts with slight changes in the shape and size of the red cells. White blood cells, 9,600; differential, polymorphonuclears 60 per cent., small lymphocytes, 36 per cent., large lymphocytes, 2 per cent., eosinophiles 1 per cent. Three urine examinations were negative. Examination of the feces showed no blood and no parasites. Sputum was negative for tubercle bacilli; Wassermann negative; no malarial parasites. *X*-ray examination of the chest was negative except for enlargement of the heart to the left. Test meal, free HCl 60, no lactic acid, no blood. A tentative diagnosis of pernicious anemia was made. The patient ran a slight temperature up to 100.5° for ten days when it became normal. Was given red bone marrow 5i four times a day and rectal irrigations; later he was given digipuratum tablets and iron and arsenic. He constantly complained of pain in the left chest and occasionally expectorated a little blood. With this pain in the chest he sometimes had attacks of vomiting and dyspnea. Blood counts, June 20, hemoglobin, 32 per cent.; red cells 1,400,000; color index 1.14. June 27, hemoglobin 32 per cent.; red blood corpuscles, 2,400,000; color index .7. July 10, hemoglobin 35 per cent.; red blood corpuscles 1,800,000; color index 1. White cells always about 7,000, with a normal differential. The patient was discharged July 23, 1914, improved. Weight 166 lbs. He felt pretty well until August 12, when he had more pain in the side, and dyspnea, and went to Sydenham hospital. On admission here his blood count showed hemoglobin 50 per cent.; red blood corpuscles 1,500,000; color index 1.7; white blood corpuscles 6,000, differential normal. The physical examination was negative except for the anemia. The *x*-ray was negative. Sputum negative except for some red blood cells. Urine on four examinations showed many red blood cells. He was discharged improved after several weeks' stay. He was fairly well until October when he again came to Lincoln hospital and was admitted October 29 in very poor condition requiring stimulation. He was given strophanthin gm. .001 intravenously without any effect on his pulse. Blood at this time showed hemoglobin 34 per cent.; red blood corpuscles 850,000; color index 2, with marked poikilocytosis. One week later hemoglobin 24 per cent.; red blood corpuscles 560,000; color index 2. He was in pretty poor shape all this time, drowsy, much dyspnea and pain in the side, occasional attacks of vomiting. Physical examination was same as before. *X*-ray, Wassermann and stools were all negative. Gums negative for amebæ. Sputum negative for tubercle bacilli, but showed a small amount of blood. Urine at one time showed a few red blood cells. Test meal, no free HCl, no blood, lactic acid present. Tension, systolic 128, diastolic 64. He received mixed treatment and rectal irrigations, later sodium cacodylate hypodermically. He grew steadily worse, refused to eat, refused his irrigations, and ran a slight temperature all the time. Complained of dimness of vision and eye examination on Nov. 9 showed small retinal hemorrhages. Was kept out of doors all the time. Nov. 20 was put on large doses of lactic acid bacilli. Soon after this his appetite improved, the pain in his side let up, and he felt better. Nov. 27 blood count showed hemoglobin 28 per cent.; red blood corpuscles 840,000; color index 1.7. Dec. 2 hemoglobin 40 per cent.; red blood corpuscles 1,760,000; color index 1.14; no nucleated reds. Continued to improve and on Dec. 3 was allowed up for a time. Dec. 12 hemoglobin 57 per cent.; red blood corpuscles 2,680,000; color index 1.06. He was now up and around the ward and apparently was in his third remission. Weight 158 lbs. Tension systolic, 120, diastolic 56. No ataxia, knee jerks all right. Eyesight had not improved. Test meal showed total acid 14, no free HCl, lactic acid a trace.

An Unusual Case Presenting Features of Addison's Disease.—Dr. CHARLES E. S. WEBSTER reported this case. The patient was admitted to the medical service of Dr. Barrett on April 19, 1914. She was a housewife, 30 years of age. The history obtained was meagre. Her father died of apoplexy. The rest of her family

were alive and well. Except for an attack of measles when a child she had had no other illness until the present. She was married at the age of 23, had had no children and no miscarriages. Her present illness began six months ago with "failing health;" she noticed that she was getting thin, her appetite was poor, and she had tingling pains in her legs. Neither the patient nor her relatives knew the exact time when she began to grow darker in color. She was treated by a physician who diagnosed her case as neuritis. On admission to the hospital the physical examination showed a very marked emaciation, with abrasions on the elbows and with the entire skin being very delicate. She had a brownish discoloration of the skin, most marked in exposed areas, but not uniform. The pupils were regular, reacted to light and accommodation, and there was no strabismus or nystagmus. The roof of the mouth showed a few brownish, discrete and discolored areas of a grayish brown color. The abdominal organs were apparently normal. The extremities showed the most marked emaciation, especially the hands which seemed almost transparent. Her reflexes were exaggerated. There was no Kernig's sign and ankle clonus was elicited with difficulty. Her speech was slow and mentally she was very dull. If undisturbed the patient was never still. She would talk, laugh, sing or cry, and move about aimlessly in bed; but the skin was abraded and she had to be restrained. If questioned she would not respond. She had no delusions and no hallucinations. She was not conscious of her apparent dementia. Gradually her asthenia increased. It became more and more difficult to feed her. She at last fell into a semi-coma which deepened to coma three days before her death. Her temperature varied. The blood examination showed 4,300,000 red cells, 9,600 white cells, polymorphonuclears 64 per cent., lymphocytes 28 per cent., eosinophiles 2 per cent. The Wassermann reaction was negative. The diagnosis of Addison's disease was made without much hesitation, but there were several features in the case which seemed to demand some explanation. This was furnished by Dr. Rohdenburg who performed the autopsy. The subject was that of a sparse, emaciated female, about 45 years of age, weighing about 110 pounds. There was a moderate amount of discoloration in her flanks and about the back. There were no visible scars. The color was pale brown. The microscopical examination of the pulmonary apices showed no evidences of tuberculosis. The patient had chronic interstitial nephritis. The chief lesion of interest was that found in the adrenals. Both the right and left were found to be enlarged about twice their normal size prior to section, and studded just beneath the gland capsule with numerous small millet seed like granules. On microscopical examination these masses proved to be typical tubercles with giant cells, numerous lymphocytes and by special stains tubercle bacilli were demonstrable. Just over the Sylvian fissure there was an opaque mass beneath the meninges which was found to be attached locally by a few delicate fibrils to the meninges, the main mass being in the brain substance proper. This measured 1 x 1¼ inches and was located in the posterior temporal convolution. On section it was found to be cream colored and sharply demarcated from the surrounding normal brain tissue. The microscopical examination showed the presence of typical tubercles; no tubercles were found in the overlying brain coverings. The anatomical diagnosis was made of tuberculosis of the adrenal glands, tuberculosis of the brain, and chronic interstitial nephritis.

Report of a Case of Osteitis Deformans.—Dr. HENRY C. THACHER reported this case and gave a lantern slide demonstration. The patient was a colored woman, 60 years old, with mild "rheumatism" of three or four years' duration; this involved the cranium, the vertebræ, the pelvis, the femur, and the tibia. Of particular note were (*a*) the abrupt involvement of the upper third of the left tibia with normal bone below and (*b*) the dense, ivory-like osteosclerosis of the femora in striking contrast to the large soft irregularly calcified bone in cranium and tibia. The latter gave *x*-ray plates strikingly similar to pictures of lues. They frequently found extreme arteriosclerosis was present. The Wassermann reaction was negative.

Some Recent Work on Cardiovascular Disease.—Dr. LOUIS F. BISHOP presented this communication. (See page 173.)

Election of Officers.—*Chairman*, Dr. T. Stuart Hart; *Secretary*, Dr. Nellis B. Foster.

State Medical Licensing Boards.

STATE BOARD OF EXAMINATION QUESTIONS.

NEW YORK STATE BOARD OF MEDICAL EXAMINERS.

May, 1914.

(*Continued from page* 126.)

OBSTETRICS AND GYNECOLOGY.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. Give the mechanism of labor in the right occipito-posterior presentation.
2. What is meant by (*a*) internal podalic version, (*b*) bipolar version?
3. What is the preventive treatment of post partum hemorrhage?
4. How would you guard against injury to the soft parts in the second stage of labor?
5. What care should be given the patient during the immediate puerperium?
6. Describe the obstetric forceps and give the indications for their use.
7. Give the technique of vaginal cesarean section.
8. What is meant by Bandl's (constricting) rings?
9. Give the mechanism of labor in the left occipito-posterior presentation.
10. Define version. Give the management of breech extraction.
11. Describe the manner of using the forceps in delivery.
12. What conditions that may occur during pregnancy are due to toxemia?

PATHOLOGY.

Candidates must answer questions 1, 2, and 3.

1. Describe a method of preparing a portion of a tumor for making sections for microscopic examination.
2. Describe the gross anatomy of the lung in the various stages in lobar (croupous) pneumonia.
3. What is meant by serum sickness or anaphylaxis?

Candidates must answer two of the following questions, but no more.

4. Describe the blood in lymphatic leucemia.
5. Differentiate the varieties of pneumonia.
6. What diseases are associated with a change in the thyroid secretion?

ANSWERS.

OBSTETRICS AND GYNECOLOGY.

1. *Mechanism of R. O. P. Position.* "1. Flexion. 2. Descent, as in anterior position of the occiput. 3. Rotation. In the large majority of cases (96 per cent.) the occiput rotates all the way round to the symphysis pubis. In doing so it passes the right acetabulum, but it no sooner reaches this point than it becomes practically and in reality a right anterior position, and the rest of the mechanism is precisely the same as that for the R. O. A. position. In the small minority of cases (4 per cent.) the occiput, instead of rotating forward, rotates backward to the sacrum, and the forehead comes to the pubes. Then follows, 4, extension, which takes place, not upward toward the mons Veneris, but the occiput escapes over the perineum, and is depressed outside of it downward and backward toward the anus, while forehead, nose, mouth, and chin, successively emerge under the pubic arch. 5. Restitution. By internal rotation of the shoulders, one goes to pubes, the other to sacrum, and the occiput rolls around to the right thigh (the thigh corresponding to the sacroiliac synchondrosis at which it orginally presented."—(King's *Manual of Obstetrics.*)

2. *Internal podalic version* is that form of podalic version in which one hand is introduced into the uterine cavity.

Bipolar version is that form of cephalic version in which the position of the fetus is altered by pressure on both poles of the fetal ellipse, one hand of the obstetrician being placed on the abdominal surface of the mother, and the other in the vagina.

3. *Preventive treatment of postpartum hemorrhage.* "This must be addressed to the uterine retraction. The uterus should be watched, with the hand continuously on the abdomen, from the birth of the child and for at

least a half hour after the placenta is delivered. Care should be taken that no fragment of placenta is left in the uterus. Friction may be used if required to provoke normal contractions. Too early resort to Credé's manipulation may cause imperfect separation of the placenta, and produce hemorrhage from partial separation of the placenta. In persistent inertia, ergotole 5ss, and pituitrin (1-3 decigrams) injected hypodermically, and repeated, p. r. n., is a valuable prophylactic. It is often indicated after chloroform anesthesia, and in all conditions which predispose to hemorrhage. It is a wise precaution to give ergot on birth of the head when there is reason to fear postpartum hemorrhage. It is the abuse, not the proper use, of ergot that has brought it into disrepute in certain quarters."—(Polak's *Manual of Obstetrics.*)

4. *To protect the perineum:* The patient should be restrained from bearing down unduly; extension of the head must be retarded, and the central part of the occiput must be allowed to be born first; pressure must be made with the hand between the coccyx and the anus; when the perineum has had time to stretch, extension and expulsion are allowed; after the birth of the head care must be taken to see that the perineum is not torn by the birth of the shoulders.

5. *Care of mother during puerperium:* "*During the first week* the patient keeps the bed, but after the first few hours she has considerable license. She may assume the sitting or half-sitting posture to take her meals and to nurse the baby, and, if necessary, for evacuation of the bladder and rectum. She should assume the lateroprone posture both right and left, several times a day, and lie upon her abdomen for at least an hour daily. Frequent change of position favors uterine drainage and massages the uterine supports. *During the second week* she has greater liberty, while the greater part of her time is spent on the bed or lounge. She may sit up for her meals, to urinate, and for bowel movements, and she should spend at least half an hour, twice daily, in abdominal and leg exercises to keep up her muscular tone. *The third week* she may be moved to a chair for a part of the day, having the liberty of the room. After sitting up for any length of time she should be instructed to take the genupectoral position before lying down. Prescribed exercises for the legs and abdominal muscles are to be taken daily. *The fourth week*, if all goes well, she may leave the room and have the benefits of air and sun. Physical exercises should be continued. The duration of the lying-in period and the degree of freedom to be given the patient after the second week must, however, depend on the character and amount of the lochia, the general progress of her convalescence, and the rate of the uterine involution."—(Polak's *Obstetrics.*)

6. "*The obstetric forceps* is an instrument devised for grasping the fetal head in difficut labor and by traction aiding its exit. There are two varieties—namely, the simple, including the short and the long, and the axis-traction forceps. A *short* forceps is one in which the blades of the instrument are attached directly to the handles without the intervention of a shank; it possesses the cranial or cephalic curve only—that is, the outward bulging of the blades by which its accurate adaptation to the fetal head may be accomplished; this curve should be the arc of a circle, the radius of which is about 4½ inches. The *long* forceps is one in which a shank is placed between the handles and the blades for the purpose of adding length to the instrument. It has, in addition to the cephalic the pelvic curve, or upward turning of the blade, corresponding to the curve of the parturient canal. By an *axis-traction* forceps is meant a variety of long obstetric forceps in which, by an appliance or supplementary handle attached to the under surface of the blades, the traction-force is exerted in the line of the axis of the parturient canal, and, therefore, rendered more effective, while at the same time it is reduced to a minimum. Traction is effected entirely by the supplementary and not by the primary handles."—(Dorland's *Obstetrics.*)

Indications for the use of forceps are: "1. *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault:* Moderate narrowing 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault:* A. Dystocia due to (*a*) occipitoposterior, (*b*) mentoanterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 3. *Accidental complications:* Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both."—(From Jewett's *Practice of Obstetrics.*)

7. *Vaginal cesarean section:* "An intramuscular injection of ergot may be given shortly before operation. In primiparæ room is obtained by a right lateral vaginoperineal incision. The field is exposed by retractors. The cervix is drawn well forward with two traction forceps, one caught in each lateral aspect of the anterior lip. The anterior vaginal wall is incised longitudinally from a little behind the urethra to the anterior lip of the cervix. The bladder is detached from the uterus as in vaginal hysterectomy. If required, the anterior vaginal wall may be separated from the bladder. The bladder is held up with a suitable retractor passed beneath the pubic arch. The anterior uterine wall is split in a sagittal direction from the lower border of the cervix to a point above the internal os, a distance of about 6 to 10 cm. The single anterior incision affords sufficient space for the extraction of the child up to the eighth month. A posterior uterine incision also is required in full term deliveries. The amniotic sac at once protrudes. Membranes are ruptured and child extracted, generally by version, or, when the head is fixed or can be engaged, by forceps. The placenta is removed and the uterus firmly packed with gauze until the sutures are placed. The uterine incisions are closed with sutures. The vaginal and perineal incisions are sutured, a drain of gauze or rubber tissue being left between cervix and bladder. The drain is removed in 24 hours.—(Polak's *Obstetrics.*)

8. *Bandl's constricting ring* is a line of demarcation between the thickened upper uterine segment and the thinned lower uterine segment; it is developed during the first stage of labor, and is clearly defined during a pain.

9. *Mechanism of L. O. P. position.* 1. Flexion. 2. Descent. 3. Rotation, in the majority of cases all the way round to the symphysis pubis (when, on reaching left acetabulum, it, of course, becomes converted into a L. O. A. position); in the minority of cases backward rotation of occiput to sacrum. 4. Extension of occiput downward and backward over perineum, while forehead, nose, and chin, successively escape under pubic arch. 5. Restitution, internally of shoulders, right one to pubes, left to coccyx; externally of occiput to left thigh (thigh corresponding to the sacroiliac synchondrosis at which it originally presented).—(King's *Obstetrics.*)

10. *Version* is a maneuver by which some part of the fetus other than that originally presenting is brought down to the superior strait of the pelvis.

BREECH EXTRACTION: "*First stage.*—Keep the patient in bed and at rest, so as to preserve the membranes as long as possible. Warn the relatives of the risk to the child. *Second stage.*—Prepare warm towels to wrap around the child's body and limbs, and a warm bath, and everything likely to be required for the treatment of asphyxia. Allow the breech to be born without hurrying it. Support the perineum as in a vertex case. As soon as the body is born as far as the umbilicus, draw down a loop of the cord, at the same time maneuvering it to the corner of the pelvis, where it is least likely to be compressed. This loop by its pulsations is an index of how it is faring with the child. Wrap the limbs and trunk in a warm towel, and hold them slightly towards the mother's abdomen so as to aid the lateral flexion of the body. At the same time exert suprapubic pressure upon the fundus, which aids expulsion and promotes flexion. When the elbows appear the hands may be gently disengaged with the finger. Meantime carefully watch the pulsations of the cord. Provided it is beating regularly and the child is not making convulsive movements, there is no need for anxiety. Wait for the next pain and with the aid of suprapubic pressure expel the head in a fully flexed attitude. *Extraction of the head.*—If the head be delayed more than a few minutes after the birth of the trunk as far as the umbilicus, it will almost certainly require to be artificially aided. The two best methods of doing this are (1) the Prague seizure, and (2) the Mauriceau-Smellie-Veit grip. Both are designed to extract while at the same time promoting flexion. Therefore aid the latter by making the nurse or assistant exert suprapubic pressure while the extraction is being performed. Either method is more easily performed if the mother is in the cross-bed position on her back. This position can only be maintained by the aid of assistants, but if such aid is available it

is often desirable to place the mother in this position as soon as the breech reaches the vulva. Anesthesia is also required. *Prague seizure.*—Seize the feet and legs by one hand and carry them well forward between the mother's thighs. Place the first and second fingers of the other hand over the child's shoulders to steady the head. Pull upon the legs in a direction at right angles to the mother's abdomen. This forces the occiput against the pubes and so increases flexion, while it also effects extraction, which is controlled by the fingers over the shoulders. In a primipara this method may require such force that the head comes out with a suddenness that causes severe tearing of the perineum. In these cases the second method is perhaps better. *Mauriceau-Smellie-Veit Grip.*—Place the child astride upon the left forearm, and slip the two first fingers of the left hand into the vagina and apply them to the superior maxilla on each side of the nose. With these fingers try to draw down the chin and nose, and so promote flexion. At the same time the two first fingers of the right hand are passed over the shoulders and traction made by them in an upward direction. An alternative is to pass the left forefinger into the mouth, but this is apt to cause injury to the jaw.—(Johnstone's *Midwifery.*)

11. *Manner of using forceps:* "They should not be used when the os is undilated, when the head is not engaged, except in placenta prævia, when the membranes are unruptured, when the disproportion between the child's head and the parturient canal is too great, or in impossible positions and presentations. Before applying the instruments they should be sterilized, preferably by boiling; and the patient anesthetized and placed in the lithotomy position. Two fingers of the right hand are introduced into the vagina; the left blade of the forceps is then held almost perpendicularly by the left hand, with the tip of the blade opposite the vulva; the tip is introduced into the vagina, passed along the floor toward the sacrum. The blade is rotated outward in its long axis in order to escape the promontory of the sacrum. The right blade is introduced in a similar manner. To facilitate locking, one of the blades must be rotated forward. If the head occupies the right oblique diameter, as in L. O. A. and R. O. P. positions, the right blade must be rotated; if it occupies the left oblique diameter, the left blade must be rotated. Traction is made in the direction of the pelvic axis until the perineum is well distended. The perineum is then protected by one hand, while the face is swept over it by an upward movement of the forceps. In posterior positions it is necessary to remove the instruments after the head is drawn down to the pelvic floor; after anterior rotation is secured they may be reapplied. If the occiput rotates into the hollow of the sacrum the hands should be depressed as the face is swept out under the symphysis pubis."—(*Pocket Cyclopedia.*)

12. "The important signs and symptoms of the toxemia of early pregnancy are those indicated by disturbances in digestion and assimilation, an altered state of the blood, and as a result nausea and vomiting, persisting throughout the patient's waking hours. Accompanying this is great prostration, loss of appetite, a heavy lethargic sleep, later giving place to unpleasant dreams and restlessness, the failure to retain anything upon the stomach, obstinate constipation, and substernal pain extending from the epigastrium. The pulse is rapid and grows progressively weak, respiration is sluggish, and as the disease progresses the matter ejected from the bowel contains an abundance of disintegrated blood cells which resemble coffee-grounds. The urine is diminished greatly in quantity, with high specific gravity, frequently albuminous, and often contains epithelial or granular casts. The nitrogen partition shows greatly lessened urea with corresponding increase in creatin and creatinin, the rest nitrogen is increased, and indican is present. Casts of various sorts are often found. As the disease progresses the patient in some cases becomes greatly emaciated, in others there is considerable deposit of fat, the action of the heart is progressively rapid and weak, frequently becoming thready and irregular. The mouth and gums become covered with sordes, the odor about the patient is offensive, and the skin is in places the site of a purpuric or hemorrhagic condition." (Davis's *Manual of Obstetrics.*) Later on eclampsia may ensue.

PATHOLOGY.

1. "Place in 95 per cent. or absolute alcohol for 24 hours; then in ether and 95 per cent. or absolute alcohol (equal parts) for 24 hours; then in thin celloidin for from 24 hours to 1 or more weeks; then in thick celloidin for from 24 hours to 1 or more weeks; then mount on blocks of vulcanized fiber; dry for 1 or 2 minutes in the air; then harden the celloidin in 80 per cent. alcohol for from 6 to 24 hours." (*Cyclopedia of Medicine and Surgery.*)

2. ACUTE LOBAR PNEUMONIA. "It is convenient to describe four stages, those, namely, of (1) hyperemia or engorgement, (2) red hepatization, (3) gray hepatization, and (4) resolution. *First stage or splenization.*—The lung is injected, dark red, and heavy, and pits under the finger; on pressure, there exudes a frothy serum tinged with blood and slightly aërated. The lung still floats in water. *Second stage or red hepatization.*—The part involved is solid and friable, presents a granular or red granite appearance, and sinks in water. The alveoli are filled with a coagulated exudation, which shows under the microscope fibrin, leucocytes, red corpuscles, proliferated alveolar epithelium, and pneumococci. *Third stage or gray hepatization.*—The lobe has now the appearance of gray granite, the lung substance is softer and more friable; on pressure, a dirty purulent fluid exudes. The gray appearance is due to four factors: (1) Decolorization of the red blood corpuscles; (2) obliteration of the alveolar blood vessels from pressure; (3) fatty degeneration of the coagulated material; (4) great infiltration of leucocytes. A more advanced stage, in which the lung tissue is bathed in purulent fluid, is known as purulent infiltration. It is probably inconsistent with life. *Fourth stage or resolution.*—Resolution of the inflammatory exudation is brought about principally by absorption (autolysis), but partly by liquefaction and expectoration. Pneumonia may affect a lobe, or the whole of a lung, or it may attack both lungs. Double pneumonia occurs in about 10 per cent. of cases. Different parts of the same lung may at the same time show different stages. There is always some degree of pleural inflammation over the affected area. Modern enlargement of the spleen is very common." (Wheeler and Jack's *Handbook of Medicine.*)

3. *Serum sickness* is the name given to a series of symptoms (fever, skin, eruption, swollen joints, edema, enlargement of glands) occurring about eight or ten days after the injection of a serum.

4. In *lymphatic leucemia* the blood shows a decided leucocytosis, about 90 per cent. being lymphocytes, the proportion of polynuclears is much reduced; there are no myelocytes, and there may be a few nucleated red corpuscles; the red cells may be slightly diminished, the hemoglobin is diminished.

5. For *lobar pneumonia*, see QUESTION 2.

Bronchopneumonia: "The disease affects both lungs, and begins in the terminal bronchioles, spreading thence to the infundibula and alveoli. The consolidated patches have therefore a lobular arrangement, but if many adjacent lobules are affected the consolidation may be almost lobar. The bronchioles are inflamed and frequently plugged with mucus, and their walls and the surrounding interstitial tissue are infiltrated with small cells. The walls of the air vesicles in the consolidated area are congested, their epithelium is swollen, and their lumen is filled with proliferated epithelial cells, leucocytes, and a mucous or mucopurulent (not fibrinous) exudate. Many lobules are collapsed, but not inflamed, from plugging of the bronchioles. When cut into, the small consolidated areas are seen to be conical in shape, with their bases towards the pleura, reddish in color, with indefinite margins, and separated from each other by crepitant lung tissue. Adjacent lobules may be emphysematous (compensatory emphysema). The bluish-gray collapsed areas are most numerous in the lower lobes."—(Wheeler and Jack.)

Chronic interstitial pneumonia. "The overgrowth of interstitial connective tissue produces the following changes: 1. Encroachment upon and subsequent obliteration of the air vesicles. 2. Changes in the bronchial tubes, their muscular coats being replaced by fibrous tissue. The tubes subsequently yield to intrapulmonary traction, and form bronchiectatic cavities. 3. Obliterative changes in the smaller pulmonary and bronchial blood-vessels. The lung as a whole is shrunken, often enormously, airless, and hard. The opposite lung is emphysematous, and the right ventricle is hypertrophied."—(Wheeler and Jack's *Handbook of Medicine.*)

6. Absence of thyroid secretion causes cretinism; *diminution* of it causes myxedema; *increase* of it causes exophthalmic goiter.

(To be concluded.)

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 6.
Whole No. 2309.

New York, February 6, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

FURTHER OBSERVATIONS ON THE TREATMENT OF SCIATICA BY PERINEURAL INFILTRATION WITH PHYSIOLOGICAL SALINE SOLUTION.*

By WILLIAM M. LESZYNSKY, M.D.,

NEW YORK.

ATTENDING NEUROLOGIST AT THE LEBANON HOSPITAL; CONSULTING NEUROLOGIST TO THE HARLEM HOSPITAL; AND CHRIST HOSPITAL, JERSEY CITY.

In a paper published in the New York Medical Record of February 17, 1912, I reported twenty-five cases of sciatica treated by perineural infiltration with physiological saline solution. Since that time I have adopted this procedure in one hundred and thirty-five additional cases. The number of injections required for the individual case varied from one to six, but averaged three injections for each patient. Thus, about four hundred and eighty injections have been given in one hundred and sixty cases.

Complications or unpleasant symptoms have never been encountered. Under proper technique and strict asepsis it is a harmless operation. As a result of this larger experience, I must reiterate the statement made nearly three years ago, that "perineural infiltration of normal saline solution at the sciatic nerve, when properly performed, proves a valuable acquisition in relieving the pain of sciatica whether acute or chronic."

Several patients have not reacted satisfactorily, or have not given the plan an adequate trial, but they have been the exceptions. From one to six injections are required to secure permanent relief. In numerous instances one or two injections have sufficed. I do not recommend this treatment in every case, for many patients are often relieved and recover under the customary therapeutic procedures. In subacute and chronic intractable cases, however, it has proved, in my experience, the most satisfactory addition to our therapeutic armamentarium that has yet been devised. While this method has been cursorily mentioned by several writers within the last few years, it has not received the recognition that its importance demands. Constitutional treatment must not be neglected, and after relief is obtained from the injections it is often necessary to utilize supplementary measures in order to prevent a recurrence.

It is not my intention to enter upon a general discussion of the subject of sciatica. Many of us have long been familiar with the fact that the diagnosis of "sciatica" is often carelessly made from the patient's statement as to the location of the pain, and without the necessary physical examination. Rectal and pelvic investigation are essential in every case. A common source of error is the failure to recognize the presence of hip-joint or pelvic disease, or involvement of the sacroiliac joint. In some instances the possibility of spinal cord tumor should be considered. In over 75 per cent. of the cases sciatic perineuritis was assumed to exist, as the characteristic symptoms were present in varying degree, *i.e.* pain and tenderness at the sciatic notch and over the nerve trunk, pain on extension of the leg with the thigh at a right angle with the abdomen, and diminution or loss of the Achilles reflex. This type of sciatica seems to be most amenable, and reacts more rapidly and satisfactorily to this mode of treatment. In the case of a young woman with severe pain and paralysis in the sciatic distribution of five weeks' duration, due to pressure from a large pelvic abscess, one injection produced relief for twenty-four hours. The patient stated that it was the first night of freedom from pain that she had experienced in several weeks. It is hardly necessary to mention that suitable surgical measures were promptly instituted.

In reply to numerous inquiries, and for the information of those unfamiliar with the subject, extracts from my previous paper with a description of the technique will be in order.

This method was first brought to the attention of the medical profession in 1907 by Dr. J. Lange of Leipsic in an article read before the Congress for Internal Medicine held at Wiesbaden. The procedure consists in the injection of a large quantity of fluid under pressure directly over the sciatic nerve. Lange claimed that the favorable results obtained were entirely due to the mechanical action of the fluid in loosening, stretching, or breaking up adhesions in the neighborhood of the nerve. But, in view of the fact that I have repeatedly produced prompt and permanent relief from pain in acute or very recent cases, such favorable results must have been due either to blocking of sensory conductivity, or to the pressure and absorption of the fluid producing changes in the circulation and nutrition of the perineural structures. In acute cases it would be too early to assume the presence of adhesions. Lange originally used a solution containing beta-eucaine, but I have found it unnecessary, as the saline solution alone proves adequate and in every way satisfactory.

The technique is as follows: During the application of the treatment the patient should lie on the abdomen with the legs fully extended, and the feet projecting beyond the edge of the table. A firm pillow is rolled and placed under the lower part of the abdomen in order to favor relaxation of the gluteal muscles. For the purpose of locating the nerve the following measurements are made: A line is drawn from the sacrococcygeal articulation to the postero-external border of the great

*Read at a meeting of the Medical Society of the County of New York, December 28, 1914.

trochanter; at the junction of the inner one-third and the outer two-thirds of this line is found the spine of the ischium. One inch to the outer side of this point we locate the point of puncture. An area of the skin about 4 cm. in diameter is then painted with iodine, the point of puncture being in the center. The syringe used is all metal, holding 60 c.c. (2 ounces). It has a slip tip which allows the needle to fit the barrel directly. The needle is of steel, 12 cm. long, with a caliber of 2 mm., and provided with a sharp point, which is protected by a dull-tipped stylet projecting 1 mm. beyond the point of the needle. In puncturing the skin and subcutaneous tissue, the stylet is withdrawn beyond the cutting edge. It is then replaced, and the needle pushed in perpendicularly. When the sciatic nerve is reached, at a depth ranging from 6 to 12 cm., the patient may feel either a sharp pain radiating from the point of contact to the popliteal space or down to the foot; or, a sharp pain in the corresponding heel; or, there may occur a jerking movement of the leg; or, a sudden twitch in the calf muscles. Some patients complain only of diffuse pain in the buttock. The stylet is then removed. The syringe having been filled with sterile physiological saline solution at a temperature between 95° and 100° F., the fluid is rapidly injected. The quantity used is from 80 to 120 c.c. The needle is then quickly withdrawn, the iodine washed off with alcohol, some collodion applied over the point of puncture, and this is covered with a small strip of sterile adhesive plaster. The patient is then instructed to lie abed and rest for twelve to twenty-four hours. No anesthetic is required. Strict aseptic precautions are absolutely essential. Soon after the injection, some aching pain with a sensation of heaviness and numbness in the limb usually follows, but this lasts only a short time. In some cases the sciatic pain in the thigh disappears within twenty-four hours, but the patient complains of pain continuing in the leg in the course of the peroneal nerve. This is often promptly relieved by an injection of 15 to 30 cc. in the region of the nerve at the head of the fibula. The interval following the first injection, before another is given, will vary according to the degree of relief obtained. I have been in the habit of waiting from thirty-six hours to one week before repeating the injection.

As a rule, the injection of saline solution under pressure, in quantities ranging from 60 to 120 c.c. or more, is attended with comparatively slight pain. This usually arises during the early period of the injection. As soon as heaviness and numbness in the extremity are felt, no further pain results from the introduction of additional fluid. In the majority of instances the treatment is not painful. At the time of the first injection fear and apprehension often render some patients less manageable than others. Usually, when additional injections are required, these elements of discomfort have become eliminated, and there is no further difficulty. It should be borne in mind that our object is to produce infiltration of the nerve and the surrounding structures. It is not intended that the nerve sheath should be entered by the needle. Should such a large quantity of fluid be forced into the trunk of the nerve disagreeable consequences, such as paralysis and traumatic neuritis, would probably ensue. In the construction and use of the special needle precautions are taken to avoid puncturing a blood vessel or the nerve sheath.

Case I.—My first case treated by this method in March 1911, presented a striking illustration of its beneficial effect. The patient was a man forty years of age who had suffered from sciatica for one year. Many drugs and external applications had been unsuccessfully utilized at the various clinics and at home. He had been in the general medical service of the hospital for six weeks without improvement, during which time he had been confined to bed, unable to move without great pain. Immediately after one injection, he walked from the operating room back to his bed, a distance of one hundred feet. The relief from pain was prompt, improvement in his general condition was rapid, and in the course of ten days he walked out of the hospital perfectly well. He remained free from pain for nearly two years, and then disappeared from observation.

The following cases, selected from a large number, will serve to further illustrate the value of this plan of treatment.

Case II.—Mrs. S., thirty-three years of age. Pain in the entire course of the right sciatic nerve of six months' duration. In the beginning, various lines of treatment had been tried, and subsequently a long splint was applied and retained in position for three weeks, and she was kept in bed for five weeks. An epidural injection had also been given without benefit. In all, some temporary relief was obtained, but she rapidly became worse. At the time of my first examination on May 8, 1913, there were tenderness and pain with radiation on pressure at the sciatic notch, over the course of the nerve in the thigh, and at the head of the fibula. Extreme pain on hyperextension of the extremity. Achilles reflex feeble.

May 10, injection of 120 c.c. This was followed by some pain during the night at the site of the injection.

May 11. The pain has disappeared, and she is able to stand and walk without any difficulty.

May 14. Remains free from spontaneous pain, although some pain is produced by deep pressure over the nerve. No pain on hyperextension. Injection of 120 c.c.

May 23. Slight pain in the leg below the knee. Injection of 110 c.c. at sciatic notch and 20 c.c. over the peroneal nerve.

June 4. Still has some slight tenderness at notch, and slight pain on hyperextension. Injection of 60 c.c., at notch, and 10 c.c., at the peroneal nerve.

Between the first and last injection, she was always able to walk about, slept well, and frequently travelled from Long Island to New York without discomfort. No further treatment was required, and she has remained well up to the present time. In all, four deep injections were given within a period of four weeks.

Case III.—Mrs. G., forty years of age, examined in January 1912. She had three mild attacks of sciatica at varying intervals for several years. Present attack is of three months' duration, and she has been confined to her room, either in bed or on a lounge all of this time. She complains of pain in the left lumbar region and in the entire course of the left sciatic nerve, and is unable to stoop without pain. There is a spastic scoliosis, with slight general muscular atrophy of the left lower extremity. There are exquisitely tender points with radiation of pain in the entire course of the nerve, over the left lumbar region, and at the sciatic notch. Extreme pain on hyperextension of the extremity. The knee-jerk is exaggerated. No ankle clonus. Achilles reflex feeble. Rectal examination reveals tenderness and pain on pressure in the neighborhood of the nerve below the pyriformis muscle. On February 2, 1912, she received the first injection of 90 c.c.

Feb. 16. The sharp pains had subsided within twenty-four hours after the first injection, but pain on hyperextension is still present although very much diminished. Injection of 100 c.c.

Feb. 21. Very much improved. During the last two weeks she has been able to walk about her room unassisted. Injection 100 c.c.

March 8. Only slight pain in the distribution of the peroneal nerve. She has resumed her household duties, and goes out walking daily, which necessitates going down and up four flights of stairs. Injection of 10 c.c. at the peroneal nerve. She has since remained free from pain, and made a complete recovery. In all, three injections were given, extending over a period of about four weeks.

Case IV.—B. R., age 43, tailor, admitted to the Lebanon Hospital January 24, 1913. Right sciatica.

Duration one year. He is unable to walk or stoop without extreme pain. Pain on hyperextension of right lower extremity. Tenderness and pain over the lumbar branches of the right sciatic nerve, at the sciatic notch, and over the course of the nerve. Achilles reflex absent. Injection of 110 c.c.. Within twenty minutes he was able to walk back to bed unassisted. He had some slight pain during the night. The following day he was free from pain, and was able to walk about and perform all movements of back and extremity without pain. He was discharged cured three days later without further treatment.

This is a typical history of many similar cases in which only one injection was required. Many others could be cited, but their repetition and similarity as to symptomatology would prove monotonous. In my neurological service at the Lebanon Hospital this treatment of sciatica has been a routine measure during the last few years. It has been a very common experience for me to see men with sciatica, who have been incapacitated for several months without securing adequate relief from the usual forms of treatment, rapidly relieved of pain and restored to activity by this method.

The assumption that sciatic pain is always a symptom either of arthritis at the hip or sacroiliac joint, or of pelvic disease, or that sciatic perineuritis is a nonentity, and that all cases of so-called sciatica are due to hip-joint disease as claimed by a recent Brtish writer, Dr. William Bruce, depends entirely upon the viewpoint of the observer and the type of cases he is accustomed to treat, especially among those appearing at an orthopedic clinic or hospital. The now well-established fact, based upon the clinical experience described in this paper, is adequate refuation of the unwarranted and preposterous statements just mentioned.

In the one hundred and sixty cases herein reported, there was no evidence of joint or pelvic involvement, and the correctness of the diagnosis was beyond doubt. The fact that many of these patients were rapidly and permanently cured by a single injection in the neighborhood of the painful sciatic nerve, is ample evidence of the affection being limited to that circumscribed area.

In conclusion it may be said that sciatica, whether a symptomatic neuralgia or the result of a perineuritis is admittedly a very intractable and painful affection often persisting for months or longer. After a large experience with all of the available and conventional remedies, the method herein described has proved, in my hands, the most valuable therapeutic acquisition developed within recent years. From an economic standpoint, it is superior to many other forms of treatment, inasmuch as in the majority of instances it rapidly relieves the pain, and the sufferer is soon enabled to return to his customary vocation.

145 West Seventy-seventh Street.

TREATMENT OF SCIATICA BY EPIDURAL INJECTION OF SALINE SOLUTION.*

By ISRAEL STRAUSS, M.D.,

NEW YORK.

(From the Neurological Service of the Mount Sinai Hospital.)

Cathelin of France was the first to suggest the introduction of drugs into the epidural space. He made a thorough anatomical study of this space, of its relations, and its blood supply. He found that it contains, in addition to nerve roots and fat, a richly vascular venous plexus, which facilitates the rapid absorption of drugs.

The epidural space in an adult begins at the lower edge of the first sacral vertebra, where the dura ends. It extends down to the sacrococcygeal articulation. At this level the injections are made. There are certain landmarks by which this opening, the foramen sacrale superius, may be identified. It lies at the end of the crest made by the spines of the sacrum. It has the shape of an inverted V or U, and is about 1 cm. wide and from 1½ to 2 cm. in length. It is bordered laterally by two prominences, the cristæ sacrales laterales, which are usually easily felt by the finger. The opening is covered by a dense fibrous ligament, the ligamentum sacrococcygeum. The opening lies generally 2 cm. above the end of the gluteal fold.

Technique.—The needle which is used for the injection should be about 8 cm. in length and about 1 mm. in caliber. It must be firm, or else it is apt to be broken when forced through the ligament. It is to be inserted to a depth of 6 cm. to reach the second sacral vertebra.

If possible, place the patient in the knee-chest position in order more easily to locate the landmarks. If this cannot be done because of pain, insert the needle while the patient lies on the side with the knees and the thighs flexed. In the latter position the landmarks are not so easily discerned and the gluteal fold usually points above the foramen. It may be difficult, if not impossible, to enter the epidural space of very stout persons, especially of stout women.

It has been my custom to anesthetize with novocaine the skin and tissue overlying the foramen and the ligament. In doing this one must be careful not to cause much swelling, which might obliterate the landmarks. After pushing the needle through the skin considerable resistance is met at the ligament. Once this resistance is overcome the needle glides into the epidural space. If the patient is in the knee-chest posture the needle is inserted into the ligament at an angle of twenty degrees with the body. After it has passed through the ligament the needle is held so that it is horizontal to the body. Before injecting, it is well to be certain that neither veins nor dura have been pierced. If only saline solution be used no harm would be done if either of these structures be pierced.

The injection consists of warm sterile physiological saline solution. To the first 10 or 20 c.c of saline is added 0.3 of novocaine with suprarenin, and a few minutes are allowed to elapse after their injection to obtain the full benefit of their anesthetic effect. In all 60 to 80 c.c. of solution are injected at a time. This is a larger quantity than has been used by others, but I find it acts well and does no harm. I have injected as much as 130 c.c., but such an amount is unnecessary. Occasionally when large amounts are injected a swelling develops along the outer border of the sacrum, which is apparently due to the fluid escaping along the nerves through the intervertebral foramina.

I have shown that this occurs by radiographs of epidural injections of collargol. In fact, Cathelin injected mercurial preparations in order to reach the nerve roots. The procedure, if carried out as outlined, is accompanied by very little pain and the patient merely complains of an uncomfortable pressure in his lower spine. Occasionally he may have a sensation of sharp, shooting pain down the affected leg at the beginning of the injection.

*Read at a meeting of the Medical Society of the County of New York, December 28, 1914.

If no novocaine is used, and some have used merely saline solution, there may be some pain for about one hour after the injection. More or less complete anesthesia of one or both extremities has occasionally followed the injection, lasting not longer than forty-eight hours. In one case the knee-jerk disappeared after the injection. No injury to the nerves has been reported following an epidural injection. This cannot be said of the perineural injection of the sciatic nerve.

Type of Case Injected.—On the service of Dr. Sachs we have not treated acute cases of sciatica by this method. These have generally yielded promptly to rest in bed, to the constant application of a large flaxseed poultice, and to the administration of 40 or 50 grains of aspirin or 80 grains of novaspirin daily. Epidural injections have been practised in subacute and chronic cases.

Nineteen cases have been treated and thirty-six injections have been made. The duration of the sciatica was as follows: Five had suffered for one month, one for two months, seven for from three to nine months, and two had had recurrent attacks lasting over a period of two years.

Eight of the cases received one injection, nine received two injections, and two had three injections. One of these was a very marked case of sciatica scoliotica in the service of Dr. Manges, which was cured by two injections. Some of the patients had sensory disturbances and changes in the reflexes, which indicated radiculitis, a condition to which later reference will be made.

The most difficult cases to cure are those complaining of pain in the outer aspect of the leg and foot. One bedridden case of radiculitis due to secondary involvement of the nerve roots in a disease of the sacroiliac synchondrosis was so relieved of his sciatic pain that he was able to submit to the fixation of his leg and pelvis by a plaster cast.

The procedure has been of benefit in diagnosis. In two cases we have been able to exclude sciatic nerve disease by the failure of the injection to give relief and the subsequent course of the disease substantiated our diagnosis.

Rationale of the Treatment.—I confess that I am somewhat at a loss to explain the *modus operandi* of the injection. We are in the same position as regards the effect of the perineural injection. We are ignorant of the pathology of sciatica. Hence any theory about the action of the fluid must be pure speculation. We are accustomed to divide sciatica into two classes: sciatic neuralgia and sciatic neuritis. Cases of the first variety present no clinical symptoms pointing to nerve inflammation, except possibly tenderness along the course of the nerve. Those of the second variety present changes in the reflexes, changes in the sensation and motion, and even changes in the muscles.

In recent years Déjerine and his school have proved that many of these cases are due to a neuritis of the nerve roots forming the sciatic nerve. They have applied the term radiculitis to this class of cases. The diagnosis is based upon the fact that the distribution of the hypesthesia or the hyperesthesia is of a root character. This has probably been overlooked by us, especially in the milder cases. Careful clinical examinations will undoubtedly prove that many cases of sciatica are cases of radiculitis. If this is so, it would give additional support to the plan of treating "sciatic neuralgia" by epidural injections.

116 West Fifty-ninth Street.

MEXICAN TYPHUS FEVER.

By HENRY C. MICHIE, JR., B.S., M.D.,
CAPTAIN, MEDICAL CORPS, U. S. ARMY.

Definition. — An acute infectious disease of unknown origin, and transmitted by the body louse during the febrile stage. Characterized clinically by a sudden onset of severe pain in the head, neck, and limbs, continuous temperature for twelve to fourteen days, ending by crisis, and the pathognomonic typhus rash. Characterized pathologically as a hemorrhagic septicemia.

History.—Ancient History.—Typhus fever has been known to man since the days of Hyppocrates, who applied the term to a mental state characterized by stupor. However, not until 1829 was it recognized as a distinct disease, when it was so differentiated by Gerhard. At that time it was more common and caused more deaths than typhoid fever, the disease wherewith it was often confused. In the early days, its appearance in prisons and the maritime business was of the gravest importance.

The modern history dates back to about 1881, when the blood was looked upon as containing the virus; at this time Klebs described a bacillus, and Mott a micrococcus-like body. In 1892, Calmet clamed to have found a flagellated body; in 1893, Brühl a diplococcus, and in 1903, Gottschlich described a babesia as the cause of typhus. Also in 1903, Krunpecker described inclusion-bodies as probably being associated with the specific etiology. We owe the first data of great importance to Nicollé, Comte, and Consier, who in 1909 reported the successful transmission of typhus from monkey to monkey by the bite of the body louse (*Pediculus vestimenti*). This method of transmission was confirmed in 1910 and 1911 by Ricketts and Wilde, and by Anderson and Goldberger, working independently in Mexico City. They successfully passed the virus from monkey to monkey, man to monkey, and from man to peon, by this means.

The specificity was further proven by the sad instance of the late H. T. Ricketts—a master worker and martyr to science—who lost his life from typhus while investigating the disease in Mexico City, after being bitten by an infected body louse, while incubating them in a test tube under his arm.

Etiology.—Geographical Distribution. Mexican typhus fever does not occur in low altitudes, as, for example, that of Vera Cruz, a sea-level port, but may be found in any locality in Mexico having an altitude of 2,000 feet and over. It also occurs in some lower altitudes during the colder months. This is accounted for by the breeding characteristics of the body louse, which does not live in warm climates. Typhus is endemic in the great central plateau of Mexico, and the cities of greatest importance to Americans are Jalapa, Orizaba, Cordova, Mexico City, Puebla, Chihuahua, Pauchuca, Toluca, Zacatecas, San Luis Potosí, Guadalajara, Guanajuato, Aguascalientes, Torreon, and Parrel. The disease is reported present in these cities from time to time, and in Mexico City at present. In some of these cities typhus occurs the year round. In Mexico City there were over six hundred cases reported during one month of 1910.

Zoological Distribution. Typhus has not been found to occur naturally in any lower animal, neither have infected insects been found in nature. Certain species of monkeys, and also guinea pigs, have been infected by blood transfers.

Race. Local physicians say that foreigners are

most susceptible, and have a higher death rate than the natives, as well.

Age, sex, habits, and occupation play no part other than increasing or diminishing the liability of exposure to infected lice.

Climate and season. In colder climates, higher altitudes, and during the colder months of the year, typhus is endemic over a large area in Mexico. The greatest number of cases occur between October and March, but, as before stated, there are some places in which typhus is present the year round, as for instance Mexico City. At an altitude of two thousand feet this disease may be expected anywhere in the Republic; it is encountered over the entire grand central plateau, and in some of the cities of lower altitudes typhus occurs only in the cold months. This peculiarity has its explanation in the breeding characteristics of the body louse.

Heredity and Immunity. The former plays no part in the spread of typhus fever, as there is no such thing as hereditary typhus. Immunity is conferred by one attack, and I have been unable to find a case on record where there has been a recurrence of the disease. The organism (?) is present in the blood during the febrile period, and not longer than two days after the temperature falls to normal, therefore there are no chronic human carriers.

Transmission. It has been well recognized since 1910, that typhus fever is transmitted by the bite of infected body lice. The louse itself becomes infected by feeding on patients suffering from this disease, during the febrile period. At present, this is the only way known in which the louse becomes infected. The insect probably remains infectious through its entire natural life, but Anderson and Goldberger have proven that eggs of infected adults do not contain the virus, therefore adults do not transmit the infection to their progeny, as is the case with the tick (*Dermacentor venustus*) of Rocky Mountain spotted fever, where infected adults transmit the virus through the entire life cycle. This is an important epidemiological factor to be considered in dealing with these two diseases. Salivary glands of the louse contain the virus, but pharyngeal secretions of patients are negative; it is also believed, that the urine and feces are negative, as in Rocky Mountain spotted fever, a disease which typhus closely resembles.

The flea (*Pulex irritans*), bedbug (*Cimex lectularius*), and house fly (*Musca domestica*) do not transmit typhus, and it is improbable that either biting flies or mosquitoes play any part in the transmission.

The virus is present in the blood of patients suffering from typhus from the first appearance of fever until the crisis, and it may be present for thirty-six hours thereafter. This has been proven by blood transfers into susceptible lower animals, and even into peons from infected patients.

Lice. (Genus, Pediculi; suborder, Parasita; order, Hemiptera; class, Insecta.) The insects are parasitic during their entire metamorphosis. There are three species that occur on man, namely, the head louse (*Pediculus capitis*), the eggs of which are small, white, hard, and torpedo-shaped, with one end cut off; and are commonly known as "nits." These "nits" are cemented to the hair by a powerful glue, and can be removed only with great difficulty. The adults are found crawling on the scalp; their presence may be suspected if the scalp shows irritation, especially if hemorrhagic spots, marking bitten areas are found, and if "nits" are seen on the hair. They can be most easily found with a fine toothed comb, but care must be exercised not to mistake bits of dandruff or empty shells for "nits." Anderson and Goldberg have proven that this parasite can transmit typhus, having accomplished this transfer from monkey to monkey; but judging from its wide distribution and great chances of changing hosts, as well as being very common in localities where typhus is unknown, it is not probable that the head louse is a usual carrier of the disease.

The body louse (*Pediculus vestimenti*) is the insect that disseminates typhus fever, after feeding on a patient that is suffering from the disease. No naturally infected lice have been found in nature, and it is not known just exactly how this disease is perpetuated. Eggs of the body louse are laid in the seams of clothing, and the parasites are most commonly found there too. They migrate to the body in order to feed by engorging with blood, leaving the bitten site marked by a hemorrhagic spot. These spots are commonly seen on the back, neck, and abdomen.

The body louse does not breed in high temperatures, as for example in Vera Cruz, and that accounts for the absence of typhus in that city. For experimental work, lice are kept at a temperature between 16° and 20° C. between feedings, or else they die; this fact was the cause of the failure of the early experiments. As one ascends from the sea level into higher altitudes, lice are encountered, and it is there in Mexico that the dangers of typhus commence.

The crab louse (*Pediculus pubis*), the third and last species of this genus, is much the smaller of the three species, and occurs most commonly on the pubis, but also on other parts of the body, where there are short, stout hairs, as the axillæ, eyebrows, and chest. It is probably the most widely distributed member of the pediculi, and is apparently uninfluenced by changes in the atmospheric temperature. The eggs, as those of *Pediculus capitis*, are cemented to hairs, and the adults are found either with their heads embedded, or crawling free on the skin. There is no record of experimental transmission of typhus by the crab louse, but since the other two species act as a biological carrier, it is not improbable that the *Pediculus pubis* may act in a similar manner.

Lice are parasitic during their entire existence, feeding intermittently and solely on blood. They remain closely attached, and do not change their host readily as some of the more active parasites do, for example the flea. However, changes are made by contact and through change of wearing apparel. Pediculi are flat, elongated, wingless insects, with a small head, and three pairs of short stout legs, each leg ending in a strong claw. The proboscis is short and strong; it contains a stylet which is divided into three parts, adapted for piercing the skin, injecting an irritating fluid to cause hyperemia, and for sucking up the blood. Structurally the insect is divided into head, thorax, and abdomen; all of the legs are attached to the thorax. Lice usually move sidewise, and do not travel far. This is an important factor, as it reduces the spread of lice from person to person. The females are larger and more common; each female lays about twenty eggs at a time, which hatch in from six to fifteen days; the young are paler in color, but otherwise resemble adults in structure. They molt their skin about four times before maturing, feeding between molts. There are several generations each year,

depending on the temperature, but the life cycle has not yet been thoroughly worked out.

Adults are easily destroyed, but the eggs are very resistant. If a head is badly infested, it is best to clip the hair short and throw it into the fire, wash the scalp well with cocculus indicus, or kerosene and olive oil in equal parts. One application is usually enough to destroy the parasites.

A complete change of clothing and a general bath with a 1:1000 solution of bichloride of mercury is best for the *Pediculi vestimenti.* Immediate action must be taken to destroy the parasites and eggs remaining in the clothing, which is best done by boiling where means are available.

The crab louse can be destroyed by a kerosene sponge and inunction of blue ointment.

The louse acts as a biological carrier of typhus, requiring about eight days after engorging with infected blood before being able to inoculate a nonimmune. When placed upon man, if ready to feed, will readily attach and engorge with blood.

Specific Cause.—No specific cause has been found, but by immunity and cross immunity tests not only has the specificity of the disease been established, but Mexican typhus, old world typhus, and "Brill's disease," have been shown to be due to the same cause, the strain only differing in virulence. In view of the fact that a part of the cycle (?) is passed in man, and part in an invertebrate, requiring a definite time, it seems most probable that the specific cause is a protozoon.

Many things have been described as the cause of typhus, the latest body described is a pleomorphic bacillus, 0.9-1.93 x 0.2-0.6 M., described by Harry Plotz of New York, in the *Journal of the American Medical Association*, 1914, in which he claims to have recovered this organism in eleven out of twelve cases of "Brill's disease" and typhus. He further claims to have produced the disease in guinea-pigs by intraperitoneal inoculation with this bacillus, recovered it again, and obtained positive complement fixation tests after the crisis. From the description given, this bacillus resembles the Ricketts' bacillus, described by the late H. T. Ricketts, in 1909, while investigating Rocky Mountain spotted fever in Montana; later on he stated that this bacillus occurs in the blood of any case of hemorrhagic septicemia.

Pathology.—A body dead of typhus will show an early decomposition and late rigor mortis. The skin eruption remains after death, much accentuated on the back, neck, and legs—the dependent parts—where the eruption becomes confluent, forming large areas. This is due to the stagnation and poor aeration of the blood before death; these spots are of a dark blue hue. In very severe cases there is but little emaciation, due to insufficient time, but is marked in milder cases, where the illness is of longer duration.

The pathology is characteristic of a severe hemorrhagic septicemia, the venous side is engorged; the lymph nodes, liver, spleen, and kidneys are enlarged and hemorrhagic. The meninges show irritation and the lungs are edematous but show no consolidation. Myocardial degeneration, due to toxemia, sometimes occurs. The blood is dark and time of coagulation increased, leucocytosis, 18,000 to 50,000, with polymorphonuclears 90 per cent., large mononuclears and lymphocytes decreased, and eosinophiles often absent. The red blood corpuscles and their hemoglobin are increased.

The virus is present in the blood from the second day to not longer than thirty-six hours after the crisis. Up to the present it has refused to grow on culture media, and is not destroyed by freezing for a week. A temperature of 55° C. for fifteen minutes will destroy the virus. Anderson and Goldberger state that the virus will pass through a Berkefeld filter at some stages, but not at others, which indicates a change in the morphology. They do not state the size filter or the length of time used in endeavoring to pass it through. This is important, as for example the spirocheta pallida will pass through if left in a No. "N" Berkefeld filter for twenty-four hours. Macerated bodies of infected lice in physiological salt solution, when injected into a nonimmune, produce the disease; this is not true with macerated eggs of infected adults. The point of destruction of the organism by the maceration is not considered.

Gangrene of the fingers, toes, nose, and possibly the scrotum, occasionally occurs in cases where the virus is virulent, and the patient lives into the second or third week. The exact cause of this gangrene is not known.

Signs and Symptoms.—These vary from year to year with the severity of the epidemic, which also varies, being in some instances so mild as to require laboratory findings to differentiate it from a mild attack of typhoid, while in others quite severe, causing death before the characteristic eruption appears. Between these two extremes there are varying degrees, and it is in this intermediate class that the largest number of cases occurs.

For study, the disease can be divided into three stages, (1) Stage of invasion; (2) Stage of eruption; (3) Stage of reaction or decline.

1. Stage of Invasion.—After an incubation period of ten or twelve days the disease is ushered in rapidly with a chill, high temperature, severe headache, and pain in the neck, back, and legs. The bowels are constipated, respiration and pulse increased; the pulse is bounding but not dicrotic. There is an early prostration, and the patient takes to bed very soon. Bronchial irritation and conjunctivitis are common, also nausea and vomiting. The face is flushed, and the temperature rises rapidly to 104° F., with but limited remissions. Meningeal irritation develops early, and is manifested by headache and early delirium. There is leucocytosis with increase in polymorphonuclears; absence of eosinophiles is an unfavorable sign. These findings increase until about the fourth day, when the eruption appears. Early albuminuria is a concomitant sign.

2. Stage of Eruption.—Reckoning from the first appearance of fever the typhus eruption develops about the fourth day; first on the chest and abdomen, spreading from here over the entire body, except the face, palms, and soles. There is an irregular, deeply seated, subcuticular mottling, not disappearing on pressure, and a papulo-rose spot eruption, somewhat resembling measles. The latter becomes hemorrhagic (petechial) by the second day, and does not disappear after death. As the disease advances, these petechiæ often coalesce on dependent portions of the body, forming large, dark, dusky lesions (ecchymosis) not affected by pressure.

The temperature ranges from 103° to 106°, with but slight morning remissions. The brain symptoms become more marked, muttering delirium, carphology, and subsultus tendinum often give way to stupor. The body presents a dusky appearance, and characteristically so about the mouth; this is due

to the dark color of the blood. The pulse becomes more rapid, and the bowels and bladder act involuntarily. The leukocytosis increases, sometimes reaching as high as fifty thousand.

3. Stage of Reaction or Decline.—This is marked by a crisis, which occurs between the twelfth and fourteenth day, usually at an early morning hour, and is attended by the usual signs and symptoms of a crisis. On the afternoon of the same day the temperature will rise again to about 103°, only to be followed next day by a drop to normal, and to remain so. Following, the general condition improves, and convalescence commences; this latter takes about two to four weeks. No relapses are reported, and generally the patient makes a complete recovery.

Should the crisis not occur by the fourteenth day, the condition should be looked upon as very serious; pseudo-crisis is reported occurring in many fatal cases. In these precarious cases the crisis does not occur, the general condition becomes worse, the pulse becomes weak and rapid, and the two heart sounds are alike. The amount of urine is decreased, and the percentage of albumin increased, suppression is not uncommon in these cases. The eruption is profuse, blood dark, temperature high, and there is leukocytosis with absence of eosinophiles. Urine and feces are passed involuntarily, the skin is dusky, hematogenous jaundice appears (first seen in the conjunctiva), edema of the lungs, accumulation of mucus in the pharynx, profound stupor, and the patient dies of toxemia. In very severe infections the patient may succumb in the first four days, in others, between the tenth and fifteenth day. Gangrene of the fingers, toes, nose, and possibly of the scrotum sometimes develops shortly before death.

Treatment.—There is no specific treatment for typhus fever. Immune sera and vaccination are of no practical value. The symptomatic and dietetic treatments consist in resting the patient in bed on liquid diet, keeping the bowels open by the use of purgatives and enemata, hydrotherapy for the temperature and headache, cardiac stimulants in the advanced stages, if the heart begins to fag; whisky, digitalis, and camphor are probably the best. If strychnine is used, it must be repeated often enough to keep up the stimulation after it has once been started, using about one-thirtieth of a grain every four hours.

The writer believes sodium citrate in full doses, or the Sternberg yellow fever treatment, would be beneficial. The latter consists of sodium bicarbonate, 150 grains, mercury perchloride, one-third of one grain, and two pints of water. Of this solution 1½ ounce is given every hour. The amount of water taken should be pushed to the limit, probably best in the form of lemonade, to increase the elimination of toxins.

Salvarsan has been used in the treatment of typhus with varying results.

Prognosis.—This depends on the severity of the epidemic, and resistance and age of the patient. The number of recoveries is much greater in children, and the mortality is in direct proportion to the age. In mild epidemics the mortality is estimated at 5 to 20 per cent.; in the severe from 30 to 50 per cent. The mortality is also reported to be higher among foreigners.

Unfavorable signs are absence of eosinophiles, severe petechiæ, gangrene, lung signs, tendency to suppression, jaundice, and facial cyanosis. The increase of eosinophiles and large mononuclear leukocytes are favorable signs. Death has been reported on the second or third day in malignant cases; positive diagnosis would be very difficult or impossible in these cases without blood transfers into susceptible animals.

Sequelae.—Bronchopneumonia, nephritis, meningitis, and gangrene of the fingers, toes, nose, and possibly scrotum, are reported as being the most common complications and sequelae.

Prophylaxis.—For a long time typhus has been associated with dirt and filth. Many years ago Hirsch said that "the history of typhus is the history of human wretchedness." The prevention of this disease can be summed up in these few words: avoidance of being bitten by infected lice. Prevention may be carried out in the following manner:

1. Cleanliness of the body and linen.

2. Avoidance of native shacks, washerwomen, and association with dirty people in infected zones.

3. If infested, prompt and radical means for the extermination of the insects should be instituted.

4. Thorough inspection of all cases in typhus localities, regardless of their condition before admission to hospital.

5. Scrupulous cleanliness in hospitals, with frequent inspections to the end of preventing lice from gaining headway in the building.

6. In case lice are found, all linen should be boiled, the wards fumigated with hydrocyanic acid or dioxide, and the heads and bodies of the patients examined.

7. If it becomes necessary to enter infected places, the person should not touch the bed, sit down, or lay down his hat or coat; he should step quickly, roll up the bottoms of the trousers, and search his clothing for lice after leaving the building.

8. When a typhus case is admitted to the hospital, the patient must be most carefully examined for lice before being admitted to the ward. He should be placed in a bed most positively free from lice, and as an additional precaution, covered with a mosquito bar tucked in around the mattress.

9. Should typhus develop in a command, a thorough search for the louse should be instituted immediately, examining as many of the troops as necessary, especially those men who were in intimate contact with the patient. If thought advisable, the contacts should be quarantined in a pediculus free place during the incubation period.

10. Entering buildings, wherever possible, in typhus bearing localities should be avoided. If buildings must be used, new ones should be selected. The number of cases would be greatly reduced, however, by using buildings as new as can be found, and by thoroughly renovating them before being occupied.

At present there is no tangible reason for considering the crab louse in connection with the transmission of typhus, but the other two species of this genus doubtlessly transmit it, and the association of the *Pediculus vestimenti* with the disease has been conclusively established. Every precaution must be taken to prevent the introduction of these insects into places where troops are quartered. The following illustration gives a clear example of the specificity of typhus, being transmitted by the louse. Belem Jail, the city prison of Mexico City, which is overcrowded with filthy, lousy criminals, and shelters tens of thousands of infected lice, is one of the principal sources of infection in that district. Throwing lice, not necessarily infected, upon the clothing or into the pockets of innocent victims, as a practical joke, is not unknown there. On the other

hand, the government penitentiary, a model prison, under up-to-date sanitation, has never produced a case of typhus fever.

In view of the fact that infected lice do not transmit the virus to their eggs, and that the virus is not present in the blood of patients, once the temperature becomes normal, there must be some other carrier of typhus than man and louse. Is it not possible that typhus exists in a chronic state in some lower animal, and is accidentally transmitted to man through the bite of the louse or some other insect?

In preparing this article the following works have been consulted: "Practice of Medicine," Osler; "Tropical Diseases," Chalmers and Castellini; "Public Health Bulletins," U. S. Public Health Service; "Publications" of Ricketts and Wilde; letters about typhus received, in response to inquiries, from many doctors in Mexico, for which I wish especially to thank Drs. Prestly and Goodman of Mexico City, and Dr. Hoskins of Pachuca. From reading the available literature on typhus and having been experimentally associated with Rocky Mountain spotted fever in Montana, several additional suggestions were added to what has already been written on the disease.

THE DANGER OF DELAY IN THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION IN INFANCY.

By EDWARD W. PETERSON, A.M., M.D., F.A.C.S.,
NEW YORK.

It took years of educational efforts to place the treatment of appendicitis upon a purely surgical basis. To-day there is a general condemnation if a patient with appendicitis is allowed to die without surgical treatment. Acute intussusception is far more dangerous to life than appendicitis and, theoretically at least, belongs exclusively to the surgical field. Experience in this disease forces one to recognize the hopelessness of expectant treatment and the relative futility of all aerohydrostatic measures.

In intussusception, the clinical picture is more constant and unvarying, and the symptoms are more uniform and characteristic than in any other type of intestinal obstruction. In spite of this, no class of cases is more often unrecognized and more habitually mismanaged and maltreated. Because of failure to make a diagnosis or delay in the recognition and treatment, the mortality in this disease is disgracefully high. The figures would probably be better if spontaneous disinvagination had never occurred and if no case had ever recovered after sloughing of the intussusceptum. It is unfortunate, too, that hydrostatic pressure and gas or air inflation succeed in a limited number of cases, for such measures are often persisted in until the time for a successful operation has passed. It is not the purpose of this paper to decry aerohydrostatic treatment, but rather to emphasize its limitations. Ladd collected 216 cases treated in this manner, with failure in 81 per cent. Clubbe, in 173 cases, was able to reduce the invagination in but sixteen instances.

Mortality.—Leichenstern, in a study of 557 cases of intussusception, places the mortality at 73 per cent., and during the first year of life at 88 per cent. Kock and Orrum, in a study of 400 Danish cases, give the mortality in the first year of life at 60 per cent.

J. S. Stone[1] reported the cases of intussusception treated surgically in the Children's Hospital, Boston, for the four years previous to the publication of his paper. There were 8 cases, with 7 deaths and 1 recovery.

In the Infants' Hospital, Boston, from 1898 to 1908, there were 8 cases, with 7 deaths and 1 recovery.

Codman[2] states that in the Massachusetts General Hospital, from 1897 to 1907, there were 11 cases in infants, with 9 deaths; 1 operative recovery in a patient who succumbed four weeks later when operated upon for hernia; and 1 recovery in a case of doubtful diagnosis.

Ladd[3] reports 20 cases operated upon by J. S. Stone and himself in the Children's Hospital, Boston, during the past four and a half years, with 9 deaths and 11 recoveries.

Francis Allen[4] reviews 27 cases occurring in the Children's Hospital, Philadelphia. There were 16 deaths and 11 recoveries.

Erdmann has operated upon over fifty cases of intussusception, with highly successful results, but his statistics are not available.

In the Post-Graduate Hospital, Babies' Wards, there have been admitted during the past ten years 32 cases of intussusception—29 in infants and 3 in older children. Of these 32 cases subjected to operation, 16 died and 16 recovered. Through the kindness and courtesy of Dr. Samuel Lloyd, on whose service the patients were admitted, the author had personal charge of the 19 cases whose histories appear in the accompanying charts. The patients ranged in age from six days to thirteen months. All were breast-fed, healthy, well-nourished infants, with one exception (No. XII, Esther B., Group I). In the physical examination an abdominal tumor was palpated in every instance. The invagination—unless stated otherwise—was in the ileocecal region. Every case seen within 48 hours of the onset of symptoms was saved by laparotomy. In several instances the symptoms had lasted even longer in patients who recovered. The fatal cases were all brought in late and, for the most part, were considered hopeless, but none was refused operation.

These statistics seem bad, but if we seek a reason the answer is simple—namely, failure or delay in the diagnosis, or improper treatment, or procrastination in advising surgical measures. In many of our own cases, it was only after the failure of medical treatment and mechanical measures to reduce the invagination that the patients, as a last resort, were sent to the hospital for operation. The fault rarely rests with the family in refusing operation, but lies with the physician who fails to realize his responsibility in the care of this peculiarly serious affection.

In a study of this disease the most striking point is the wide difference between the mortality in the early and in the late operations. The statistics of greatest interest are those giving the time of treatment (either surgical or otherwise) after the onset of symptoms; and almost invariably one is impressed with the fact that "cured" cases were diagnosticated and treated early. Cases recognized and treated during the first twenty-four hours give a mortality in experienced hands of not over 10 per cent. Cases treated after two days have passed, with but few exceptions, have but little chance of recovery.

Clubbe's work in intussusception,[5] quoted in many recent articles, should be an inspiration to every pediatric surgeon. He treated 173 cases, 16 of which were successfully reduced by enema. Of the

GROUP I—MANUAL REDUCTION OF INVAGINATION.

Name	Date	Age	Diet	Duration Illness	Condition on Admission to Hospital	Treatment	Condition After Operation	Results	Remarks
1. Elsie M	June 2, 1905	8 mos.	Breast	About 48 hours	Fairly good.	Laparotomy. Easy reduction of ileocecal intussusception. Appendix removed	Slight shock. Quick recovery. Very little secondary enteritis.	Cured. Discharged on seventh day.	Reported in MEDICAL RECORD Sept. 12, 1908.
2. Michael L.	May 31, 1906	12 mos.	Breast	3 days	Very toxic. Temp. 104. Pulse 136. Prognosis bad.	Laparotomy andeasy reduction.	Pronounced toxemia. Temperature 105.4.	Died 9 hours after operation.	
3. George B.	Sept. 16, 1907	5 mos.	Breast	3 days	Poor condition.	Laparotomy. Very difficult reduction. Serous coat tore in several places.	Profound shock and toxemia. Vomiting persistent. Temp. 107.8. Symptoms gradually cleared up.	Cured.	Reported in MEDICAL RECORD Sept. 12, 1908.
4. Samuel S.	Feb. 1, 1909	8 mos.	Breast	24 hours	Good condition. Between paroxysms seems normal. Temp. 100.	Laparotomy. Easy reduction of ileocecal invagination.	Moderate toxemia. Temperature 104.	Cured.	Convalescence uneventful.
5. Ethel G.	Feb. 24, 1910	11 mos.	Breast	About 36 hours	Fair condition. Temperature 101.8. Pulse 132.	Laparotomy. Moderately difficult reduction of entero-enterocolic intussusception.	Very little shock. Toxemia not marked. Temperature 103.4. Pulse 144.	Cured.	Double intussusception, commencing about 4 inches above ileocecal valve.
6. Joseph H.	Apr. 5, 1910	6 mos.	Breast	3 days	Prognosis bad. Very toxic. Temperature 104. Pulse 150.	Laparotomy. Difficult reduction.	Profound shock and toxemia.	Convulsions and death 5 hours later.	
7. Yelnick B.	July 1, 1910	7 mos.	Breast	5 days	Moribund. Pulse could not be counted. Temp. 107.6. Typical history cardinal symptoms, tumor easily felt.	Child lived less than an hour after admission. No treatment.	Not operated upon.	Death.	Autopsy not allowed
8. Milton H.	July 31, 1910	13 mos.	Breast and other food	4 days	Condition fair. Temp. 102. Pulse 120. Blood ex. showed 26,000 leucocytes: 89% polymorphonuclears.	Laparotomy. Colic intussusception of descending colon and sigmoid. Easy reduction.	Moderate toxemia and enteritis. Temperature 104.8.	Cured.	
9. Portanto B.	July 24, 1911	5 mos.	Breast	4 days	Apathetic. Very toxic.	Laparotomy. Exceeding difficult reduction of ileocecal invagination.	Marked shock and toxemia. Temperature 106.	Died 7 hours later.	
10. Ida W.	July 8, 1913	4 mos.	Breast	22 hours	Apparently normal except during paroxysms of abdominal pain. Typical history characteristic symptoms.	Laparotomy. Double intussusception (entero-ileocecal). Easy reduction. Appendix removed.	But little shock. Good condition.	Cured.	Admitted 8 hours after onset, but house physician did not recognize condition. Diagnosis of "intussusception" next morning by head nurse.
11. Blanche A.	Jan. 27, 1914	7 mos.	Breast	60 hours	Condition poor. Moderate toxemia.	Laparotomy. Very difficult reduction of ileocecal intussusception. Serous coat so badly torn could not be repaired. Gut mottled maroon color.	Severe shock and toxemia. Temp. 105.6. Remained high. Pneumonia (double) on 5th day. Fecal fistula on 6th day, which discharged for several weeks. Fistula healed March 3.	Cured.	Sent from hospital long before fistula healed. Kept under observation for several months. Recovery complete.
12. Esther B.	Apr. 11, 1914	4 mos.	Breast	3 days	Poor condition.	Laparotomy. Difficult reduction. Serous coat ruptured and was repaired.	Severe shock and toxemia. Fecal fistula on 7th day.	Improved. Discharged from hospital Apr. 27. Small fistula still open.	Suddenly died 1 week after leaving hospital. 3 weeks after operation. Cause of death unknown.
13. Seymour K.	May 15, 1914	8 mos.	Breast	2 days	Good condition.	Laparotomy. Easy reduction of invagination.	Very little shock and but slight reaction.	Cured.	Discharged 1 week after operation. On day of discharge developed German measles. Recovery without complications.

157 cases operated upon, his results are as follows: In the first 50 cases 25 deaths, 25 recoveries; mortality 50 per cent. In the second 50 cases 12 deaths, 38 recoveries; mortality 25 per cent. In the third 50 cases 4 deaths, 46 recoveries; mortality 8 per cent. In the remaining 7 cases there were 7 recoveries. In fact, in his last 25 cases, treated by laparotomy, there was not a death.

Giving full credit to Mr. Clubbe for his operative skill, what then is the secret of his remarkable success? The answer is: Early diagnosis and prompt surgical treatment. In his last 50 cases, the average time from onset of symptoms until operation was but seventeen hours. After forty-eight hours, in a considerable proportion of cases, the invagination is either irreducible or gangrenous, and resection of the bowel or enterostomy is required. Where either procedure is necessary, the mortality is frightfully high. When a search of literature reveals but ten successful cases in infancy, one appreciates Barker's remark that he had never seen recovery after resection in gangrenous cases, and never expected to see it. The fact that there have been ten successful resections, however, should counteract the view of older surgeons that gangrenous or irreducible intussusceptions were to be considered as hopeless.

Age and Frequency.—Intussusception is a cause of intestinal obstruction in about 30 per cent. of cases. While it may occur at any age, it is essentially and preeminently a disease of infancy. Probably 70 per cent. of all cases occur during the first year of life.

Symptoms and Diagnosis.—As has been stated, the clinical picture is so definite and characteristic that diagnosis rarely presents any difficulties. No other serious surgical affection of the abdomen is so easily recognized. The first examination of the infant will generally reveal the condition. At such a time, disinvagination is a simple matter and at-

Group II—Cases Requiring Resection or Enterostomy.

Name	Date	Age	Diet	Duration of Illness	Condition on Admission to Hospital	Treatment	Condition After Operation	Results	Remarks
1. Ida A	Apr. 28, 1904	4^2_3 mos.	Breast	About 50 hours	Temp. 102°. Pulse 146. R. 40.	Laparotomy. Resection of gangrenous intussusception. End to end anastomosis between ileum and ascending colon.	Profound shock and toxemia; also severe secondary enteritis.	Cured.	Reported in detail in Medical Record March 5, 1905.
2. Romeo M	July 5, 1906	4 mos.	Breast	$2\frac{1}{2}$ days	Apathetic and very toxic.	Laparotomy irreducible gangrenous ileocecal invagination. Resection and end to end anastomosis.	Profound shock and toxemia from which patient never rallied.	Died 3 hour after operation.	Reported in detail in Medical Record, Sept. 12, 1908.
3. Margaret H.	July 11, 1906	5 mos.	Breast	1 week	Almost moribund. Hopeless prognosis.	Laparotomy. Irreducible intussusception. Gut ruptured when attempt at reduction made. Enterostomy to prevent death on table.	Condition temporarily improved.	Died 17 hours later.	Reported in Medical Record Sept. 12, 1908.
4. Edw. McA	July 7, 1908	3 mos.	Breast	3 days	Very toxic. Temperature 103.	Laparotomy. Double gangrenous irreducible intussusception. Resection and anastomosis.	Never reacted from shock of operation.	Died 1 hour later.	
5. Henry I.	Feb. 4, 1910	6 days	Breast	Probably from birth	In collapse. Condition hopeless.	Laparotomy. Volvulus and double irreducible intussusception. Gut ruptured. Free fluid in abdom. cavity. Resection and anastomosis.	Never rallied.	Died just after operation.	Mother admitted for acute appendicitis developing after delivery. Condition of baby overlooked.
6. Willie G	Feb. 6, 1913	6 mos.	Breast	3 days	Profoundly toxic. Fecal vomiting. In collapse.	Laparotomy. Gangrenous intussusception ruptured when reduction was attempted. Resection and lateral anastomosis.	Never rallied from shock.	Died 4 hours after operation.	

tended with little risk to the patient. Generally speaking, a healthy, well-nourished, breast-fed infant is seized suddenly with severe abdominal pain, with more or less pallor, shock, and relaxation. Vomiting usually occurs at this time. Later, there is straining, and blood and mucus appear in the stools. With this typical picture, but one other symptom is necessary to settle the diagnosis—viz., the presence of an abdominal tumor.

After the first storm of pain is over, there follows a short period of calm, during which the infant may appear perfectly well. Later, however, the pain returns, is of an intermittent, paroxysmal nature, is accompanied by rhythmic straining, but not by the pallor and shock which ushered in the initial seizure. If the patient is seen during the "calm" period, unless the history is carefully considered, the diagnosis is apt to be overlooked.

Mucohemorrhagic stools commence in from two to twelve hours after the onset of the disease. After the first movement or two the stools contain no bile or feces and flatus is not passed. Vomiting is rarely a prominent symptom until late in the disease; when it occurs early and is persistent, it is significant of strangulation of the blood supply to the bowel. Rarely is it fecal.

In every case of intussusception there is present an abdominal tumor, but it is often difficult to palpate. Early in the disease, when relaxation and flaccidity are the rule, the abdomen may be examined with ease. Later, owing to rigidity and straining, but seldom to distention, palpation is unsatisfactory unless the examination is made under anesthesia. The typical sausage-shaped tumor of the text-books has been too much emphasized. It is rarely felt early and, when present, means that the intussusception has progressed to a considerable extent. More often, a rounded mass is felt, and it may occupy any portion in the abdomen. It is generally quite movable, and may resemble an enlarged gland. Where the tumor is oblong or sausage-shaped, it is curved, with the convexity directed toward the umbilicus. The mass may be felt to contract or relax under the hand. If the tumor cannot be felt abdominally, then bimanual rectal examination should be made in every suspected case. Under anesthesia one seldom fails to discover its presence. Clubbe in an examination of 173 cases failed to find a tumor in but two instances.

In the beginning of the attack the severity of the symptoms mentioned (pain, vomiting, mucohemorrhagic stools, etc.) depend upon the degree of strangulation rather than the fact that the bowel is obstructed. Later, in addition to obstruction and strangulation, toxemia develops as a result of injury to the bowel wall (particularly the mucosa) and from decomposition of the intestinal contents. The late picture is that which occurs in every variety of acute intestinal obstruction.

Differential Diagnosis.—Differential diagnosis presents little, if any, difficulty in the intussusception of infancy. Ileocolitis (acute dysentery) and the purpuric diseases have occasionally been mistaken for intussusception. In the former, there is fever and diarrhea, with mucus and blood. The stools contain bile and feces, and flatus is passed. No abdominal tumor is present. In the purpuric diseases, which, by the way, are rare in infancy, hemorrhage from the intestine may be a symptom. Hemorrhage elsewhere, however, gives the clue to the diagnosis. It must not be forgotten, however, that intussusception may develop as a complication of these diseases. Several cases have been reported as coming on during the course of Henoch's purpura. In these cases the diagnosis rests on the finding of the characteristic tumor of the intussusception. In any doubtful case where the symptoms are not urgent, a bismuth mixture may be injected into the colon and an *x*-ray picture taken.

Treatment.—The simplest, most successful, and the only certain method of treatment in intussusception is early laparotomy, with manual reduction of the invagination. Unless recognized early and treated promptly, the result is almost always fatal.

Spontaneous reduction has been known to take place. Cases have recovered after sloughing of the intussusceptum, firm adhesions forming at the neck of the intussusicipiens. Such results, however, are never to be awaited or expected. Like strangulated hernia and fulminating appendicitis, it is a condition demanding immediate operative interference.

The operation should be performed as quickly as is consistent with safe and thorough work, for infants do not bear prolonged operations well. As three-fourths of all cases originate in the ileocecal region, the incision, with its center slightly below the level of the umbilicus, should be made through or to the outer margin of the right rectus muscle. Some operators prefer the median incision when the tumor is felt low down on the left side. In relieving the intussusception, it is best to commence at the apex of the intussusception and carefully "back up" to the point where the invagination started. If traction is made on the proximal end the gut is apt to be torn at the neck of the intussuscipiens. If gangrene has occurred, or if reduction is impossible, resection and intestinal anastomosis should be performed. In all early operations, especially where the invagination occurs in the ileocecal region, it is a good plan to remove the appendix, for it may, in certain instances, be a causative factor in the production of the obstruction.

In closing the wound, one should reinforce the layer sutures of catgut with through-and-through tension sutures, as the abdominal wall is subjected to considerable strain.

The following points should be emphasized:

1. Intussusception in infancy presents a rather uniform and characteristic picture and should be recognized without difficulty.

2. Aerohydrostatic and mechanical measures can succeed in but a limited number of cases. Such treatment is not without danger.

3. Early laparotomy, with manual reduction of the invagination, is the safest, the simplest, and the most successful method of treatment.

REFERENCES.

1. *Boston Med. and Surg. Jour.*, April, 1908.
2. *Boston Med. and Surg. Jour.*, April 2, 1908.
3. *Boston Med. and Surg. Jour.*, April 10, 1913.
4. *Annals of Surgery*, February, 1914.
5. *British Journal of Diseases of Children*, 1909.

375 West End Avenue.

DEEP ROENTGEN THERAPY AND ITS APPLICATION IN THE TREATMENT OF MALIGNANT GROWTHS.*

By SAMUEL STERN, M.D.,

NEW YORK.

RADIOTHERAPIST TO MT. SINAI HOSPITAL AND CHIEF OF THE RADIOTHERAPY DEPARTMENT, MT. SINAI HOSPITAL DISPENSARY.

The technique of the administration of Roentgen-therapy in malignancy, especially in deep seated lesions, has recently undergone such a radical modification that one may be permitted to speak of "deep Roentgen therapy" as one of the newer branches of roentgenology.

The chief modifications are based upon the following: (1) The use of aluminum filters; (2) Cross fire administration; (3) Massive doses; (4) The use of rays of a certain degree of penetration.

Taken separately, there is nothing radically new in any of the items mentioned, but carried out collectively, following a carefully worked out formula, it marks a radical departure in Roentgen therapy.

1 *Aluminum filters.*—In 1903[1] Perthes drew attention to the fact that it was possible to increase the penetration of the *x*-rays emitted from a tube, by permitting them to pass through an aluminum filter. This increase in penetration is due to the fact that the soft rays are filtered out by the aluminum, thereby materially increasing the penetrability of the remaining hard rays.

In 1904,[2] after extensive experiments, he showed that 1 mm. of aluminum absorbs approximately the same amount of rays as is absorbed by 1 cm. of animal tissue (except lung tissue) or by 1 cm. of water. These experiments probably laid the earliest foundation for deep therapy as applied to-day.

Improvements in technique gradually developed after this, but it was not until the valuable and exhaustive work done by Gauss and Lembcke[3] at the Freiburg school (published in 1912), solving the question of the thickness of filter to be used, dosage, proper degree of hardness of ray, etc., that the administration of "deep Roentgen therapy" received its most radical modifications.

The thickness of the aluminum filter that they found best adapted to treatment in deep seated lesions is 3 mm. In lesions situated nearer the surface, 1 or 2 mm. may suffice.

In addition, to avoid the secondary rays produced in the filter, it is advisable to use 3 or 4 layers of Satrap papier (thick photographic paper) and a flat loofah sponge filter, placed over the area to be treated.

2. *Cross fire administration.*—This simply means attacking the lesion from all directions. It enables us to give a larger amount of ray, by giving more skin surface to work on, and it appears to have a decidedly more powerful effect upon the lesions treated. The usual method of procedure is to divide all sides of the area to be treated into small fields of 25 to 30 sq. cm. and to treat each field in rotation.

Some men use two or even three tubes at the same time. Warnekros[4] describes a technique that he uses occasionally in the treatment of carcinoma of the uterus, where he places two tubes over the abdomen and one into the vagina, all working simultaneously.

On a recent visit to Berlin, I saw him use the double tube method, but cannot say that I was much impressed with the advantage of it. His main object to save time is defeated by the fact that the current cannot be turned on until both tubes are placed in position, and the vacuum of both tubes must be identical to have them working right. To regulate this takes time, so that whatever is saved by the combined exposure, is lost by the preliminaries.

3. *Massive doses.*—Up to a comparatively short time ago, the usual routine in *x*-ray therapy was to administer a fractional dose two or three times a week, until the patient received a certain amount, or until the first sign of a dermatitis developed. This was rather an unsatisfactory method as it was very difficult to estimate the amount of ray administered, and often the dermatitis became more severe than was anticipated, or the results were not satisfactory on account of the insufficient quantity of the ray given.

All this has been obviated by giving one carefully measured massive dose up to the degree of toleration, and then discontinuing treatment until the effect of this dose had worn off.

*Read at a meeting of the American Roentgen Ray Society, held at Cleveland in September, 1914.

The amount that can safely be administered in one treatment has increased a great deal with the use of the aluminum filters. Thus we find that by using a 3 mm. aluminum filter, and a ray of high penetration, 3 or 4 (or more) erythema doses can safely be administered without any danger of producing even a first degree dermatitis.

The amount generally administered at one sitting is about 15 to 20 X, measured under 13 mm. aluminum. This can be safely given once every three weeks, or under certain conditions oftener without any danger whatever.

The method I saw them use in abdominal malignant growths at Kroenig's clinic in Freiburg was to dissect the skin over the abdomen, stitch back the flaps, and pour in rays *ad libitum* over the dissected area. The amount that could be administered this way without producing any dermatitis is almost incredible.

I saw them give a patient with a uterine carcinoma, daily treatments for weeks, each treatment amounting to what would ordinarily measure up to at least 10 erythema doses, without any visible signs of injury. We also find that certain tissues possess a wonderful tolerance for almost any amount of *x*-rays without showing any injury. Thus, for instance, the mucous membrane of the vagina will tolerate any amount of hard filtered rays.

By carefully protecting the outside area, one can give through the vagina daily treatments, lasting for hours each time, continued indefinitely for weeks, without producing even the slightest dermatitis.

In fact, the only thing that seems to limit the amount of rays that can be given this way, is the time at the operator's disposal, and the length of time the patient can stand the discomfort of the position.

Warnekros[4] at Bumm's clinic in Berlin claims that by the use of a transformer manufactured by the Veifa-Werke, in connection with a water spray tube, so called "maximum tube," which gives a very large percentage of hard rays, he is enabled to increase greatly the amount of his dosage, over any skin area, without producing any injurious effect.

He administers over each area treated in eight succeeding days, an amount equal to about 350 X measured under 3 mm. of aluminum. At the end of this time a slight dermatitis develops which generally disappears in about one week, without giving the patient the slightest discomfort. I saw him use this tube and apparatus and was much impressed by the large quantity of ray that it produces.

In quality it did not seem to differ from the rays we got from the "Müller rapid," or the "penetrans tube," but evidently there must be a difference because no skin would tolerate the dosage from these tubes that he advocates to be given with the "Maximum tube."

I experimented with an American made spray tube, built on the same principle as the Maximum tube, but found that it did not possess any advantage over the "penetrans tube" whatever.

I might say a word about the method of measuring the dosage in deep therapy: We have no accurate means of measuring the dosage at present. All our methods are merely comparative. The one mostly used is by means of Kienbock strips placed upon the skin. We know that 10 X without a filter constitutes an erythema dose, and this has been our standard. But we find that by using 1, 2 or 3 mm. aluminum filters we can give the equivalent of 20, 30, 40, or even more X (as measured without a filter), without producing an erythema, so that if 10 X does not mean an erythema dose, and 20 X does not mean two erythema doses, then X has no real significance.

The ordinary Kienbock scale and strips as manufactured, cannot measure above 10 X. To obviate this, a scale has been devised by Gauss to measure higher dosages up to 25 X. This scale can be used only when the ray is measured under 13 mm. aluminum and the tube used is pumped to 9½ to 10 Wehnelt. With a lower tube the amount registered would be too small and with a higher tube too great.

In discussing this question with Kienbock I found that he disclaims all responsibility for the scale and considers it not very accurate.

Nevertheless it is probably at present the best method we have, although merely comparative, and answers the purpose of getting some idea as to the amount of ray given.

The solution of the problem will be to determine the amount of ray necessary to produce an erythema with 1, 2 or 3 mm. filter, and to construct scales on these standards.

4. *The Use of Rays of a certain Degree of Penetration.*—The degree of penetration that has been found probably most advantageous in deep therapy is from 8½ to 9 Bauer (12¾ to 13½ Wehnelt). Anything below this does not possess a sufficient quantity of hard rays to produce the best effects.

There seems to be a limit to the hardness of the ray that can be used to advantage in therapy. I think this is due to the fact that probably the most powerful therapeutic effects are produced by the rays which are absorbed by the tissues we aim to affect. So that extremely hard rays which penetrate the tissues very rapidly, and are absorbed by them but to a slight degree, will produce very little change in the tissues through which they travel.

This is purely an hypothesis, and probably is not endorsed by some of our best Roentgenologists, but nevertheless I have found in my experience that extremely hard rays which measure above the Bauer scale do not appear to possess much therapeutic value.

Although I have seen Kienbock work with tubes which he calls over-hardened tubes, which are so hard that sparks are continually playing around the tube and which cannot give more than 2 or 2½ Ma. even with the strongest current passed through them.

As to the results accomplished with deep therapy in the treatment of malignant growths, there is no question that they have been decidedly more satisfactory since we have adopted the technique which I previously described.

Despite the advances we have made in this subject, it still holds good that no operable cases of deep seated malignant growths should be treated with *x*-ray, except where patients refuse to be operated upon. The treatment is still reserved for inoperable cases, for recurrences, and for prophylactic treatments following operation.

The scope of this paper does not permit me to go into any detailed history of the cases I have treated. As a matter of fact, I do not think that detailed histories of cases cured, improved, etc., have any other than statistical value, for there seems to be some individual, intangible something which practically puts each case into a class by itself.

The result of fourteen years' work with Roentgen-therapy and the treatment of hundreds of cases of deep seated malignant growths, treated in hospital and private practice force me to the conclusion that there is some at present unrecognizable difference in apparently identical cases, which determines the degree to which they will respond to *x*-ray treatment. This difference is irrespective of microscopical findings, tissues involved, condition of patient, etc.—although it probably has some bearing upon the degree of malignancy that we cannot recognize at present. I am sure that most of you have come to similar conclusions. I have seen a case of recurrent adenocarcinoma of the uterus entirely disappear under treatment, where the next apparently identical case showed very little improvement under the same treatment.

I have seen a case of carcinoma, involving the left nares and antrum entirely disappear and remain well up to date (4½ years), where other similar cases did not respond.

A case of epithelioma of the tongue with glandular envolvement, is perfectly well to-day, almost five years after treatment, where other apparently identical conditions showed practically no response whatever.

One might go on and cite these cases indefinitely.

At any rate, while we sometimes get extremely satisfactory results in the treatment of deep seated malignant growths, we are still in no position to make definite promises at the beginning of treatment, as to the probable termination of any case.

The fact that we occasionally get brilliant results in the form of cures, very often improvement in symptoms, in the alleviation of pain and prolongation of life, I think is sufficient to justify our demand that all cases of inoperable and recurrent malignant growths should be given the benefit of this chance, before they are given up as absolutely hopeless.

Especially until the advances in medicine have produced something that offers more hope.

Combined Treatment.—Roentgen therapy in malignancy is very frequently combined with other allied methods of treatment, such as radium, mesothorium, etc. This is too wide a field for me to enter upon in this paper, besides it is only a short time ago that I published the results of my observations on this question.[5]

But I might mention a few words in connection with the combination of injections of various Colloidal metals with Roentgen therapy.

Probably the most important of these is the combination devised by Czerny and Werner at Heidelberg, under the name of "enzytol."

This is a combination of borate of cholin in connection with colloidal selenium and vanadium. It is given in the form of daily injections and is always given in combination with Roentgen-ray treatments. It makes the tissues much more susceptible to radioactive treatment, and in addition has the facility of absorbing the rays and carrying them through the circulation to the metastases.

The injections are given as follows: Begin with 2 c.c. of a 10 per cent. solution to 18 c.c. of a physiological saline solution. This is done for 2 or 3 days, when the dose is increased to 3 c.c. in 17 c.c. of saline solution. Three days later it is increased to 4 c.c. in 16 c.c. of saline solution.

This is continued daily for about three weeks, or until the patients complain of a great deal of weakness. It is then discontinued for three weeks and repeated again. Injections must be given very slowly. During the injections the patients suddenly develop symptoms of congestion, salivation, lacrymation, and nausea, but this only lasts from one-half to one minute. In carcinoma of the bladder the enzytol is injected through a catheter, 10 c.c. of a 10 per cent. solution to 50 c.c. of saline.

If veins cannot be found for intravenous injections, the solution may be injected into the gluteal muscles. For this purpose they use 4 to 5 c.c. of the 10 per cent. solution undiluted. In prophylactic treatments after operations, they also combine enzytol injections with roentgen ray.

They think that with the combined method their results are decidedly better, especially in malignant growths involving the digestive tract.

I have been using enzytol for the past few months, but my experience with it is entirely too limited to justify my drawing any conclusions.

Prophylactic Treatment.—The postoperative *x*-ray treatment of malignancy, with the object of reducing the chances of recurrences, is developing into one of the most important branches of deep Roentgen-therapy.

During the limited length of time, since it has been carefully and systematically carried out, it has been shown that it unquestionably diminishes the percentage of post operative recurrences.

It should be used in every case, following all operations for malignancy, no matter how radical and thorough the operation was, and how little chance there appears to be of recurrence.

No matter how carefully a surgeon operates, it is impossible for him to know that some small, almost invisible affected gland has not escaped his attention. It is these small foci which develop and are generally the source of future trouble.

We know the powerful effect the ray has upon glandular tissue, and we can readily understand how a thorough course of raying would help to keep the development of these glands in abeyance.

Prophylactic treatments to be efficient must be thorough, systematic, and persisted with for a period of at least three years. Perhaps the best routine is to begin treatment about 10 to 14 days after operation.

The first four series are given at intervals of four weeks, followed by treatments given every six weeks during the balance of the first year. The second year every eight weeks, and the third year every three months. The area to be irradiated is divided into small fields and each field is given about 15 X of hard, filtered rays, measured under 13 mm. of aluminum.

In carcinoma mammæ, we must be sure to include the entire surface, beginning laterally from the outer margin of the sternum to a line drawn with the outer border of the axilla, and longitudinally from the diaphragm up to and including the supraclavicular space.

Considering that the treatment is not accompanied by any danger whatever, and that the length of time between treatments is so long that it does not entail much hardship upon the patient, I feel that it is high time that the surgeon should be made to realize that his responsibility does not end with the operation and that he has been derelict in his duty in not advising his patients to have the operation followed by a course of prophylactic raying. They are most assuredly entitled to that additional chance.

Unfortunately, the average surgeon is a believer

in his knife only, and has but little faith in any other method of treatment. He operates again and again on a patient and will only relinquish them for other methods of treatment when they have reached the final stages of their illness. This is a grave error; there is no doubt whatever that if these patients were referred to us shortly after operation we would be in a position to do a great deal more for them.

REFERENCES.

1. Perthes: *Archiv. für Klinische Chirurgie*, Bd. LXXI, Heft 4.
2. Perthes: Fortschritte auf dem Gebiete der Röntgenstrahben, Bd. VIII.
3. Gauss and Lembcke: Röntgen Tiefentherapie, Urban & Schwarzenberg, Berlin, 1912.
4. Warnekros: *Berliner klinische Wochenschrift*, 1914, No. 5.
5. Stern: The present status of the non-operative treatment of benign and malignant growths as seen at the clinics abroad, MEDICAL RECORD, April 4, 1914.

41 WEST FIFTY-FIRST STREET.

QUINSY OR PERITONSILLAR ABSCESS.

BY E. HARRISON GRIFFIN, M.D.
NEW YORK.

THE term quinsy has been used to designate an affection of the throat attending an acute inflammatory condition of the tissues surrounding the tonsils and at times the tonsils themselves, when they are present, as there are throats affected with quinsy in which the tonsil may be absolutely negative. This inflammatory condition persists generally until suppuration takes place, and the abscess is either opened by the surgeon's knife to the great relief of the sufferer; or allowed by ignorance or mismanagement and great suffering on the part of the patient to progress to the point where nature takes the place of the scalpel and opens the abscess. The throat may become almost entirely closed by the presence of a quinsy and the breathing space almost entirely obliterated and the patient struggles to obtain enough air to sustain life. There have been a number of deaths by strangulation caused by this disease. Years ago, before this disease was studied with the nicety that it is to-day, the French advocated and performed tracheotomy during an attack. This was the usual procedure as the cause and the internal opening by the knife had not been mastered.

The term quinsy is rather an indefinite term and does not describe the condition as perfectly as the term peritonsillitis, which signifies an inflammation of the tissues around the tonsils. A cellulitis of the tissues of the fauces. About 95 per cent. of these cases will give a history of rheumatism in some form or other, a rheumatism of the joints, or muscles, or a chronic pain in the throat, or a history of huskiness of voice, the symptoms pointing to a chronic rheumatism of the fauces awaiting only some slight cause to start up an acute attack of this complaint. In about 5 per cent. of cases the rheumatic history is absent and only the throat condition is present. One attack of quinsy renders the patient prone to future attacks. It is the exception and not the rule for the patient to be free from this disorder after he has had his initial attack. I have seen a patient have four peritonsillar abscesses in the course of three months. When one attack supervenes so quickly upon another the first attack has never been thoroughly cured, only patched up, so to speak. The following case illustrates this fact:

CASE I.—A patient, male, came under my care at the dispensary of the old Bellevue Hospital complaining of inability to swallow and to open the mouth, and when this was forcibly attempted a most excruciating pain occurred at the angle of the jaw on the affected side. Examination of the fauces showed this part congested and markedly swollen. Examination with the forefinger of the left hand showed a point of softness and fluctuation. The temperature of the patient was 103.5° F. The abscess was opened at the above point and a large jet of pus followed the knife. The patient was put under the routine treatment that I will describe later and told to apply on the following clinic day. I did not see the patient for a month, when he again came under my care in the same condition as at the first visit. The abscess was again opened and the pus again freely discharged. The patient said that he had never been so well as between the two attacks, having had nothing pointing to a throat manifestation until the so-called second quinsy. The patient remained well for over a month, when he again applied with a sore throat. An examination showed a third attack of quinsy. The abscess was again opened. The history between the several attacks was negative. A short time later he again applied with a sore throat. The red congestion, the swollen membrane, and the pain at the angle of the jaw suggested only one diagnosis: return of the quinsy. The abscess was again opened and probed as at the former operations. The patient was scolded and impressed with the fact that he must come regularly for treatment to prevent future attacks of this ailment. Each day the abscess was probed and a weak solution of tincture of iodine was introduced into the wound by means of a little absorbent cotton on a probe. The wound was treated like any common abscess; it was treated until it healed from the bottom. The surface wound was kept open until the sinus had thoroughly drained; then the part was allowed to close. This was the end of the attacks of peritonsillitis.

I believe, as I have stated before, that when one quinsy follows another after a short period this is due to the fact that the first quinsy or abscess has never been thoroughly eradicated. It is like leaving in the abdomen a diseased appendix and expecting a perfect cure. One who has never probed a quinsy abscess would be surprised at the extent and depth to which the pus may burrow in one of these attacks. The mere lancing and the getting out of a large stream of pus does not always signify the end. It is only when the sinus is thoroughly cleansed and the parts have granulated from the bottom that the omega of the disease has been reached.

An attack of peritonsillitis generally starts with a distinct chill and is followed by a rise of temperature as high as 103° or over. The patient complains of pain in the back, headache, and pain in all the bones; in fact, the initial symptoms suggest an acute attack of articular rheumatism. The throat symptoms quickly follow; a swelling of the membrane of the fauces, the difficulty in swallowing, pain at the angle of the jaw, and a difficulty in opening the mouth. The latter symptom is an important diagnostic sign of quinsy. Excluding tetanus I know of no other disease that gives this diagnostic symptom. In croupous tonsollitis, follicular tonsillitis, and diphtheria the mouth can be opened wide, but in the average attack of quinsy there is always a restriction in opening the mouth due to the inflammation at the angle of the jaw and the beginning of pus at this location. I have seen the teeth so closed that I have only been able to introduce a knife with the blade turned parallel with the tongue when I wished to evacuate the pus. This point I emphasized to my students in my nose and throat lectures at Bellevue and I taught my class to diagnose this complaint by the restricted way in which the patient opened his mouth. The mouth is so closed at times that an examination is obtained only

by a great deal of tact and patience on the part of the physician. The average locality for the beginning of pus is at a point on the palate designated by an imaginary line drawn from the anterior pillar of the fauces to the corresponding pillar on the other side, the line crossing at the top of the uvula. Pus, if present, will generally be found in the location midway between the uvula and the anterior pillar. This is true of about 80 per cent. of the cases. In other cases the pus may be found at any point in the tissue inflamed. I have found pus higher up on the palate, and have had to make another incision deeper into the involved tissue. The part should be thoroughly palpated by the finger, if possible, before operation, in an effort to find where the quinsy points. The patient can often help the physician in this respect. I operated on a physician who localized exactly the site of the pus. I put my knife in the part he designated after I had satisfied myself by my finger that he was right and was gratified to see pus shoot out in a large stream. In a case where the location of pus is in question, the patient's feeling must often help the solution.

Peritonsilitis can be divided into two distinct types: the rheumatic peritonsillitis, and the gouty tonsillitis. They both start with the same symptoms and to all appearances look alike, only the latter or gouty tonsillitis is not amenable to the same treatment as the former. I have made the division and will later illustrate the cases.

Rheumatic peritonsillitis generally ends in suppuration with a discharge of pus obtained either by the surgeon's knife or by nature while the gouty peritonsillitis remains and persists as a hard, swollen mass in the throat; with difficulty in opening the mouth and the tardy formation of pus. Generally the pus element is absent; only the extreme pain and the swollen fauces designate the disease. These cases baffled my endeavors for years until I happily made the above division; and in grouping my cases under this nomenclature I have been able to render greater service to my patients. Previous to this grouping while regarding quinsy under one head I had cases I easily aborted; others that underwent quick suppuration and were terminated by operation; and others that resisted all treatment and seemed to drag on an existence for days and weeks with absolutely no progress tending to suppuration or a mitigation of the symptoms. There was only a hard mass under the finger. There was no point designating suppuration, and for days there occurred no change pointing to an abatement of the symptoms. If the case does not end in suppuration in a few days after the initial chill and the subsequent fever, and the mass feels hard and unwieldy under the touch, the diagnosis of gouty peritonsillitis can be made and the treatment can be given for this condition. Quinsy is no discriminator as to age. I have seen it in a baby of two months and in an old man of eighty, both with initial attacks.

I have seen one attack of quinsy follow another year in and year out until the throat membrane had had a thorough treatment and the patient's system had undergone thorough medication. Then these yearly attacks have stopped and the patient has been free from his yearly quinsy. It is always wise to start in with a five-grain dose of calomel followed six hours afterward by a large saline purgative. A ten-grain dose of quinine may be given with benefit with the calomel. If this does not abort the quinsy we have to deal with the stage of suppuration. This is hastened by allowing the patient to steam his throat continuously with the aid of the kettles that are common on the market.

I remember making an early call on a Christmas morning upon an old patient of mine who had her yearly quinsy. She was leaning on one side of the bed suffering all the agony that is heralded in with this complaint. I treated her throat, gave her a few directions, and departed. When I called again in the afternoon I was able to find where the quinsy pointed. I passed in my knife and liberated a large amount of pus. The relief was instantaneous. Her faced changed in an instant, although the pus was streaming from her throat. I then turned to my patient and wished her "A Merry Christmas." I told her I did not have the heart to wish her one when I called in the morning. One who has handled these cases can easily understand this picture.

The bowels should be kept well open during an attack and a nightly does of ten grains of quinine should be given either in pill form, if the patient is able to swallow, or in a liquid solution, if the patient cannot take a pill. Ten grains of salicylate of sodium can be given every three hours in plenty of water. Scarifying the surface of the inflammation with a small bistoury by causing the escape of blood often gives relief before the pus has formed. The throat should be examined upon each visit with the aid of a strong light. The fingers should be used in each examination to detect the early formation of pus. Time should be taken in this examination and pus should be liberated as early as possible, for the comfort of the patient. The parts can be cocainized by the local application of a 10 to 20 per cent. solution of this drug rubbed over the surface of the membrane by a piece of cotton fastened to a probe. The operation is painless and the relief is beyond description. The worst case of quinsy I think I ever treated was the following:

Case II.—A woman applied at the Bellevue Dispensary for treatment. She had seen a physician previous to this visit who had diagnosed her condition as hypertrophy of the tonsils. He had operated and removed part of the tonsil. When she applied for treatment it was with a great difficulty that she could breathe. Her mouth was tightly clinched and I was only able to introduce a knife between her set teeth and grope in the dark for the site of the pus. I was able at last to strike it. The pus flowed out in abundance and the patient left the clinic able to open her mouth wide and able to eat a meal, the first for a week. An operation on the tonsils under these conditions was positively not indicated and might have led to serious results. There had evidently been a mistaken diagnosis.

Case III.—Some years ago a patient, male, age about forty, of a plethoric constitution, weight about two hundred pounds, came under my care with quinsy sore throat. He gave a history of having these attacks ever since his twenty-fifth year. He was hardly able to open his mouth and was breathing with difficulty. An examination of his throat showed the parts red and congested and very hard to the touch. I placed him under the routine treatment and ordered the steam kettle for his throat. Each day I sought some point where there might be pus. I scarified and opened the parts at several points. The blood-letting gave him temporary relief, but I was unable to strike pus. I kept the points open by passing in a large blunt uterine sound.

This condition lasted for over two weeks; nothing seemed to dissipate the hardness of the mass or to produce a flow of pus. It was nearly three weeks before the mass began to soften and disappear without any pus production. I treated this case for about five attacks of this nature, each attack running through the same course. His suffering was intense. The only procedure that gave him any relief was to cut deep into the mass and let out as much blood as possible. This was was an

actor and once I brought him through an engagement in New York, seeing him twice and three times a day; at each visit letting out as much blood by the knife as was feasible. I had opened deep into the mass and was able to pass my uterine sound deep into the interior. I had several of these openings in the hope that I could find some pus and hasten the termination of his acute suffering. These attacks generally came on about October or November after his summer vacation. He told me once that he knew he was going to have a hard season with his throat as he had taken very little exercise that summer and had mostly lolled around on a veranda. He had gained over twenty-five pounds in weight, eaten hugely, and was afraid the next thing he would have would be the gout. I had exhausted almost the whole pharmacopeia in trying to find him a remedy that would give him some relief. His last attack was very severe and protracted. I had opened the mass at several points, but there seemed to be nothing that would give him any relief. After he had left my office I thought of his remarks and decided to prescribe for him the wine of colchicum seeds, twenty drops in a glass of water every three hours. This I did at the evening visit. This was on a Saturday. Sunday he had to leave to play in Toronto. I made an appointment with him at my office for five in the morning, so he could catch a train for that point. When he rang the bell the next morning I opened the door and saw my friend and patient muffled up in a large coat and in a teeming snow storm. The first words he greeted me with were, "Doctor, I am well! That last medicine worked like magic." The medicine was pushed for a few days and did what no other drug accomplished. It softened the mass and produced a normal throat.

Case IV.—Some years ago I was called to see this patient in consultation at the Hospital for Deformities and Joint Diseases. The patient was a well-developed woman, who gave a history of quinsy. She had been ill for over a week. The quinsy had been opened thoroughly and properly; still she was unable to take food or leave her bed. She had been running a temperature of about 103°. With difficulty I passed my finger into her mouth, trying to feel if there was any point where pus might be present. The whole part was one large, hard mass; there was absolutely no point where pus might be hidden. I prescribed a purgative, to be followed by a saline in the morning, and twenty drops of wine of colchicum every three hours in water. Upon my visit the next day I found my patient sitting up in bed. The fever had disappeared and she was able to open her mouth to the normal extent. The following day she called at my office to receive treatment. My first visit was on a Friday, my second on a Saturday, when she was out of bed and well, and Sunday the patient was at my office. This result in this type of quinsy I attributed to the diagnosis of gouty peritonsillitis.

These two cases are only two of hundreds in which I have used this drug with most gratifying results.

In treating quinsy one should not be satisfied with a single method. One should go into the history of the case, find out how many attacks the patient has had, and make a differential diagnosis between rheumatic and gouty peritonsillitis. One should find the site of the pus and open the abscess as soon as possible and keep the part open until the wound granulates from the bottom. The cavity should be washed out with a small syringe with a 25 per cent. solution of argyrol (which is better than iodine), and this should be continued till the wound has granulated. If this is done the patient will be less liable to a return of his quinsy. After an attack the patient should be placed under proper medication to prevent the yearly return of the affection. His urine should be examined in every case. Albumin is generally present during an attack but disappears after convalescence. Don't be satisfied with the statement that the patient has had his yearly quinsy for ten or twenty years and that his father before him had his quinsy. Look out for the cause and correct it.

Block of Brooklyn finds an hereditary factor in separation, desertion, and divorce, and states that these run through families. I believe this is so; but the cause of quinsy can be found and the hereditary proclivities eliminated if the disease is individually studied, and if the patient follows systematically a prescribed treatment for this very painful and, in some cases, dangerous ailment.

55 West Forty-seventh Street.

PITUITARY EXTRACT IN UTERINE BLEEDING.

PRELIMINARY REPORT OF CASES.

By ADOLPH JACOBY, M.D.,

NEW YORK.

CLINICAL ASSISTANT GYNECOLOGIST, NEW YORK POST GRADUATE MEDICAL SCHOOL HOSPITAL.

Uterine bleeding shall be used in this article to include menorrhagia or excessive bleeding at the menstrual period, and metrorhagia or irregular bleeding between menstrual periods. We shall not here enter into a detailed account of all the causes which may produce bleeding, but shall simply enumerate those most frequently met with.

Among these are severe anemia in young girls, hemophilia, and occasionally cardiac disease. A frequent cause of both menorrhagia and metrorrhagia is an overgrown endometrium, a hyperplasia of the uterine lining, which later in life may develop into carcinoma. Other causes are polypi of the uterus and inflammation of the endometrium. Then there are those conditions of the uterine wall, such as fibrosis uteri, large fibroids of the uterus, especially the submucous variety, subinvolution, and carcinoma, which diminish the contractile power of the uterine muscle and blood-vessels. Retroversion, causing an increased congestion, occasionally causes excessive menstrual flow.

Inflammatory conditions outside of the uterus, such as inflammation of the tubes and ovaries, inflammations of the perimetrium and the parametrium, are very often the cause of excessive bleeding due to the increased congestion which they produce. Another condition which is often accompanied by irregular bleeding is that following vaginal operations in which the uterus is fixed or suspended to the anterior vaginal wall. Threatened abortion and retention of portions of the placenta or membranes cause uterine bleeding, but will not be considered here.

The conditions as above enumerated are those most commonly met with as causative factors of uterine bleeding. Theoretically we may consider excessive uterine bleeding to result from an increase in the stimulating agent, which causes the normal menstrual flow. This stimulating agent is found in the internal secretion produced by the ovaries, which normally causes a congestion of the uterine lining and moderate flow of blood every 28 days. When this secretion is in excess, the congestion produced is increased and there is a corresponding increase in the loss of blood from the uterus. If, in addition, the uterus is already diseased by conditions which increase the vascularity of the lining or diminish the contractility of the uterine wall or blood-vessels, the effect of the increased stimulus furnished by the ovaries will be greatly enhanced and cause a far greater loss of blood from the uterus.

The nonoperative treatment of this condition has heretofore been confined chiefly to the administra-

	Menstrual History	Diagnosis	Number of Injections	Result	Next Menstruation	
					Interval	Duration
1.	Vaginal fixation 6 months ago, bleeding irregularly since	Vaginal fixation	10	Stopped after 8 injections	4 weeks	5 days
2.	Menstruation every 2 weeks—profuse	Bilateral salpingitis	10	Menstruated 7 days during injections	3 weeks	7 days
3.	Irregular, past half year every 2–3 weeks, 8 days' duration	Left salpingo oophoritis	10	After 5 injections, menstruated 4 days—moderate amount	4 weeks	4 days; moderate
4.	Irregular, 10–14 days duration, profuse	Fibrosis uteri	10	After 4 injections, menstruated—diminished flow—6 days	4 weeks	6 days; moderate
5.	Regular, 8 days, profuse	Subinvolution	10	After 6 injections, menstruated 5 days—moderate amount	4 weeks	5 days
6.	Irregular—10 days, profuse with clots	Fibroid uterus	10	After 6 injections, menstruated 6 days—moderate amount, no clots	Uterus Removed	
7.	Irregular—8 days, profuse	Left salpingo-oophoritis—posterior parametritis	10	After 8 injections, menstruated 5 days, moderate	.....	...
8.	Bleeding 8 weeks, after amenorrhea of 3 months	Threatened abortion	10	After 6 injections, bleeding stopped	.....	...
9.	Irregular, 2 weeks–8 days	Retroversion	3	Patient lost sight of		
10.	Irregular bleeding for 4 months	Vaginal fixation—4 months ago	10	Stopped bleeding	4 weeks	4 days; moderate
11.	Irregular—profuse	Right salpingo-oophoritis—posterior parametritis	10	After 3 injections, menstruated 3 days—moderate	4 weeks	4 days; moderate
12	Eight days profuse with pain	Anemia—virgin	10	Menstruated 4 days—moderate—no pain	4 weeks	4 days; moderate; no pain
13.	Irregular, 10–14 days, profuse	Subinvolution—posterior parametritis	10	Menstruated 7 days—moderate amount	4 weeks	5 days; moderate
14.	Eight days, profuse, with clots	Salpingitis—double	10	After 6 injections, menstruated 5 days—moderate—no clots	4 weeks	5 days; moderate
15.	Irregular—bleeding for 3 months	Vaginal fixation	7	Bleeding considerably diminished	Patient lost sight of	

tion of drugs such as ergot, stypticin, chloride of calcium, digitalis, hydrastis, persulphate of iron, and local applications of carbolic acid, zinc sulphate, perchloride of iron, combined with hot douches. These measures were all directed to the diminution of local congestion, or destruction of an endometrium of increased vascularity, or an attempt to increase the contractility of the uterus and the coagulability of the blood, but in no way influenced the causative agent, namely, the increased ovarian secretion.

We know from our experience with pituitary extract in labor cases, that the hypodermic injection of this extract has a selective action upon the uterine muscle, causing it to contract very powerfully. We are also led to believe that the secretion of the pituitary gland acts in direct antithesis to the ovarian secretion. From this it would be reasonable to expect that the administration of the extract of the pituitary gland, in such cases where there is an increased ovarian secretion or diminished uterine contractility, causing an increased flow of blood from the uterus would have the effect of causing a marked diminution in the amount of blood lost. This is splendidly borne out by the results obtained in actual practice.

The method of using pituitary extract is extremely simple. It is furnished ready for hypodermic use in one c.c. sealed glass ampoules, by various chemical concerns under a variety of trade names. The dose used is usually 1 c.c. given hypodermically into the subcutaneous tissues of the arm over the deltoid muscle. This dose is equivalent to 3 grains of the fresh gland or 1 grain of the extract of the fresh gland. The dose is repeated every other day, using alternate arms, until 10 doses are given. This is usually found to be sufficient. Further doses may be given if necessary. In the majority of cases effects are obtained with fewer doses.

In all the cases in which the injections have been used there were no infections, and very few symptoms subsequent to the injection. Several patients complained of cramps in the lower abdomen, and occasionally nausea. One patient complained of vomiting and diarrhea, which disappeared upon diminution of the dose. There was no instance of any severe constitutional disturbance.

Among the conditions in which the injections were used were, anemia causing menorrhagia in a virgin, threatened abortion, hypertrophy of the endometrium, fibrosis uteri, fibroids, subinvolution, retroversion, disease of the adnexa, parametritis, and certain cases following vaginal operation in which the uterus had been fixed to the anterior vaginal wall.

A brief description of the cases and results subsequent to the injections may be more readily seen in the accompanying table.

The results obtained have been very encouraging, and in our series uniformly successful in alleviating the condition for which they were given. In every case of menorrhagia, the duration and the amount of the menstrual flow have been diminished. In cases of metrorrhagia the duration and the amount of bleeding have been diminished, and the intervals between bleedings have been lengthened to more nearly the normal. In cases of continual bleeding following operation, the bleeding ceased, and the normal menstrual cycle was restored. In the one case in which it was used for threatened abortion, the bleeding stopped. However, more extensive experience will be necessary before it is advisable to use injections in all cases of threatened abortion.

From these results it will be seen that we have a very valuable remedy in pituitary extract administered hypodermically for this class of cases. Further experience will be necessary to determine all the conditions in which the pituitary extract acts successfully; nevertheless, it is certainly well worth trying before giving up medical means, and resorting to operative interference.

1141 Fox Street.

THE PREVENTION, THE TREATMENT, AND THE CURE OF TUBERCULOSIS.

By OWEN PAGET, M.D.,

FREMANTLE, W. AUSTRALIA.

MEDICAL OFFICER OF HEALTH, FREMANTLE AND DISTRICT.

It may seem an unjustifiable temerity to use the above title for what is at best an essay. This paper is, however, intended as a forerunner of a new outlook on tuberculosis, and incidentally as an introduction to fresh perceptions in physiology and pathology.

Space compels that matters proved merely to my satisfaction be cited as if accepted facts. Desultory papers published in the *Australian Medical Gazette* have superficially dealt with some of these

problems. The establishment of others on a firm basis is dependent on time and a more general observation.

In a country such as this, where one of the main industries is gold-mining, facilities exist for the study of miner's phthisis. This in its pure form, probably very rare, is a fibrosis of the lung, produced by the irritation of more or less aseptic mineral rock dust.

Since economically this is a serious disease, and in South Africa helped to bring about a revolution, it is natural to ask whether it can be prevented. Common sense suggests the simple expedient of breathing through the nose.

Now it is easy, by examining men engaged for thirty years or more in mining, or men immersed in an atmosphere of dust with their mouths covered, to demonstrate that dust, except in the too roomy nose, is deposited only in the anterior fleshy cartilaginous part. Further, it is blown out even more easily than it is drawn in. It is hard to believe that numerous commissions have been held over the subject of miner's phthisis without result. The exposition of the above simple physiological action has been actually ridiculed, even by medical men.

Assuming that breathing through the nose will prevent a pure fibrosis of the lung, it is natural to ask why fibrosis of the lung exists; because the instinct of protection against disease is inherent. It is necessary here to use statements, the value of which can be fully discussed on some other occasion.

(1) About 80 per cent. of Australian English adults are mouth-breathers. Of these the majority can only with difficulty breathe through the nose for any length of time.

(2) This occurrence can be traced to wrong methods of feeding in infancy, a subject dealt with by Sir Arbuthnot Lane some fifteen years ago in the *Lancet*, and by myself latterly in the *Australian Medical Gazette*.

(3) About 95 per cent. of mouth-breathers can be converted into nose-breathers by the use of silver props inserted into the anterior cartilaginous part of the nose. This may be denied by nose specialists, but is easily demonstrated by any practitioner.

It is justifiable to presume that a disease can be prevented by the restriction of a physiological function. The subject of a theoretical miner's phthisis, *i.e.* a pure fibrosis, is discussed in order to advance an argument step by step. Usually speaking, miner's phthisis is a combination of fibrosis with an infective disorder, generally tuberculosis.

The sunbeam discloses that the air of the drawing room in like manner to that of the street contains dust. Such dust can for reasoning purposes be divided into: (a) mechanical particles, (b) bacterial elements.

It has already been shown that mechanical particles are caught by the cartilaginous part of the nose; when they pass too far they are rejected by sneezing. Probably very few microbes are checked in the anterior part of the nose, as the current is too strong. The surfaces, except that of the septum, are unsuitable, too, for the deposition of such minute particles. A study of the middle nose, *i.e.* that portion situated between the anterior and posterior choanæ, together with its attendant sinuses, discloses the fact that the inspiratory air current is altered in direction and character, as compared with the cartilaginous portion.

Professor Ballenger describes the inspiratory current as passing along the upper parts, *i.e.* in the region of the superior and middle turbinates.

The process is, however, more complicated than supposed. The circulation of air in the sinuses can be proved, both experimentally and otherwise. In reality the original swift current of air is changed into slowing, flowing whirls; while the intricacy of the process is such as to bring a maximum amount of air into contact with the membrane covering the turbinates, and that lining the sinuses. In some animals this mechanism is very beautifully arranged.

Now if it is true that the air and its contained microbes are brought into intimate contact with the cells covering the turbinates and lining of the sinuses, a natural interest is aroused as to the effect produced by the cells on the microbes, or vice versa. Reference on this subject should be made to the bacteriology of the sinuses as given in Professor Skillern's book. Briefly expressed, these structures have apparently bactericidal powers.

In addition there is the following statement by the Professor: "Empyema of any of the sinuses, purely and solely the result of infection from the tubercle bacillus, must be an extremely rare affection, for to my knowledge no case has occurred in the Rush Hospital for Consumptives since its foundation in 1895."

Elsewhere is stated that tuberculosis of the sinuses is practically an unknown disease.

That of two organs, the lungs and the middle nose, both exposed to the same contaminating influence, *viz.*, the air, one should be most often attacked by tuberculosis and the other practically never, is surely a striking phenomenon.

A study of the air currents of the middle nose leads to the belief that the microbes contained in the inspired air will be deposited on its surface. A review of the bacteriology discloses the probability of such microbes being destroyed.

If the nose is capable of removing mechanical particles from the inspired air, and also of catching and destroying some of the contained microbes, to what extent is this of assistance in protecting us from disease? It is necessary to confine attention to the human in whom the physiological capacity of the nose is probably less than among wild animals; while the demands on this guardian are increased by the nature of civilization, entailing as it does towns, trains, and trams. As a frequent sufferer and in my capacity as a medical officer of health, a local disease called "influenza" had interested me for many years. Believing that this disease was dust borne, it was easy to experiment on myself by means of nasal props. After a time I discovered that while formerly almost weekly attacked, it was now apparently impossible for me to be infected. Now the irregularity of my use of the props, the character of my nasal obstruction, and the fact that through forgetfulness one often breathed through the mouth seemed to show that the process was not one of bactericidal action only. It appeared rather as if through breathing a certain number of the infecting microbes into the nose it was possible to neutralize the harmful effects of the remainder breathed through the mouth. In other words, it was seemingly a simple affair to establish a condition of natural immunity. If the nose was competent to filter off mechanical particles, to destroy bacteria, and to confer immunity, it was plainly interesting to investigate its capacities, once disease was acquired.

For this purpose tuberculosis was selected, and the two following types of experiments made:

(1) Patients with incipient tuberculosis were advised, after props had been inserted into the nose and a proper current of air established, to sniff up commercial dried tubercle bacillary substance into the nostrils. This substance was expensive, and for such experiments the dose 0.01 of a milligram was too small. However, it was possible to observe beneficial effects.

(2) In advanced cases the direction was to dry the sputum in the sun (in this country usually very bright and hot), or else to dry the sputum in an oven, short of burning. The dried product was scraped off the tin or glass and then powdered. A pinch was sniffed up into alternate nostrils four times a day like snuff. The results were so striking as to lead me to formulate the following hypothesis:

"It is reasonable to suggest that advanced pulmonary tuberculosis can be cured in six weeks." This hypothesis led me into so many definitions of words and meanings that I have determined to alter it to read as follows:

"It is reasonable to suggest that advanced pulmonary tuberculosis can be markedly benefited within six weeks. Complete cure can be expected within six months, the following being accepted as criteria of such a state: (1) Absence of sputum and tubercle bacilli. (2) Disappearance of symptoms of the disease and return to normal or approximately normal weight. (3) Absence of all physical signs of active disease. Cavities of course remain cavities. Existing fibrosis is not benefited. By an advanced case is meant such a case as would under ordinary circumstances have three or more months to live.

The technique of this treatment is as follows:

(1) It is essential that a proper inspiratory current of air be established through the nose. This can be done, as already stated, by means of silver props, or a small operation which I have planned and practised. That the props are of suitable size and shape is shown by the patient even in advanced phthisis, stating that he can breathe through the nose. More important still, when taking the snuff he should feel that it goes up into the roof of the nose between the eyebrows and not into the back of the throat. The action in the region of the inferior turbinate is probably very slight in comparison with that in the sinuses and region of the superior and middle turbinates.

(2) The circulation of the air through the nose should be established for about a week before the inhalation of the sputum through the nose commences.

(3) The sputum is dried on a sheet of glass or tin in a bright sun, or in an oven short of scorching. Theoretically it should not matter whether the bacilli are alive or dead. Practically, however, it is important that the sputum be sterilized by heat short of burning, since there is a danger of overdosage, and it is much safer for attendants. No chemical or disinfectants should be added to it.

(4) This sputum film on the glass is scraped off into a jar and powdered as finely as possible. This is done so that it may the more easily reach the neighborhood of the superior and middle turbinates, where apparently the best effects are produced.

(5) In early cases, or cases with little sputum, lycopodium powder is added, well stirred round with the sputum, dried, and sterilized as above. With only one spit a day it is possible to make an adequate supply of snuff by stirring sufficient saline solution or water with the lycopodium.

(6) In cases with temperatures running 100° or under a pinch of the powder is taken between the forefinger and thumb exactly as snuff is taken and sniffed into one nostril, so that it is felt to reach the roof of the nose, *i.e.* between the eyebrows. This is done four times a day. Right nostril 8 A.M. and 4 P.M. Left nostril 12 M. and 8 P.M.

(7) In hectic cases with temperatures 101° to 103°, the same treatment. In these cases there is a feeling of malaise produced. The treatment can be pushed to every three hours, but in cases with high temperatures this should be done cautiously. The indications that the nose is being worked beyond its capacity are (a) the dry nose, (b) the snotty nose, or purulent coryza. The purulent coryza is usually preceded by a watery flow, but may come on very suddenly. Either the dry or purulent nose is an indication for immediately stopping the treatment for two or three days at least. The watery nose is a sign for careful watching.

What benefits may be expected from this treatment, and what dangers guarded against?

In cases with temperatures below 100° there is within the first week or two an almost invariable improvement in appetite, diminution of sputum, and increased capacity for exertion. There is, however, usually a loss of weight from one to four pounds. This is later on more than made up, and is not cause for alarm. Improvement goes on gradually, temperature becomes normal, physical signs lessen, sputum becomes less purulent and more mucoid, and in six weeks' time the patient is obviously on the road to recovery. In six months' time there should be no signs of active disease, though such cavities and fibrosis as exist at the commencement of the treatment naturally remain.

No beneficial result from the treatment is an expression of faulty technique. The commonest cause is to have a nose of such a character that the inspiratory current flows along the inferior turbinate and thence into the back of the throat. In such cases a different prop should be used. It may even be necessary to use an insufflator, but I do not recommend it.

In cases with temperatures of 101° to 103° the results are somewhat different. With an administration of snuff two or three times a day only small or even no effect may be produced. One naturally pushes the treatment up to, say, every three hours. There may then result a crisis as in pneumonia. This, though beneficial, is serious and the patient may even die by heart failure.

Even in mild cases the organ which requires watching is the heart. It would take too much space to discuss this matter fully, but a skillful physician is required in all cases, and he will find close attention to the heart of more value than examinations of the lungs. All cases over 100° are treated as cases of fever. There is no stuffing with milk or food, and the bowels are regulated to act daily. Appetite becomes natural with the general improvement, and should not be forced.

Vomiting seems to be an expression of abdominal tuberculosis, though not evident on palpation. It is an indication to push the treatment.

It is natural to ask whether this reaction produced by the nose is confined to the lungs. Apparently not, since it is possible to influence beneficially

tuberculous bone disease in this way. However, my data are at the present moment not sufficient to enable me to speak authoritatively.

By the courtesy of Dr. Robertson, Principal Medical Officer of the State of Victoria, the value of these propositions is being tested by Dr. Herlitz. A series of cases will shortly be started here under the auspices of the British Medical Association at one of the Government sanatoria. Now, though it is right that original experiments should be made on derelict cases, it is obvious that if my theories are correct no such cases will arise in the future.

Viewing the subject from the standpoint of a physician of preventive medicine instead of that of the clinical physician, it is possible to demonstrate that: (1) Tuberculosis can be physiologically prevented. (2) There exists a natural physiological immunity. (3) The disease by an artificial physiological appeal is probably easily curable in its early stages in two or six weeks. Lastly, let our minds take a wider range. Assuming that it is possible for a tuberculous patient to be benefited by sniffing his own sputum into his nose, it is plain that a physiological protection exists in our bodies against disease.

Leucocytosis is a pathological process and is in my opinion *le dernier resort* of a body, whose physiological processes have broken down or are naturally inefficient. Such an idea is not isolated. Sir Arbuthnot Lane in his operative work on the colon arrives at identical conclusions. It can, in fact, be argued with reason that abdominal tuberculosis is analagous to pulmonary tuberculosis, in that it is due to physiological inefficiency. It is possible to treat the lung through the intestine, but results are not so definite as through the nose. The fundamental principles governing these perceptions were evidently appreciated by Sir James Paget in his lecture on blood-poisoning delivered in 1871.

It would be unwise, however, to bring forward any theories at this stage. The genuineness of my experiments must be established on a firm basis.

SPLENECTOMY FOR PERNICIOUS ANEMIA; APPARENT RECOVERY; DEATH.

By J. F. BALDWIN, M.D.,

COLUMBUS, O.

SURGEON TO GRANT HOSPITAL, ETC.

So much has been written of late in regard to the treatment of pernicious anemia by splenectomy, that it seems important that every case, whether successful or the reverse, should be placed on record; hence the following report:

Miss E. S., aged 34, patient of Dr. J. M. Thomas, Columbus, Ohio, was operated upon by me April 22, 1914, for pernicious anemia. The diagnosis had been established by the progress of the disease and repeated blood examinations. The spleen was materially enlarged. The operation was made in the usual way, occupied but a few minutes of time, and the patient's operative recovery was absolutely smooth. Her blood examination four days before her operation showed hemoglobin, 30 per cent.; reds, 1,616,000; color index 1; leucocytes, 5,400; polynuclears, 65 per cent. Six days after her operation the hemoglobin was 22 per cent.; red cells, 1,632,000; color index, 1; leucocytes, 12,000; polynuclears, 64 per cent.; small lymphocytes, 30 per cent.; large lymphocytes, 5 per cent.; eosinophiles, 1 per cent. June 14, hemoglobin, 30 per cent.; reds, 1,208,000; color index, 1.7; leucocytes, 18,000; polynuclears, 83.6 per cent.; small lymphocytes, 12 per cent.; large lymphocytes, 4.4 per cent. From this time on her improvement was very rapid, and on June 23 her blood count showed hemoglobin, 68 per cent.; red cells, 3,319,000; color index, 1; leucocytes, 6,400; polynuclears, 69 per cent.; small lymphocytes, 25 per cent.; large, 4 per cent.; eosinophiles, 2 per cent. At this time the patient left the city to visit friends. She returned in July, and her physician reported that on her return he found that she was in bad shape; had gone all to pieces. The disease made rapid progress and she died July 29. A specimen of her blood was obtained a few hours before her death, and while she was comatose. This showed hemoglobin, 12 per cent.; red cells, 720,000; color index, 1.4; leucocytes, 37,000; polynuclears, 87 per cent.; small lymphocytes, 9.2 per cent.; large, 3.4 per cent.; eosinophiles, 0.4 per cent.

Any surgeon who is contemplating splenectomy for pernicious anemia should read the article by Moffett on the subject of this form of anemia as it appears in the *American Journal of the Medical Sciences* of December, 1914.

Medicolegal Notes.

Malpractice—Insufficient Evidence.—In an action for malpractice consisting of the alleged improper treatment of the plaintiff so as to necessitate the removal of her uterus, it appeared that the plaintiff commenced to flow excessively; that the defendant was called; that he told the plaintiff's husband that the plaintiff was going to have a miscarriage; that he could not call that night as he was about to make another call, but he gave him some medicine for her to take and said he would call the next morning. The defendant testified that the medicine he gave for the plaintiff to stop the flowing was ergot, which the undisputed evidence showed was a proper remedy and was effective. He further testified that when he called the next morning he sterilized his instruments, dilated the vagina with a speculum, removed from it all the blood clots, some of which were dark and resembled pieces of liver, with a curette, and tamponed the vagina with antiseptic wool tampons, which he pressed against and around the mouth of the uterus with a pair of dressing forceps; that none of these instruments penetrated the uterus; that he took nothing but the blood clots from the vagina, and that the whole treatment occupied not more than twenty minutes. He further testified that on the following morning he removed the tampons, washed out the vagina with an antiseptic solution and tamponed it again; that he told the plaintiff and her husband that he considered her condition serious and that it might be necessary to have an operation performed; that he was not a surgeon and advised them to consult a surgeon, and that Dr. Otis was agreed upon; whereupon Dr. Otis came and made a diagnosis. He announced that the plaintiff was suffering from a rupture of the uterus, and she was taken to a hospital and the uterus removed. The undisputed evidence in the case was that when Dr. Otis performed the operation he found a rupture of the fundus of the uterus at a spot where there had been a chronic degeneration thereof; that the degeneration had proceeded to such an extent that when he attempted to sew the ruptured parts together the tissues would not hold the stitches, and he was compelled to remove the uterus entirely; that no pieces of flesh had been torn from the uterus; that it showed no evidence of laceration or bruising, or of having been abused by the insertion of instruments; that the uterus itself was preserved by the plaintiff, introduced on the trial and corroborated the above facts; that the rupture found in the degenerated portion of the fundus of the uterus was sufficient to have caused the excessive flowing; that this degenerated condition was sufficient to have caused the rupture therein; that the excessive flowing took place before the defendant did any of the acts complained of. It was held that fair consideration of the above facts could lead to but one conclusion, viz., the excessive flowing was caused by a rupture of the uterus; the rupture of the uterus was caused by the chronic degenerated condition thereof; and that such chronic degenerated condition of the uterus was the cause of the necessity for its removal, and not anything the defendant might have done. It was therefore held that the defendant was not responsible for the removal of the uterus, and judgment for the plaintiff was reversed. —Barton v. Southwick, 185 Ill. App. 24.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 6, 1915.

ANTIVACCINATION IN DISGUISE.

A BILL has been introduced into the Assembly of New York State repealing the law requiring vaccination as a preliminary to the admission of children to the public schools. The present law provides that "no child or person not vaccinated shall be admitted or received into any of the public schools of the State" and it enjoins the trustees or other managers having the charge of such schools to see that this provision of the law is enforced. The proposed amendment does away with this section, substituting therefor a provision that unvaccinated children shall be excluded from the schools only when "smallpox exists in any school district or city, or in the vicinity thereof, and the State commissioner of health or the local board of health shall certify in writing to the school authorities" that the disease is present. In other words, it shall be the duty of the watchman to lock the stable door only after the horse is stolen.

Truly the ingenuity of the antivaccinationists would be admirable were it exerted in a more worthy cause. Here is a bill which would disarm criticism by admitting in principle the value of vaccination while at the same time, under cover of this apparent support of the procedure, it aims to do away entirely with the practice, for, of course, it is to be regarded only as an entering wedge. In a few years, if no epidemic of smallpox appears, as probably none will, the community still being well protected, the antivaccinationists will call for the repeal of the law and will point to the fact that there has been no smallpox even though there has been no compulsory vaccination of school children. And so a generation will arise of unvaccinated persons supplying fuel for a devastating epidemic in the future.

It is useless to rehearse all the irrefutable arguments in support of the protective value of vaccination; those who can be convinced are already in favor of the procedure, and by those who are so dull that they cannot follow a logical argument, the clearest presentation of the subject would not be understood. But there are some who may be misled by this apparent approval of vaccination who should be warned against giving the bill their support. Vaccination being a preventive measure, it is evidently the height of folly to postpone it until a smallpox epidemic breaks out instead of resorting to it to prevent such an epidemic. Prevention is better than cure and it is better to avert an epidemic than to let it get started and then fight it. And who will take the responsibility for the deaths of the nonvaccinated school-children who fall victims to the epidemic before the machinery can be started which will confer upon the survivors the security which should have been theirs from the beginning? The bill should meet an early death.

THE RENAISSANCE OF ACONITE.

ACONITE is one of the drugs which found greater favor in the eyes of earlier clinicians than it does to-day. Probably its indiscriminate use in as many febrile conditions caused the pendulum to swing in the direction of the almost absolute neglect of this valuable therapeutic agent. But aconite is again coming into its own. There is no other drug which can approach it as an efficient means of reducing high arterial blood pressure. This is a conclusion which has been reached by many observers and which should be widely recognized by the medical profession.

In the presence of a case of cerebral hemorrhage the most urgent need as a rule is the reduction of a high blood pressure. Frederick Tilney in "The Modern Treatment of Nervous and Mental Diseases" reports the results of his experiments undertaken to determine the relative value of various agents used as cardiovascular depressants. He found in the first place that the hypodermic injection of distilled water causes a decided rise of blood pressure. Aconitine is an active hypodermic agent for reducing blood pressure, but its effects are not always uniform and its commercial preparations are not always reliable. Gelseminine hydrochlorate in doses of 1 25 grain acts as a mild depressant, but its primary depressant effect is followed by a slight rise, with a subsequent secondary decline which tends to be more persistent. In view of the blood pressure raising action of distilled water, the point is emphasized that aqueous hypodermic solutions for depressant effects must be as highly concentrated as possible.

If the victim of cerebral hemorrhage is able to swallow it is preferable to administer drugs by the mouth. Of all the cardiovascular depressants Tilney finds aconite the most reliable, and recommends the use of the tincture in doses of five minims. If the initial dose has produced no effect upon the blood pressure, the dose should be repeated at the end of an hour. If the blood pressure is 200 mm. or over an initial dose of ten minims may be given. But pressure readings should be taken every half hour. The drug may be continued for several hours until the desired depressant effect is reached. The administration should be discontinued if there arise symptoms of intoxication, as dilatation of the pupil, vomiting, irregularity of the pulse, cold moist skin, an erythematous rash, and dyspnea. As regards the question as to what constitutes a sufficient decrease of the blood pressure, the answer is given that a fall of 20 to 30 mm. may be deemed sufficient, and that when the initial pressure is well above 200 mm., the aim should be to bring it down below the 200 mm. mark.

An eloquent plea for the more general use of aconite as a vasodilator is made by William Hanna Thomson (*American Journal of the Medical Sciences*, January, 1915). The use of the nitrites is condemned on the ground of their transient effects. Aconite is regarded as the most efficient vasodilator available, but it must be given in full doses of ten to fifteen drops of the 10 per cent. tincture. In cases of interstitial nephritis the most important action of aconite is to increase the elimination of urea. Aconite is of particular value in the melancholic symptoms associated with high blood pressure.

THE SPREAD OF TUBERCULOSIS.

ALTHOUGH it is generally recognized that the spread of tuberculosis has been halted, there are many who are sceptical concerning the extremely optimistic reports which proceed from certain quarters. In any event, it is well to regard the matter from an unprejudiced standpoint and to weigh the pros and cons in an impartial manner. In *Public Health Reports*, January 8, 1915, is a report by Dr. H. G. Lampson on the spread of infection in certain tuberculous families in five counties in Minnesota. The plan of work projected and carried out was thorough, but owing to lack of space the details of the scheme followed must be omitted. The striking features of the investigation were the high percentage of positive tuberculin reactions among apparently healthy people, who had been definitely exposed to infection continuously and for a considerable period of time; the much lower percentage of positive reactions among those exposed less continuously, and for shorter periods; and the absence, practically, of positive reactions among those in whom, from the history, the exposure was deemed doubtful. The total amount of material was small, which will detract to some extent from the value of the investigation but, on the other hand, as the writer points out, the uniformity of the results in the different geographical locations should give some weight to the findings.

The conclusions reached were as follows: (1) A very large percentage, 79 per cent., of the individuals fully exposed for a long period to open cases of tuberculosis became infected. (2) A much smaller percentage, 28 per cent., of those partially exposed or exposed for a short period of time became infected. (3) The percentage of infections from casual exposure, such as everyone encounters, was small, 8 per cent. (4) The more frequent infection of children may be explained, at least in part, by their more intimate contact with the patient. (5) At all ages the intimacy and length of exposure are the determining factors in infection with tuberculosis.

The moral to be drawn from the results of the investigations referred to would appear to be that open cases of tuberculosis should be segregated. Undoubtedly, the prevention of the spread of tuberculosis rests mainly on the adoption of two measures—prompt diagnosis and efficient treatment of incipient tuberculosis, and the isolation of open cases unless conditions are such that all danger from them can be obviated.

FLOODING WITH ANTITOXIN IN THE TREATMENT OF TETANUS.

SURGEONS have doubtless been looking forward with hope to a consensus of opinion on the treatment of tetanus, as a consequence of the experiences of the present war. The ideal has been throughout a synergism between specific and symptomatic treatment. Serum has often been too scarce for full therapeutic dosage, and when we bear in mind (from analogy with laboratory tetanus) that much larger quantities ought to be given than have thus far been prescribed, it follows that the power of serum over the developed disease has never been fully tested. In regard to symptomatic treatment, magnesium sulphate seems to be growing constantly into favor.

In the military supplement of the *Münchener medizinische Wochenschrift* for December 22 we find a paper by Dreyfus and Unger which is more satisfactory throughout than any other based upon recent war experience. They have given nearly 4,000 units of antitoxin in individual cases, the initial dose having been as high at times as 600 units. There were but two cases of anaphylaxis, neither serious. Of 32 men tested, 22 recovered. One case, a mild one which recovered, is omitted as not suitable for analysis. Sixteen cases had an incubation period of from 10 to 24 days and all recovered but one. The fifteen severe cases were of extreme, often foudroyant type, with incubation period of from six to nine days. Of this series six were saved, the mortality being 60 per cent. No foudroyant case was saved, and the five patients, doomed from the start, represent the residual and inevitable mortality. If these are omitted from the statistics the mortality of severe and medium cases was about 20 per cent. In addition, two of the deaths were not directly due to the convulsions, as both were improving at the time. Both men died of respiratory complications. A third patient, not severely ill, was not admitted until too late for antitoxin, and did not respond to treatment. It must be emphasized that flooding with serum was practised only in the severer cases. Others were also dosed according to severity. Magnesium was given in large doses by both intraspinal and intramuscular injection—in some cases until threatening symptoms appeared. Smaller doses were, however, found to possess the same efficiency. Magnesium is to be pushed alone when it can be shown to decrease the convulsions; otherwise it may be combined with morphine.

A TAX IN RESTRAINT OF HEALTH.

THE necessity of good teeth for good health was recognized many years ago, but it is only recently that the close causal relation between dental caries, root abscess, and pyorrhea on the one side and rheumatic disorders, serious cardiac disease, and high blood pressure on the other has been clearly demonstrated. Now, however, the fact is firmly established and no one would attempt to treat certain forms of infection without first making an inquiry into the condition of the teeth and their sockets, and if these are found diseased the first therapeutic endeavors are directed against them. And

furthermore, as the present-day medical science is advancing steadily in the line of prevention, the necessity of proper care of the mouth and teeth is being more and more insisted upon. In view of this it is greatly to be regretted that Congress, in decreeing the present war tax, should have penalized the use of dentifrices by imposing a tax upon tooth pastes, powders, and washes. While the amount placed upon these necessities is not large, it is nevertheless sufficient, in the case of a large family with a small and precarious income, to determine against their use, for the tax, like the freight, is always paid by the consumer and not by the producer. We are glad to know, therefore, that a petition is to be presented to Congress by a committee of physicians and dentists of New York and by various health organizations of the country to abate this unwise impost; and we would suggest that the success of the movement would be assured if every physician and dentist in the country were to write at once to his Congressman, calling his attention to this petition, and asking his support in repealing the tax on these articles so indispensable to the preservation of health.

The Treatment and Prevention of Pellagra.

Although the cause of pellagra has not yet been definitely decided, the large majority of American observers hold to the old view that it is of dietary origin. Drs. Joseph Goldberger, U. S. Public Health Service, and surgeon in charge of Pellagra Investigations, C. H. Waring, assistant surgeon, and David G. Willets, technical assistant, in *Public Health Reports*, Oct. 23, 1914, point out that the general tenor of their studies has led them to conclude: (1) That pellagra is not a communicable, an infectious, or a contagious disease, but that it is essentially of dietary origin. (2) That it is dependent on some yet undetermined fault in a diet in which the animal or leguminous protein component is disproportionately small and the non-leguminous vegetable component disproportionately large. (3) That no pellagra develops in those who consume a mixed, well-balanced, and varied diet, such, for example, as that furnished by the Government to the enlisted men of the Army, Navy, and Marine Corps. Such being the deductions of these investigators, it follows that in treating pellagra the question of diet is the first consideration. Regarding pellagra then as a fault of nutrition, "mal de misère," or as chronic intoxication, the authors recommend that as long as clinical evidences of pellagra are manifest the patient should be given and urged to take an abundance of fresh milk, eggs, fresh lean meat, beans, and fresh and dried (not canned) peas. No medicine has any specific value. Thus the prevention and eradication of pellagra will depend essentially on the substitution of a mixed, well-balanced, varied diet for the restricted, one-sided diet that the individual will be found to have consumed prior to the development of symptoms.

Eradicating the Plague.

The work of eradicating plague in whatever part of the United States it may be found is proceeding energetically at the hands of members of the United States Public Health Service. In *Public Health Reports*, January 8, 1915, Passed Asst.-Surg. Huxley reports the plague eradicative work in California, for the week ended December 12, 1914. Surgeon Corput in a report regarding the work in New Orleans, states that chronic plague was determined in a rat found December 16, 1914, in a suburban slaughterhouse; also he reports the discovery of other plague-infected rats in various parts of the city. Surgeon Lloyd reports on plague-eradicative work at Seattle, Washington, as does Surgeon Trotter in Hawaii. The work done already by the United States Public Health Service in fighting the plague has redounded to its credit and has increased the confidence felt in the Service by the general public and medical profession of America. There is now little fear that plague will ever gain a foothold on this continent.

News of the Week.

For the Relief of Belgian Physicians.—The Committee of American Physicians for the Aid of the Belgian Profession is constantly receiving heart-rending reports regarding the distress of our Belgian colleagues and their families. Their plight is indeed a sad one. The urgency of the situation resembles that of a great conflagration. Promptness of action doubles and trebles its value. February will be a hard month in Belgium, with great suffering from severe weather added to their other trials. Our English colleagues are fully awake to the situation. Though their number is small compared to that of America, they have contributed several thousand pounds to this cause. Arrangements have been perfected by which contributions are being promptly converted into supplies with every assurance that they will reach our destitute colleagues. Two hundred boxes of food have been purchased during the week ending January 30. The following contributions were received during the week:

Drs. C. H. and W. J. Mayo, Rochester, Minn.	$100
Miss Margaret E. Reed, Chicago, Ill.	1
Dr. E. L. Neff, Pittsburgh, Pa.	5
Dr. F. P. Sprague, Boston, Mass.	50
Dr. Caspar W. Miller, Wallingford, Pa.	50
Dr. John T. Bottomley, Boston, Mass.	25
Dr. Henry W. Frauenthal, New York, N. Y.	25
Dr. Edwin Sternberger, New York, N. Y.	10
Capt. W. A. Powell, M. C., U. S. A., Nogales, Ariz.	5
Dr. Frederick Fraley, Philadelphia, Pa.	10
Dr. George W. Ely, Pittsburgh, Pa.	5
Dr. Samuel C. Plummer, Chicago, Ill.	5
Dr. R. W. Hodges, Ralic, Mich.	10
Dr. Ellen A. Stone, Providence, R. I.	10
Dr. Charles A. Elsberg, New York, N. Y.	25
Dr. F. M. Hicks, San Antonio, Tex.	10
Dr. Marion Marsh, Worcester, Mass.	2
Ohio Valley Academy of Medicine, Bellevue, Pa.	25
Dr. M. P. Messinger, Oakfield, N. Y.	2
Total	$375
Previously reported receipts.	1,791
Grand total	$2,166
Previously reported disbursements	$1,650
Disbursements week ending Jan. 30.	440
Total disbursements	$2,090
Balance	$76

F. F. SIMPSON, M.D.,
Treasurer.

Belgian Professors for Harvard.—The Harvard University corporation has set aside $100,000 to aid Belgian professors who have been driven from their land by warfare. Two of the faculty of Louvain University will come to Cambridge at the beginning of the next college year to take charge of courses at Harvard, and they will be paid for their work from this special fund.

Dr. Percy Turnure of the French Hospital in New York has sailed to take charge of an American hospital in France. He will be followed shortly by a staff of twenty-five surgeons and nurses.

Mortality Among French Surgeons.—*Le Caducée*, the journal of the French army medical corps, pub-

lishes a long list of casualties among the army surgeons, the losses being greater, it says, than in any of the other armies at war. The reason given for this is that the French surgeons never abandon their wounded, and when the main body falls back they are exposed to the enemy's fire or are taken prisoners. There are now 158 French army surgeons imprisoned in Germany.

Typhus in Vienna.—A dispatch from Berne, Switzerland, states that typhus fever is epidemic in Vienna, 363 cases having been reported in the ten days ending January 26.

Foot and Mouth Disease in Germany.—The *New York Times* publishes a letter stating that the food supply of Germany is seriously threatened by the widespread prevalence of the foot and mouth disease. Dr. Kirstein of the Bacteriological Institute of Berlin claims to have discovered that the pathogenic agent is a protozoon. If this is correct the disease will probably yield to emetine.

The New Kitasato Institute.—Prof. Dr. S. Kitasato of Japan, organizer of the Imperial Japanese Institute for the Study of Infectious Diseases and head of that institution since 1892, has resigned his position and organized a new institute of his own. He believed that the original research work was hampered by certain red tape, and that an ideal institute should be established, independent of all such drawbacks. All of his former associates and colleagues, including Dr. K. Shiga, discoverer of the bacillus of dysentery, and Dr. S. Hata, who shared the honors with Prof. Ehrlich in the invention of salvarsan, have also resigned with him to join the new institute. Dr. Kitasato has contributed all his personal estate to the institute, and his friends have raised sufficient funds for its permanent support.

Physicians' Mutual Aid Association.—The forty-sixth annual meeting of this association was held at the New York Academy of Medicine on January 19. Among the prominent items in the president's annual report were that the membership was close to 2,400 physicians; that the principal fund was almost $90,000; that there were forty-five death claims, and that the average age at death was sixty-two years. The youngest member was thirty-five years at death, the oldest was eighty-six. The purpose of the association is to provide an insurance of $1,000, to loan to sick members, and to provide a farm, if possible, in Dutchess or Monroe County for infirm and indigent members of the association. A reserve fund of $4,000, as required by the State Insurance Department, is set apart for that purpose. The following officers were elected for 1915: *President*, Dr. W. F. Mittendorf; *First Vice-President*, Dr. W. C. Phillips; *Second Vice-President*, Dr. J. W. Ingalls; *Recording Secretary*, Dr. A. Edward Davis; *Assistant Secretary*, Edward S. Peck; *Corresponding Secretary*, Dr. Ward B. Hoag; *Treasurer*, Dr. J. Bentley Squier; *Directors*, Drs. Godfrey R. Pisek, H. J. Boldt, and J. S. Waterman.

"The Woman's Medical Journal" announces that its issue for March will be an "internal secretion" number, containing articles on "Hypothyroidism," by Dr. Eugene Hertoghe of Antwerp, Belgium; "The Mamma as an Internal Secretory Organ," by Dr. Henry B. Hanover; "Rest as a Therapeutic Measure in Systemic Goiter," by Dr. Mary Sutton Macy, and the "Internal Secretion of the Ovary," by Dr. William Seaman Bainbridge.

The Death Rate in New York.—During the week ending January 23, the death rate in this city was 13.10 per thousand of the population as against 14.60 for the corresponding week last year. The decrease is equivalent to a saving of 171 lives. Deaths from influenza were the same as for the same week in 1914; deaths from heart disease, diseases of the digestive system, pulmonary tuberculosis, Bright's disease and nephritis were considerably less. More people died from pneumonia than in the corresponding week of 1914, but less than during the week ended January 16, 1915.

The Federation of State Medical Boards will hold its third annual meeting in Chicago on February 17, having a joint session with the Association of American Medical Colleges. Papers will be presented by President J. H. Finley, on "Some Thoughts on the Work of the State Board of Medical Examiners;" Dr. Henry S. Pritchett, President of the Carnegie Foundation, on "Classification of Medical Colleges;" Dr. Major J. Seelig of St. Louis, on "Fallacies in the Argument Against Full-time Clinical Instructors;" and Dr. W. P. Harlow and J. L. Heffron, on "Minimum Expense of Maintenance of an Acceptable Medical College." The president of the Federation is Dr. Charles H. Cook of Natick, Mass., the secretary Dr. Otto V. Huffman, secretary of the New York State Board, Albany.

Harvey Society.—The eighth lecture of this course will be given at the New York Academy of Medicine on February 13 at 8:30 P. M. by Dr. John A. Fordyce, on "Some Problems in the Pathology of Syphilis."

Hospital News.—Announcement is made that work will soon be begun on a new wing of the University Hospital at Charlottesville, Va. This addition, which will cost $50,000, will greatly increase the usefulness of the hospital.

The Baptist Sanatorium and Hospital at Houston, Texas, was formally opened to the public on Tuesday, January 19. The hospital is a seven-story concrete building with accommodations for 150 patients besides a baby camp on the roof where 50 children can be cared for.

Charitable Bequests.—By the will of the late Elizabeth A. Lippe of Philadelphia bequests are made as follows: Women's Homeopathic Hospital, $5,000, as an endowment in honor of Dr. Adolph Lippe; St. Joseph's Hospital, Reading, Pa., $5,000, for the endowment of a bed in memory of Theresa Eichorn Lippe; Children's Homeopathic Hospital of Philadelphia, $5,000, as an endowment in memory of Elizabeth Fiske Belknap; St. Vincent's Home and Maternity Hospital, $300.

The will of Mrs. Eliza McMillan creates a provisional trust fund for the founding of a hospital at Washington University. The fund, exceeding $1,000,000, is contingent on Mrs. McMillan's son, dying childless. He is now about 45 years old and has been long married.

By decision of the Orphans' Court of Philadelphia a bequest of $50,000 contained in the will of the late James F. Hope of that city is awarded to the Philadelphia Hospital for the Treatment of Contagious Diseases. According to the will of the testator, the sum named was devised "to any hospital in Philadelphia which shall be devoted to the treatment of contagious diseases, for the purpose of endowing a ward therein to be called the Hope Memorial Ward, and in case there should be no such hospital in the city at the time of my death or no hospital which will accept such a legacy on these terms, I agree then to give the said fund to the Episcopal Hospital. Eleven

hospitals made claim to the bequest, but the court decided that the only hospital in Philadelphia for the treatment of all contagious diseases is the Philadelphia Hospital for the Treatment of Contagious Diseases, popularly known as the Municipal Hospital.

By the will of the late Mrs. Helen Louise Merrick of Philadelphia the sum of $10,000 is bequeathed to the new children's ward of the Germantown Dispensary and Hospital, to St. Timothy's Hospital at Roxborough and to the Cosmopolitan Hospital of Giudecca, Venice.

The New Hampshire Memorial Hospital for Women and Children in Concord is named as beneficiary of a $5,000 bequest in the will of the late Helen E. Robinson. The bequest is for the furnishing, equipping, and maintenance of a free bed.

By the will of the late Francis Way Smith of Philadelphia, the sum og $98,000 is bequeathed to the Children's Seaside Home for Invalid Children at Atlantic City.

The Sale of Patent Medicines in New York City.—The Department of Health has adopted the regulation regarding the sale of proprietary or patent medicines in this city. No proprietary or patent medicine manufactured, prepared, or intended for internal human use, shall be held, offered for sale, sold or given away, in the City of New York, until the following requirements shall, in each instance, have been met:

The names of the ingredients of every such medicine shall be registered in the Department of Health. The expression "proprietary or patent medicine," for the purpose of this section shall be taken to mean and include every medicine or medicinal compound, manufactured, prepared, or intended, for internal human use, the name, composition, or definition of which is not to be found in the United States Pharmacopœia or National Formulary, or which does not bear the name of each ingredient conspicuously, clearly, and legibly set forth, in English, on the outside of each bottle, box, or package in which the said medicine or medicinal compound is held, offered for sale, sold, or given away. The provisions of this section shall not, however, apply to any medicine or medicinal compound, sold or given away upon the written prescription of a duly licensed physician, provided such medicine or medicinal compound be sold or given away to or for the use of the person for whom it shall have been prescribed, and provided, also, that the said prescription shall have been filed at the establishment or place where such medicine or medicinal compound is sold or given away, in chronological order according to the date of the receipt of such prescription at such establishment or place. Every such prescription shall remain so filed for a period of five years. The names of the ingredients of proprietary and patent medicines, registered in accordance with the terms of this section, and all information relating thereto or connected therewith, shall be regarded as confidential, and shall not be open to inspection by the public or any person other than the official custodian of such records in the department of health, such persons as may be authorized by law to inspect such records, and those duly authorized to prosecute or enforce the Federal Statutes, the Laws of the State of New York, both criminal and civil, and the Ordinances of the City of New York, but only for the purpose of such prosecution or enforcement. This section shall take effect December 31, 1915.

Medical Society Elections.—The Pathological Society of Philadelphia, at a meeting held January 14, the following officers were elected for the ensuing year: *President*, Dr. M. Howard Fussell; *Vice-President*, Dr. A. E. Taylor; *Secretary* and *Treasurer*, Dr. O. H. Perry Pepper; *Recorder*, Dr. John A. Kolmer.

The Society of American Bacteriologists held its annual meeting in Philadelphia at the Laboratory of Hygiene, University of Pennsylvania, December 29, 30, and 31, 1914. The following officers were elected: *President*, Dr. D. H. Bergey; *Vice-President*, Dr. John Woinzirl; *Secretary-Treasurer*, Dr. A. Parker Hitchens; *Council*, Drs. K. F. Kellerman, W. A. Stocking, Jr., R. E. Buchanan, and H. J. Conn; *Delegate to the A. A. A. S.*, Dr. M. J. Rosenau. The next regular meeting of the society will be held in Urbana, Ills. The chairman of the local committee is Prof. H. A. Harding. A special meeting of the society will be held in San Francisco during the summer.

The Philadelphia County Medical Society, at its annual meeting held January 20, the following officers were elected for the ensuing year: *President*, Dr. E. E. Montgomery; *First Vice-President*, Dr. Seneca Egbert; *Secretary*, Dr. Wm. S. Wray; *Assistant Secretary*, Dr. Elmer H. Funk; *Treasurer*, Dr. Edwin A. Shumway; *Censor*, Dr. Judson Daland; *Directors*, Drs. Wm. S. Newcomet, J. Torrance Rugh, and Wm. E. Parke.

The Bedford County (Tenn.) Medical Society elected the following officers at a meeting held on December 19 at Shelbyville: *President*, Dr. W. T. Robinson; *Vice-President*, Dr. S. S. Moody; *Secretary and Treasurer*, Dr. F. B. Reagor; *Censor*, Dr. T. R. Ray; *Delegate to State Medical Association*, Dr. T. H. Woods; *Alternate*, Dr. R. E. Shelton.

The Memphis and Shelby County (Tenn.) Medical Society at its annual meeting in Memphis on December 15 elected the following officers: *President*, Dr. J. C. Ayres; *Vice-President*, Dr. W. C. Campbell; *Secretary*, Dr. J. L. Andrews.

The Williamson County (Tenn.) Medical Society elected the following officers at a meeting held December 22: *President*, Dr. Sam White; *Vice-President;* Dr. J. D. Smith; *Secretary*, Dr. K. S. Howlett; *Treasurer*, Dr. B. T. Nolen.

The Warren County (Ky.) Medical Society met at Bowling Green on December 9 and elected the following officers: *President*, Dr. Finis London of Woodburn; *First Vice-President*, Dr. Ernest Rau; *Second Vice-President*, Dr. Hal Neel; *Secretary and Treasurer*, Dr. Burnett W. Wright; *Delegate to the State Society*, Dr. B. S. Rutherford.

Obituary Notes.—Dr. Benjamin Sharp, formerly professor of invertebrate zoology at the University of Pennsylvania, who died at Morehead, N. C., on January 24, at the age of 56 years, was graduated in medicine from the University of Pennsylvania, Medical Department, in 1879. The following year he received the degree of Ph.D from the same university, and in 1883 was honored by the University of Wurzburg, where he had continued his scientific studies, for his thesis on "The Eyes of Molluscs." For many years he served as corresponding secretary of the Philadelphia Academy of Natural Sciences, and had made many expeditions for the collection of specimens, going with Peary to the Arctic regions on his first trip in 1891, and again in 1895, and to the Hawaiian Islands in 1893.

Dr. William Peyton Tucker of St. Joseph, Mo., a graduate of the Ensworth Medical College, St. Joseph, in 1893, died at Colorado Springs, on December 25, aged 45 years.

Dr. Aaron S. Miller died of apoplexy at Saegersville, Pa., on December 31 at the age of 75 years. He was graduated from the New York University Medical College in the class of 1862 and was a member of the Medical Society of the State of Pennsylvania and the Lehigh County Medical Society.

Dr. Harry Gates Bullard of St. Johnsbury, Vt., a graduate of the Dartmouth Medical College, Hanover, N. H., in 1891, died at his home on January 3, aged 48 years.

Dr. Fred Hamilton Weir of Portland, Ore., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1885, formerly a resident of New York City, and a member of the Oregon State Medical Association, the Portland City and County Medical Society, and the Pacific Coast Oto-Ophthalmological Society, died at his home, from tuberculosis, on January 2, aged 50 years.

Dr. Frank B. Stallsworth of Cuba, Ala., a graduate of the University of Alabama School of Medicine, Mobile, in 1899, died at his home, after a long illness, on January 2.

Dr. Clarence Eugene Gardner of Narragansett Pier, R. I., a graduate of the Medico-Chirurgical College of Philadelphia in 1901, died at his home, from cancer of the stomach, on January 5, aged 37 years.

Dr. Diedrich A. Brumond of St. Stephen, New Brunswick, Canada, a graduate of the Northwestern University Medical School, Chicago, in 1899, died suddenly in his office on January 1, aged 40 years.

Dr. Benjamin Ewell Keys of Fate, Texas, a graduate of the Medical Department of the University of Nashville, Tenn., in 1900, died at his home from pneumonia, after a short illness, on January 5, aged 50 years.

Dr. Winfield Scott Norcross of Auburn, Me., a graduate of the State University of Iowa, College of Homeopathy, Iowa City, in 1886, and a veteran of the Civil War, died at his home, after a long illness, on January 6, aged 70 years.

Dr. Sterling J. Gates of Cliff, N. M., a graduate of the Tulane University of Louisiana, School of Medicine, New Orleans, in 1895, and a member of the American Medical Association and the New Mexico and Grant County Medical Societies, died at his home on January 4, aged 44 years.

Dr. Nathaniel Morton Ransom of Somerville, Mass., a graduate of the Berkshire Medical College, Pittsfield, Mass., in 1861, and a member of the Massachusetts Medical Society and the Middlesex District Medical Society, died at his home after a long illness on January 8, aged 84 years.

Dr. Charlotte W. Ford of Morristown, N. J., a graduate of the Women's Medical College of the New York Infirmary for Women and Children, New York, in 1873, died at her home on January 9.

Dr. Richard Runyan Rogers of Trenton, N. J., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1862, a former surrogate of Monroe County, and at one time a member of the New Jersey State Legislature, died at his home on January 14, aged 91 years.

Dr. Hercule Dansereau of Thibodaux, La., a graduate of the Albany Medical College, Albany, N. Y., in 1853, died at his home, after several weeks' illness, on January 2, aged 82 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE WAR—TYPHOID CASES, PREVENTIVE INOCULATION—HOME HOSPITAL FOR TYPHOID—COLLOID GOLD—NATIONAL INSURANCE REPORT—BELGIAN RELIEF FUND—CHOLERA BACILLI—DR. BASHFORD—OBITUARY.

London, January 16, 1915.

The war, the wounded, the Army Medical Service, and allied matters continue to monopolize our attention; they intrude into almost every conversation. The sanitary supervision and medical care of troops are freely discussed by the public as well as the profession and the doctor is often assailed by the demand to settle doubtful questions. The arrival of sick and wounded from the front has been met, as far as possible, by the hospitals and infirmaries throughout the kingdom, but the wards offered by these institutions have not been sufficient and it has been necessary to adapt and furnish other buildings. Some of these buildings can thus be used exclusively for infectious diseases and still more complete segregation is secured by the hut system.

The outbreak of typhoid was, of course, anticipated by all who had had experience as well as by those whose knowledge of military medical history was confined to the records of former campaigns. The reports of the number of cases that have occurred are very contradictory and estimates will be found of little use. But the Army Medical Department seems to be awake and earnestly promoting preventive inoculation.

A strong opposition, however, to this prevention is already being organized by that mischievous group of ignorant, self-conceited persons who call themselves "antivaccinationists" and appear to be always ready to denounce any proposal they are incompetent to judge of. Without experience, without training which would fit them to consider a problem, they will take up a prejudice and proclaim that as a solution. To everything else they are anti, and though the world be against them they will not acknowledge their own insignificance. As to their last outcry against inoculation they would deprive recruits of the chance of preventing an attack of typhoid rather than admit that their opinion may possibly be erroneous. Said one, "I know a man who died soon after inoculation." He got for a reply, "Well one must be under the average, considering the thousands that did not die soon after it and the millions who die without having undergone it. A patient died soon after having his hair cut, but no one thought that that slight operation was the cause of his death."

A home hospital was opened last month and is now in full working order for typhoid and other infectious cases brought from the front, though those occurring in the service at home are also to be admitted. The cost has been met, to a considerable extent, by the Red Cross Society and private subscriptions, but the War Office has to provide the deficiency, and the working expenses. About 150 cases can be accommodated in the hospital, but the management is also prepared to carry out the hut system for convalescents and other suspected carriers.

At the French Academy Messrs. Letulle and Mage

have given some account of forty cases of typhoid treated by intravenous injections of colloid gold. A feeling of cold is first produced, soon followed by fever, sweating, and some cyanosis of the extremities. This state is succeeded in a few minutes by a calm feeling and sleep. The pulse remains good. A fall of temperature occurs three hours or more later, but no collapse. No contraindication was recorded, though threatened perforation might be considered so; but as all the cases recovered the treatment was put forward by the authors as free from danger.

The Report of the Departmental Committee to inquire into the working of the National Insurance Act, so far as the supposed excessive claims for sickness, is a document of grave import to the profession. Practically admitting excess of expenditure on sickness benefit, the blame is laid on the doctors. Defects in the administration of societies are indeed admitted, but more is attributed to the "carelessness and inaccuracies of the medical profession," which is thus the ever-ready scapegoat. Supposing that here and there a doctor may have been rather lax in granting certificates or may have been imposed upon, that is no reason for condemning the whole profession, just to let off the lay authorities who put off from time to time the various reforms suggested. Many imperfections in the system ought to have been corrected long ago, and many improvements should have been instituted, especially one or two which had been proposed by the doctors and have only now been adopted by the departmental committee.

The British committee in aid of the Belgian medical victims of recent troubles is intended to cooperate with those working on your side for the same purpose. We have opened a subscription here and already contributions have been raised which have justified a sub-committee being appointed to examine and decide on applications in making grants to relieve temporarily some of the more urgent cases.

Dr. Freeman of the bacteriological department of St. Mary's Hospital has made an adventurous trip into Gallicia in order to obtain some special cultures of cholera bacilli. He has, I am informed, succeeded in his enterprise. Perhaps he will supply his cultures to the doctors where the epidemic is present, for one may very properly hope he will have no chance of testing the treatment in an outbreak in this country.

Dr. E. F. Bashford has resigned the office of superintendent of the cancer research committee of the two Royal colleges on account of ill health. He had held the post for eight years.

Surgeon-General Wm. Henry McNamara, C.M.G., M.D., has died suddenly in his sixty-ninth year. He was educated at Queen's College, Cork, and the Ledwich School of Medicine, Dublin. He took the M.D. of the Royal University in 1867 and entered the Army Medical Service the same year. He was in the Egyptian Expedition of 1882, taking part in the battle of Tel-el-Kebir. As P. M. O. of the British Brigade he was in the Nile Expedition of 1898, being mentioned in despatches. In the South African War he was awarded the Queen's and the King's medals. He was created C.M.G. in 1900 and retired in 1906.

Dr. Henry Billinghurst of Midhurst died on the eighth instant, having reached the age of ninety-two.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

MILITARY SURGERY AND MEDICINE—WAR MEDICAL MEETINGS—BULLET AND SHELL WOUNDS—THE GERMAN AND FRENCH FIRST-AID PACKETS COMPARED—MASTISOL AND IODINE—FRENCH RIFLE WOUNDS MORE SEVERE THAN THE GERMAN—EXPECTANT TREATMENT OF ABDOMINAL WOUNDS—WOUNDS OF NERVOUS SYSTEM—SURGICAL EMPHYSEMA—DIMINISHING MORTALITY FROM TETANUS—AN EFFICIENT TREATMENT OF TETANUS—THE AIRMAN'S DART.

BERLIN, DECEMBER 15, 1914.

THE surgery of war and the diseases incident to war comprise the principal themes of present-day medical discussions. Medical journals are replete with articles inspired by the novel experiences of the physicians at the front and in the base and home hospitals. Evenings devoted to military medicine have been inaugurated by the medical societies. Moreover the men at the front have organized and have held meetings for the exchange of ideas. For example, such meetings have been held opposite the main French lines at Chauny, Peronne, and Pont Faverge. Naturally there has arisen an immense amount of material for medical discussion. Some of the most important observations may here be alluded to.

As regards bullet and shell wounds, it may be stated as a general proposition that the ultimate fate of the wounds is largely dependent upon the first dressing. For the purpose of the latter the German first-aid packet has been admirable. The disadvantage of the French packet is that it is sewed together and hence opened with difficulty by some of the wounded. Another disadvantage is that when the kit is once opened the contents are scattered. Upon the back where the fixation of our own packet cannot be absolutely assured, the packet is fastened with adhesive plaster or mastisol (a solution of mastic in benzol). As regards the surgical use of mastisol there is as yet no unanimity of opinion. Nevertheless those who are employing it are increasing in number. Nor is there any unanimity regarding the use of iodine. This is used a good deal in the German army but it is mostly regarded as superfluous.

In general, wounds from firearms at a distance have not been relatively very numerous. Unfortunately the French rifle has inflicted more irregular wounds than the German weapon, because it is longer than the latter and has a more slender point. The splintering and laceration produced by the French rifle are therefore more pronounced. Naturally the worst wounds are those inflicted by shrapnel. The fractures so frequently produced by bullets and shrapnel are to be treated with the aid of splints. The ideal procedure would be the use of plaster of Paris, but this is available only exceptionally at the first dressing. Amputations are rarely performed. When necessary they should be performed rapidly and in the most simple manner, and any possible improvement in the operation should be reserved for the after treatment.

The benign effect of the modern rifle-bullet is seen particularly in the case of wounds of the thorax. In most instances such wounds heal readily, a possibility not dreamed of in former days. Of greater difficulty is the question as to how to deal with wounds of the abdomen. The majority of reporters on this subject regard it as a closed

book. Operation can be considered in those cases only if it is feasible soon after the wound has been inflicted and if asepsis can be secured. Since these conditions usually cannot be fulfilled, bullet-wounds of the abdomen are as a rule let alone. In fact a series of cases have been reported in which healing occurred provided that absolute rest of the patient could be secured. Worthy of mention is the suggestion made that a special section of the dressing-station be set apart for abdominal operations. It is doubtful whether the suggestion is of any practical value.

Wounds involving the nervous system have been very common and among them principally the tangential wounds of the skull are there in which the surgical activities of the field hospital have been called into play. In the case of these wounds many excellent results have been obtained. The operation consists in enlarging the wound in the soft parts, removal of the splinters of bone, and aspiration of the softened masses of brain tissue. Prolapsed parts of the brain are removed, the bony border is made smooth, and the wound is drained.

While, on the one hand, erysipelas is rare, on the other hand surgical emphysema is quite common. In the latter condition the amputation of the wounded member is the only procedure of any value. Injections of oxygen are said to be of aid. A disease which we have had an opportunity to observe only rarely during times of peace, but which has arisen with frightful frequency during the present war, namely tetanus, was regarded at the beginning of the war with some uncertainty as to its proper management. Even though antitoxic serum and other remedies were available, there was lacking sufficient experience as to their proper use. It appears, however, as if during the later months of the war, the mortality from tetanus has dropped. In the beginning the death-rate was not less than 60 per cent., but this is now 35 per cent. and even less. The therapeutic measures have included subcutaneous, intravenous, and intraspinous injections of serum, the use of carbolic acid, magnesium sulphate, and narcotics; the employment of hot baths, and the application of the ultraviolet rays. One of the plans of treatment followed by the lowest mortality consisted of the following measures: With the onset of the first symptoms of tetanus 100 units of antitetanic serum are injected in the neighborhood of the wound. Two subcutaneous injections of magnesium sulphate are made daily. Every evening the patient is given a hot bath of 40° C. for twenty minutes. After the bath the patient is exposed to the ultraviolet rays for five minutes at a distance of 50 centimeters. On the second day the exposure is for ten minutes, on the third day for fifteen minutes, and on the fourth day for twenty minutes, and at a distance of 75 centimeters. The radiation is prolonged to one-half hour for each half of the body. If there are seven tetanic spasms 2 grams of chloral hydrate are administered every evening.

The use of the aeroplane has led to the discovery by the French of a new weapon, the airman's dart, a steel rod 12 centimeters long, the lower third of which is massive, and which tapers to a fine point. The upper two-thirds have their substance so diminished by four canals, that the arrow, no matter how it is thrown, always falls with its point downwards. Since the dart is thrown from a great height it acquires considerable velocity and effectiveness as a weapon. It has in some instances riveted the soldier to the ground by passing clean through his boot and foot. Although the wounds produced by this new weapon cannot become very common, nevertheless they may be quite serious. An illustrative case is the following: A soldier was admitted with the history that a half hour previously he had felt a sudden sharp stab in the region of the right shoulder, after which he had experienced difficulty in breathing. Examination showed in the region of the right supraclavicular space a small round wound. There were dyspnea, light cyanosis, pain in the hepatic region, and abdominal rigidity. The general condition and the pulse got so bad that an operation could not be carried out. Death occurred at the end of 36 hours. The dart had penetrated the thorax and was located in the abdomen.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 21, 1915.

1. Francis Bishop Harrington. H. F. Vickery.
2. Thomas Morgan Rotch. C. H. Dunn.
3. Charles Pickering Putnam. W. B. Robbins.
4. Compensatory Exercises as an Aid in the Treatment of Locomotor Ataxia. H. M. Swift.
5. Diabetes and Surgery. E. H. Risley.
6. The Differentiation of Human and Cows' Milk by Color Tests. R. S. Eustis.
7. Recovery from Coccidioidal Granuloma. S. B. Wolbach.
8. The Alcoholic Injection of the Internal Branch of the Superior Laryngeal Nerve. I. Sobotky.

5. Diabetes and Surgery.—E. H. Risley groups the cases presenting this association into the following categories: (1) Cases in which glycosuria is caused by the surgical lesion. (2) Cases in which it causes the surgical condition. (3) Cases in which the two are independent and do not influence each other. (4) Cases in which glycosuria is a harmful factor and adds to the danger of the already present disease or injury. The following rules may be laid down in regard to operations on diabetics: A thorough examination of the urine must be made in every case, especially for the detection of acetone and diacetic acid. The total amount of ammonia must always be estimated. No operation except of the extremest emergency should be performed if there is one gram of ammonia excreted in 24 hours, until this has been reduced to the normal amount, .759 gram. An operation should be postponed should there be acetone or diacetic acid, even if the amount of ammonia is normal. Much albumin in the urine is a contra-indication to operation and even in small amounts is of bad prognostic import. Most of the major operations of surgery have been and can be performed with success on diabetics. The presence of glycosuria should never deter the surgeon from performing any operation of emergency. Other cases should not be operated upon in which acetone, diacetic acid, and ammonia cannot be reduced by preliminary treatment. A mortality of 20 to 30 per cent. is to be expected in this class of cases. The use of an anesthetic other than ether and chloroform, careful dietary treatment before operation, the prevention of sepsis, and rapid technique will still further reduce the mortality.

7. Recovery from Coccidioidal Granuloma.—S. B. Walbach emphasizes the fact that this condition is to be distinguished from cutaneous blastomycosis and the systemic infection sometimes produced by the organism of cutaneous blastomycosis. The author's case was that of a woman who for years had suffered from what were apparently furuncles, but which had the peculiarity that some did not discharge and others when opened yielded a thin, necrotic material, and healed slowly. W. P. Bolles operated upon two nodules on the fore-

head and one in the left axilla, opening and curetting them. The contents consisted of necrotic tissue with brownish or grayish pus, some granular bodies like miliary tubercles, and inflammatory thickening. Cultures obtained from the lesions and from inoculated rabbits showed the specific organisms. The patient recovered. This case represents one of the twenty-two cases of recoveries in this condition reported by McNeal and Taylor.

8. **Alcoholic Injection of the Superior Laryngeal Nerve.**—I. Sobotky states that the blocking of the internal laryngeal nerve, the internal branch of the superior laryngeal nerve, gives the greatest and most prominent relief to the sufferer from advanced tuberculosis of the larynx. The technique is as follows: Place the patient in a recumbent position. Using the usual aseptic precautions, locate by pressure the tender spot where the nerve pierces the thyrohyoid membrane, usually at the upper edge of the thyroid cartilage and one-third the distance from the outer edge. Introduce a somewhat blunted needle about one and a half centimeters into this point at right angles to the skin. Should the patient cough, the needle is in the lumen of the larynx and must be withdrawn. He must be forbidden to talk or to shout and told to signify ear pain by raising his hand. If the introduction of the needle has produced no discomfort, turn it upward and outward toward the ear, and if this does not produce intense pain move the needle cautiously in various directions until the pain, referred to the ear, is produced. The instant the patient shows he is in pain, push the piston of the syringe slowly and allow only one or two drops of the 85 per cent. solution of alcohol to escape. If this augments the pain inject one to one and a half c.c. In successful injections there is little inflammatory reaction about the site. The pain on swallowing disappears and does not return for anywhere from ten days to three months. If both right and left internal laryngeal nerves are to be injected, as is usually necessary, it is best to wait two or three days between injections.

New York Medical Journal.

January 23, 1914.

1. The History of Medical Ethics. G. W. Cook.
2. How Shall We Know When Gonorrhea in the Male Is Cured? A. L. Wolbarst.
3. Early Diagnosis and Operation for Gallstones. G. Torrance.
4. The Physical Examination of the Employees of the Department of Health of the City of New York. C. B. Slade.
5. Hemorrhoids and Hyperchlorhydria. E. Palier.
6. The Untrustworthy Galenicals. H. Beates, Jr.
7. The Laplace Operation. J. J. Gilbride.
8. The Modern Treatment of Sciatica. H. Climenko.
9. Subacromial Bursitis. S. O. Fields.

1. **History of Medical Ethics.**—G. W. Cook, in tracing this history, notes that prior to the seventeenth century medical ethics, medical legislation, and forensic medicine were practically one subject. The code of Hammurabi contains a detailed schedule of medical fees. The Hippocratic oath is the oldest of its kind, the Vedic and Unani oaths being based upon it. The Visigoths held the physician to strict accountability, and while the penalties imposed were very drastic in character, the ordinances contain some protective clauses. In the medical law promulgated by Frederick the Second in 1240 it appears that the requirements for the practice of the healing art in the Middle Ages were of a high grade. The injunction of professional secrecy is contained in all codes of medical ethics.

2. **The Cure of Gonorrhea.**—A. L. Wolbarst concludes that no patient can be declared cured of gonorrhea unless the following tests have been carefully and repeatedly performed: (1) Microscopic and cultural examination of the centrifugated morning urine, as well as the washings from the irrigation of the anterior urethra. (2) Miscroscopic and cultural examination of the urethral discharge—whether spontaneous or artificial. (3) Microscopic and cultural examination of the massaged secretion of the prostate and seminal vesicles. (4) Urethroscopic examination of the anterior and posterior urethra. (5) Complement fixation test. (6) Skin reaction and hypodermic injection with gonococcus vaccine (still *sub judice*). Should all of these tests prove negative repeatedly, one may then feel that as far as present knowledge permits, the patient may be declared cured; but the physician cannot assume the full responsibility and guarantee the cure. The patient himself must assume that responsibility.

3. **Early Diagnosis and Operation for Gallstones.**—G. Torrance quotes Moynihan, Mayo-Robson, the Mayos, and others as to the importance of early operation in gallstones before the development of complications. On the continent of Europe surgeons have been slow to advocate early operation. Mayo in 4,000 cases gives an average mortality of 2.75 per cent. In the simple, uncomplicated gallstone cases the mortality was less than one-half per cent. The author reports a series of thirty-five cases illustrating his thesis.

4. **Physical Examination of Health Department Employees.**—C. B. Slade analyzes the results obtained in 696 examinations. Seventeen per cent. of the individuals examined had defective digestion, and habitual constipation was usually an associated condition. Defective eyesight was found in 19.3 per cent. of the cases, and defects of the nose and throat, needing attention, were found in 8.9 per cent. Cardiac derangement was found in 13.2 per cent. of the individuals examined. Some form of lung disease, active, quiescent, or healed, was found in 4.4 per cent. Albuminuria to a slight amount was detected in so large a number—30 per cent.—that the author is inclined to believe that the chemical tests were too fine. One-third of the individuals were in obvious need of medical advice and 24.6 per cent. were in actual need of treatment.

5. **Hemorrhoids and Hyperchlorhydria.**—E. Palier has found that hemorrhoids are invariably accompanied by hyperchlorhydria, permanent or transient. He suggests the following method of treatment for an attack of inflamed hemorrhoids. Give the patient a teaspoonful of sodium bicarbonate. This alone will in many instances relieve the congestion and pain in half an hour, and if the patient is constipated, will cause a semisolid evacuation of the bowels with very little pain. In patients suffering from chronic constipation, magnesia usta can be given afterward. It is best to give the patient in addition to the soda a hot sitz bath for about half an hour. Put the patient in bed for the day and let him apply lead and opium lotion to the anus for a few hours. On the following morning the patient will be able to get up and attend to his business. He will be well or practically well as long as his stomach remains in good condition. In those suffering from transient hyperchlorhydria the piles will get worse with the aggravation of the gastric condition. When hemorrhoids supervene during an attack of diarrhea, the latter must be checked, and the former will thereby be relieved. Hamamelis, internally and locally, does good. What has been said above applies to acute or subacute attacks or exacerbations of chronic hemorrhoids. As for the affection, while it is in a quiescent indolorous state, the best thing is operative interference of some sort; but patients, as a rule, even intelligent ones, do not pay attention to this ailment while it does not bother them. By paying attention to their stomach, patients can remain free from pain and bleeding of their hemorrhoids for many years.

Journal of the American Medical Association.

January 23, 1915.

1. Institutional Mortality of the New-Born. A Report on Ten Thousand Consecutive Births at the Sloan Hospital for Women, New York. L. Emmett Holt and E. C. Babbitt.
2. Sarcoma of the Tongue. A Study of the Published Cases with Reports of Two New Cases. W. T. Coughlin.
3. The Experimental Effect of the Colon Bacillus on the Kidney. I. S. Koll.
4. Exposure of Appendix by Cullen's Method. A Simple Way of Removing an Adherent Retrocecal Appendix Through the Ordinary Gridiron Incision. W. Neill, Jr.
5. The Use of Pituitary Extract as a Coagulant in the Surgery of the Nose and Throat. H. Kahn and L. E. Gordon.
6. Operations for Clefts of the Hard and Soft Palate. L. Emerson.
7. So-Called Congenital Scoliosis, with Specimen, Including the Thorax. H. B. Thomas.
8. Fractures of Both Bones of the Leg. F. E. Peckham.
9. Ankylosis of the Elbow, with Report of Four Cases Treated by Arthroplasty.
10. A New Type of Ankle Fracture. F. J. Cotton.
11. The Autonomic Reciprocal Activities of Brain and Viscera. W. Timme.
12. Relation Between Chlorid Retention, Edema and "Acidosis." E. H. Fischer.
13. The Occurrence of Edema from Large Doses of Sodium Bicarbonate. L. A. Levison.
14. Unheated Vaccines. A. J. Casselman.
15. The Problems of Graduate Medical Instruction. H. D. Arnold.
16. The Treatment of Hemorrhage by Injection of Blood. A. H. Curtis.
17. Double Detachment of the Retina as a Sequence to Nephritis. L. W. Jones.
18. Intraurethral Breakage of Vacuum Electrode. T. J. Kinnear.
19. An Instance of Pulmonary Syphilis Closely Simulating Tuberculosis. G. D. Culver.

1. Institutional Mortality of the Newborn.—L. Emmett Holt and E. C. Babbitt analyze a series of ten thousand consecutive births at the Sloane Hospital for Women, New York. The deaths in the hospital during the first fourteen days were 3 per cent. of the living births. For half this number prematurity was responsible. Forty-eight per cent. of the total deaths and 66 per cent. of those due to prematurity occurred on the first day. Congenital weakness and atelectasis together made up 58 per cent. of the total deaths. The mortality from conditions intimately connected with delivery—accidents of labor, hemorrhage, sepsis and asphyxia—together made up but 20 per cent. of the deaths of the first fourteen days. Malformations and congenital diseases other than syphilis caused 4 per cent., and syphilis 4 per cent. The only important disease developing after birth was pneumonia. Stillbirths must be reckoned as one of the large problems in infant mortality; they are one and a half times as many as the deaths from all causes during the first two weeks. Except for the larger rôle played by syphilis, the causes of stillbirth in no way differ from those which produce death during the first days of life. When one comes to consider to what degree preventive measures might influence the mortality of the first two weeks of life, two things stand out prominently: The great number of deaths from congenital weakness can be reduced only by care of the mother during her pregnancy; the number of stillbirths and the deaths from causes connected with parturition can be largely reduced by good obstetrics.

2. Effect of Colon Bacillus on Kidney.—I. S. Koll concludes from his experiment that a non-traumatized kidney in the absence of ureteral obstruction overcomes spontaneously the invasion of virulent microorganisms. It appears that the blood-stream is the means of extension of these infections from the pelvis to the cortex, from the cortex to the pelvis, and in all probability from the periureteral tissue to the renal parenchyma. This is based on the fact that the glomeruli are the structures mostly involved. The pathological changes are due to a direct toxic action and the soluble toxins of the organisms are carried to the opposite kidney, where a similar picture is seen.

5. Pituitary Extract in Nasal and Throat Surgery.—H. Kahn and L. E. Gordon find that the coagulation time of the blood is materially reduced by the hypodermic administration of pituitary extract. The hemorrhage following nasal and throat operations, especially operations on the turbinals, is much reduced by this administration. The effect on the blood-pressure of children is variable, as follows: Systolic pressure is increased in 55.31 per cent. of the cases, reduced in 36 per cent. and unchanged in 8.5 per cent. Diastolic pressure is increased in 35.5 per cent. of the cases, reduced in 35.5 per cent. and there is no change in 29 per cent. Pulse-pressure is increased in 61 per cent. and decreased in 39 per cent. of the cases.

7. Congenital Scoliosis.—H. B. Thomas reports a case of this condition, and in discussing the etiology discards those cases which are the direct result of bony congenital defects. The following theories are left for consideration: heredity and intrauterine pressure, injury, paralysis, rickets, and anomalies of muscles. From the examination of a number of cadavers the author finds that in a majority of instances, owing to the inequality of length of two opposing muscles, there is an uneven muscle attachment. Such anomaly he regards as a cause for beginning asymmetry, congenital or acquired, whose exaggeration by position would produce scoliosis.

9. Ankylosis of Elbow.—W. R. McAusland presents a review of the methods that have been employed to cure this condition. Murphy was the first to recommend the use of fat and fascia interposed between joint surfaces, but the author from his experience thus far believes that there are certain objections to the use of fatty tissue, such as embolus, fatty necrosis from poor circulation and, as happened in two of his own cases, skin necrosis, due to the use of the flap of the tissue holding its blood supply. He nevertheless reports these cases together with two others in which, after trimming the joint after breaking up the ankylosis to as near an approach to the normal joint as possible, removing only such bone as would prevent free motion, he interposed fascia transplanted from the thigh with a more satisfactory result.

11. The Autonomic Nervous System.—By W. Timme. (See MEDICAL RECORD, Vol. 86, page 610.)

The Lancet.

January 16, 1915.

1. The Estimation of Physique and Stamina for School Purposes. A. A. Mumford.
2. Frostbite. A. W. Mayo-Robson.
3. Results of Clinical Investigations Based on the Methods of Abderhalden. J. O. Gavronsky.
4. A Case of *X*-Ray Diagnosis of a Chronic Cerebral Abscess Secondary to Frontal Sinus Suppuration. W. Glegg and H. Black.
5. A Note on Some Cases of Gunshot Fracture. J. Jackson Clarke.
6. Pellagra in Antigua. W. M. McDonald.
7. The Effect of Calcium Chloride on Hemolysis Occurring "In Vivo." W. W. C. Topley and S. G. Platts.

1. Estimation of Physique and Stamina for School Purposes.—A. A. Mumford, in discussing standards of bodily growth as standards of physique notes that a formula was suggested in 1900 by Pignet, which formula consists in saying that if from the numeral indicating the height in centimeters there are subtracted the two numerals representing chest girth in centimeters and the weight in kilograms, a numeral is obtained which in the absence of organic disease bears constant relation to general bodily vigor. Standards of nutrition are generally of more value for school purposes than standards of growth, at least for the early ages of life, for growth is only one of the results of nutrition. Among the estimates based on medical inspections are those concerned with the rate and degree of bodily development, the development of the respiratory apparatus, and the condition of the musculature of the neck and spine. There are practically three

natural physiological types of development of the neuromuscular system: (1) The adaptation for the exhibition of massive weight; (2) the adaptation for bodily vigor and bodily strength; (3) the feeble development of the larger limb muscles and bony framework, and the considerable development but irregular distribution of nervous energy.

2. **Frostbite.**—A. W. Mayo-Robson discusses this subject, particularly with reference to the prevalence of frostbite among soldiers. The best treatment at first is friction with snow or cold water in a cold room, the changes to a warmer atmosphere being gradually brought about. Frictions with turpentine and oil or with alcohol and soap liniment are useful remedies in the early stage, and after the friction the limbs should be raised on pillows and swathed in cotton-wool, which can be held in position by bandages applied loosely so as to avoid any danger of constriction. If blisters form, or discoloration of the toes or other parts shows that gangrene is probable, the whole foot should be sterilized by rubbing with oil of turpentine to cleanse the skin or with alcohol containing 1 in 500 biniodide of mercury, after which strips of sterilized double cyanide gauze should be applied between the toes and the same gauze made to cover the whole foot; which is then enveloped in sterilized cotton-wool. Any blisters —which will be found to contain dark blood-stained fluid—should be snipped and carefully dried and dressed with the alcohol and biniodide lotion. Painting the foot with tincture of iodine would probably be quite as effectual, as an antiseptic, as the alcohol and biniodide solution. Every effort should be made to keep the parts dry and sterile, and if gangrene occurs the surgeon should on no account make too great haste to amputate, as the tissues adjoining the line of demarcation become more and more healthy and the line of granulation tissue between the dead and living tissues, if kept aseptic, gives rise to little discharge and can be kept aseptic by a daily dressing with the alcohol solution. Frostbite is a preventable condition. In soldiers tight boots and tightly applied puttees are important factors in its causation.

3. **Clinical Value of the Abderhalden Reaction.**—J. O. Gavronsky notes that the cardinal question as to the practical value of this reaction is still unsettled. There is a considerable divergence of opinion as to the possibility of demonstrating the presence of specific ferments in the blood serum, and of making use of such demonstration for diagnostic and other practical purposes. Were this possibility once established one would attain the solution of many problems of primary and vital importance. It is not, of course, a diagnosis of pregnancy in the first week that is going to bring about a serious alleviation in human suffering; moreover, gynecologists will readily agree that it is very rarely that they are in doubt as to the differentiation between an ectopic pregnancy and a salpingitis, or between a pregnancy of the first few months and a myoma. Of real importance would be the fact that one could make an early diagnosis of malignant tumors, or give a prognosis, after operation in a case of malignant disease, or differentiate between hysteria and epilepsy in doubtful cases. As the result of his investigations the author draws the following conclusions: The serum of pregnant patients contains proteolytic and peptolytic ferments which are able to decompose any kind of coagulated albumin or peptone prepared therefrom. Whenever proteolytic ferments are found in the serum of patients with malignant tumors or other diseases, they have the property of acting in the same non-specific manner. The serum of perfectly normal individuals does not contain these ferments, at least in the great majority of cases. A negative result, when one attempts to demonstrate proteolytic ferments in suspected cases of pregnancy or carcinoma, speaks strongly against the existence of these states, and therefore may be of value in practice.

7. **Effect of Calcium Chloride on Hemolysis.**—W. W. C. Topley and S. G. Platts state that their experiments afford no evidence of any protective influence exerted by calcium chloride on the red cells of animals subjected to the action of a specific hemolytic serum, though this salt serves to inhibit the lysis of the same cells by the same serum in test-tube experiments. Conclusions as to the therapeutic value of this and similar salts based on experiments *in vitro* must therefore be held to be invalid.

British Medical Journal.

January 16, 1915.

1. The Mechanical Treatment of Compound and Suppurating Fractures Occurring at the Seat of War. R. Jones.
2. The Bactericidal Action of Collosols of Silver and Mercury. C. R. Marshall and G. B. Killoh.
3. Collosol Argentum and Its Ophthalmic Uses. A. Legge Roe.
4. Insects and War: The Mosquito. A. E. Shipley.
5. Recent Advances in the Relation between Chemical Structure and Pharmacological Action. By J. M. Fortescue-Brickdale.
6. A Case of Bilateral Optic Neuritis Due to Sphenoidal Sinusitis. A. A. Bradburne.
7. The Effect of Daylight and Drying on the Human and Bovine Types of Tubercle Bacilli. L. Findlay and W. B. M. Martin.
8. The Localization of Foreign Bodies by Means of the *X*-Rays. H. Mowat.

6. **Bilateral Optic Neuritis Due to Sphenoidal Sinusitis.**—A. A. Bradburne reports a case of this condition in a woman aged 27 years. The case presented several features of interest. When first seen the only objective signs were the slight weakness of the left abductor and the suspicious neuritis of the left disc. The length of time which elapsed before the neuritis became definitely evident on the face of the disc pointed to a lesion affecting the nerve a long way behind the eyeball. This was further confirmed by the absence of pain or tenderness on pressure over the eyeball and the primary implication of the sixth nerve. The implication of this nerve still further assisted the localization of the seat of the mischief, for such could scarcely be anywhere else than at its situation on the body of the sphenoid where it traverses the cavernous sinus alongside the carotid artery. By direct extension of the mischief forwards the implication of the optic nerve can be explained, for, as pointed out by Onodi in his investigations on the relations of the optic sulcus, this canal can be formed entirely by the bone forming the sphenoidal sinus. It is possible that in this case the sixth nerve may have had an abnormal relationship to the carotid artery in the cavernous sinus, and instead of lying external to the artery might have lain on its mesial aspect in contact with the bone. This theory would explain why the occurrence of abducens paresis has not been recorded before. Again, the localizing feature of this paresis enables one to put out of court any liability on the part of the posterior ethmoidal cells, which, as is well known, are a frequent cause of optic neuritis. A more difficult symptom to account for is the complaint of occipital pain, which is almost pathognomonic of sphenoidal sinus trouble. In the author's opinion such may be attributable to implication of the sympathetic plexus around the carotid artery.

7. **Effect of Daylight and Drying Tubercle Bacilli.**—L. Findlay and W. B. M. Martin find that the bovine type is distinctly more susceptible to the prejudicial effect of ordinary atmospheric influences (daylight and drying) than is the human type of tubercle bacillus. This difference may in part explain why aerial infection with the bovine type is so infrequent in human beings.

Berliner klinische Wochenschrift.

December 21, 1914.

Parenchymatotoxic Action of the Syphilis Contagium in Early Visceral Syphilis and Taboparesis.—Bushke and Michael refer to precocious jaundice as one of the earliest and most frequent symptoms of visceral syphilis. In about 10 per cent. of cases this symptom leads to acute yellow atrophy, which suggests that the primary affection of the liver is acute parenchymatous hepatitis; but thus far no one has found spirochetes in these livers. Hence inflammation and atrophy in this organ must be regarded as of toxic origin. A corresponding toxic nephritis, or nephrosis, is known to occur, and both organs are similarly attacked in the toxemia of pregnancy and in phosphorus poisoning. The early syphilitic hepatitis and nephritis are sometimes amazingly influenced by a few injections of sublimate, which exert no action upon the spirochetes in the skin lesions. The results are therefore to be interpreted as antitoxic and not as spirillocidic. It is quite possible that early syphilitic diabetes is due to a specific parenchymatous pancreatitis. However, the most striking example of toxic syphilitic affections is taboparesis. The toxic nature of the latter appears also after a comparison between tabes and certain effects of ergot and lead. But unlike the case of the abdominal viscera, spirochetes have been found alive in the nervous centers, while certain histological finds, as well as the frequency of lymphocytosis in the spinal fluid, suggest infection rather than purely toxic phenomena. On the other hand the parenchymatous changes in the nervous centers in taboparesis apparently indicate the presence of a mixed toxi-infectious condition, which appertains rather to the late stages of syphilis. The precocious form of syphilis of the brain, or early cerebral syphilis, is of course an infectious manifestation. At present then taboparesis is possibly a unique manifestation of syphilis. Spirochetes enter the nervous center, causing no reaction of any sort, although perhaps supplying toxic matter for the blood. Then after years of latency they become activated, virulent, and infectious.

Dostoyevsky as Psychopathologist. — Münzer begins a serial article on this subject. Like Poe the subject of this study antedated by far the psychiatrist in the recognition of degeneracy, phobias, obsessive states, and other expressions of psychopathy which stop short of true phychoses. The father of the Karamasov brothers was a profligate who obtained his wife (and her money) by seduction. He was always wholly indifferent to his home and family. His second wife he ignored, filling the house with loose women. He lived only for carousing, and finally became a parasite. Once when drunk he attacked an idiot girl, apparently for the mere experience of intercourse "with a beast in the form of a woman." Many other deeds show the man as morally insane, "without ethical conceptions and normal inhibitions." Alcohol and sensuality produced a vicious circle. The eldest son is summed up by the author as unstable, fickle, and of weak will. He never acquired self-mastery. Unlike his father, he was naturally of good disposition, and under proper environment would have made a useful citizen. The weakness of will, however, under certain provocation, could transform such a man into a violent personality, and this one finally murdered his father. This type of degenerate shows the greatest contrasts. The second brother began life with a fine mind, was noted however for cynicism, a trait inherited from his father. He did not meddle in his older brother's affairs, even when he knew he was planning the murder of their father. Whether because of remorse or from some other cause he became frankly insane. Many other accounts of psychopaths follow.

Deutsche medizinische Wochenschrift.

December 31, 1914.

Proposition for a Joint Research on Tetanus.—Stricker suggests the following schematic arrangement for filling out blanks. The name, regiment and rank should first be noted. This may be of value in the case of sequelæ—contractures, neuralgia, etc.—which may be present many years after the experience. The time and place of the skirmish or battle should be recorded, because there is sometimes in evidence a special virulence in cases which develop in a particular locality. The site and nature of the wound are of the greatest importance, for the nature of the offending projectile is included here. The time and locality at which the disease first appears possess much significance. In the Franco-Prussian war two-thirds of the cases in one series developed between the fourth and eleventh day. Finally the treatment should be given in full, beginning with the prophylaxis, which is practically the same in all cases. The younger generation of practitioners may not be able to recognize the numerous insidious prodromes of the disease, and after these have appeared prophylaxis is out of the question and treatment must be pushed. Some prodromes are change of disposition to an anxious, lacrymose behavior; insomnia, impatience, prickling sensations in the face, failing appetitie, increasing thirst, pain in the wound, even if the latter is healing well. The treatment must be recorded under the different resources in common use.

Shot Wounds of the Large Blood Vessels.—Kappis expresses himself as follows at the close of an article on this subject: The modern pointed bullet is not by any means the sole cause of vascular wounds, but is much the more frequent cause, especially when traumatic aneurysms form. Hence in warfare to-day injuries of these vessels occur more frequently than in former years. In regard to treatment even the most experienced surgeon should not ligate large vessels save in the most urgent cases. Unless gangrene is impending compression is the proper treatment in many cases. Bandages may be left *in situ* for several weeks, or until the patient has had time to be interned in a central hospital.

Skull Surgery on the Field.—Erhardt concludes a serial article based on 23 cases as follows: Four patients died of tetanus and five of meningitis, while two received some benefit and twelve have recovered, or will recover. Can the above lethal complications be prevented? The supervention of both can be readily explained, for the soldiers lie on the ground, their heads and faces covered with earth. The projectile inevitably forces the latter into the wound, and the encephalic tissues can hardly be cleansed like surface wounds, nor does self-cleansing through hemorrhage occur. Tetanus thus acquired is peculiarly resistant to serotherapy. In several of the author's cases the brain prolapsed.

Narcosis Asphyxia after Laparotomy. — Kirstein seeks to explain these cases as follows: This condition doubtless appears in the third stage of narcosis, after cessation of the powerful "irritation," much more frequently than is commonly believed, and might be recognized if due heed were paid to the antecedent circumstances. Could the latter be recognized in time these fatal cases might be prevented. Fortunately these deaths are very rare. The mischief is already in progress when the first manifestations of narcosis appear, because the cells of the predisposed patient have a limited tolerance to narcosis owing to their small oxidative capacity. The course of the asphyxia is so rapid that the condition is usually realized only when it is too late to interfere.

Insurance Medicine.

The Symptoms and Physical Signs of Approaching Organic Disease.—Dr. Louis Mix outlines a systematic method of studying this subject, beginning with the skin. Observation of the skin of the body is often rewarded by the detection of underlying organic defects, which at first sight, might be easily overlooked. The general nutrition, amount of subcutaneous fat present, color, and perspiration, and faint traces of edema are all to be studied. A defective abdominal panniculus adiposus is always suspicious. An excess of perspiration especially in persons over forty, may indicate dyspnea, whether pulmonary or cardiac, and is found in all conditions of engorgements of the systemic circulation. A dry skin indicates disease in which the kidneys are carrying off an excess of water, as in chronic interstitial nephritis, often without the presence of casts or albumen, and glycosuria and diabetes with polyuria. Pallor may indicate grades of cyanosis. A pale skin will offer suspicion of blood states which might not otherwise be suspected. In general the color of the skin is due either to the fullness of the vessels, the amount of hemoglobin contained in the blood, or to the thickness or thinness of the skin. Fright may cause pallor. A lasting pallor is characteristic of the early stages of leukemia pseudoleukemia, and secondary anemias, especially when coming on slowly and lasting over a period of time. Secondary anemias of vast importance are caused by intermittent bleeding piles—sometimes without the knowledge of the patient—carcinoma and nephritis; also obscure diseases of the alimentary tract, female genitalia, and specific infections. A mild degree of cyanosis showing only in the cheeks, lips, finger nails, and tips of ears may occasionally occur in an involvement of the heart, or of oxygenating power of the lungs; to the narrowing of the large air passages through disease or tumors; cardiac disease, especially of the right side. In these cases, oftentimes, the insufficient accentuation of the pulmonic second sound assumes great diagnostic value. The slightly yellow and the bronze skin are only too well known. Edemas are important because they are so frequently overlooked. Turning now to the regional examination of the patient, the forehead should be examined for scars, no matter how small, and an adequate explanation should be demanded of the patient. The face occasionally indicates the oncoming of acromgaly, myxedema, paralysis agitans, or exophthalmic goiter. Observation of the relative width of the space between the upper and lower lids when the eyes are opened will sometimes lead to a thorough examination of the thyroid and of the body for signs of thyroid intoxication. Chronic alcoholism frequently betrays itself in the face. The face, while not exactly edematous, does contain too much fluid. The eyes and pupils indicate much to a keen observer. Very slight traces of edema of the upper lids may foreshadow nephritis or trichinosis. Of course, the Argyll-Robertson pupil is now never overlooked, but it may be present in only one eye. Sometimes the pupils react to light with extreme sluggishness, and with a tendency for the pupil to return after the preliminary contraction from the light to its former size. The size of the pupils is of great importance. The wide pupil, abnormally so, may be indicative not only of hysteria and neuroses of various types, but also of chest and cerebral diseases. Myosis is of more importance than mydriasis. The narrow pupil occurring in old age needs no attention, but that which is due to tabes and paretic dementia cannot be too strongly insisted upon. Small pupils may indicate drug addictions as morphine and its various alkaloids, or cocaine. Occasionally one pupil is myotic, the other normal. This may happen in an aneurysm of the ascending portion of the aorta, or in any condition which allows the compression of one or the other of the sympathetic cords. Inequality of the pupils alone may indicate aneurysm, syphilis, or an irritated cervical sympathetic nervous system, but inequality plus irregularity can be looked upon as a sure sign of an antecedent syphilis. Observations of the ocular motions gives much information. Ptosis, which in about 70 per cent. of cases marks the the existence of cerebral syphilis, is sometimes reduced to an exceptionally small amount and can be overlooked in an ordinary examination. The nose indications are not of as much importance as they usually accompany other recognizable pathological conditions. The lips, especially when sores are present, need intelligent examination. The examination of the tongue may give valuable indications. Tremor is found in the alcoholic and in those afflicted with nervous system conditions. A clean tongue, combined with other symptoms, may indicate duodenal ulcer and hyperchlorhydria. The mouth should be examined for mucous patches, or ulcers indicative of alimentary trouble. The neck shows the condition of the glands found in that region. Tuberculosis, syphilis, and thyroid conditions are to be detected here. Observation of the finger tips may disclose the existence of an unsuspected bronchiectatic cavity, which is exceedingly hard to demonstrate. These cavities are manifested sometimes by enlarged drumstick fingers and a downward curve of the nails. Usually such fingers are associated with marked degrees of cyanosis. The movements of the hands may disclose much toward diagnosis. A mild degree of tremor may be only nervousness, or combined with other symptoms, may indicate alcoholism; the tremor in exophthalmic goiter, and the intention tremor in cases of multiple sclerosis. The back should be examined for spinal curvatures, or sacroiliac disease; tumors due to an aneurysm or a perinephritic abscess. The examination of the chest is so well taught and understood that little need be mentioned here, beyond the significance of Litten's sign. It is the fitting shadow occurring on the edge of inspiration over the ninth and tenth intercostal spaces, particularly on the left side, and is proof positive of the soundness of the lower portion of the pleural cavity. Its absence in persons not too fat should always necessitate a careful examination. In the examination of the cardiovascular apparatus attention must be centered upon the arteries and pulse. The heart, of course, should always be examined. The important arteries to be observed are the brachial, radial, and dorsalis pedis. The pulsations of the brachial artery ought not to be visible in a healthy person. They may be visible, however, without the artery being lengthened, but, if an arteriosclerosis be present, the artery is not only visible with each pulsation. but spreads out and therefore moves. A normal radial is felt only when the pulse wave is passing through it, the sclerotic radial is felt all of the time.—American Life Convention.

Book Reviews.

Die Entstehung und Behandlung der Karzinome. Von Hofrat Dr. A. Theilhaber in München. Paper, 182 pages, with 17 illustrations. Price 7 marks. Berlin: S. Karger, 1914.

By way of introduction Theilhaber says: "Very frequently one hears that the genesis of cancer, as of the other new growths, is shrouded in obscurity. One knows practically nothing of its origin. Such assertions are too pessimistic. To-day we really know more as to the cause of the development of cancer than of the majority of other diseases." From this one would be led to imagine that the author has at last solved the problem upon which so many investigators have labored in vain, or has at least evolved a plausible new theory, but such is not the case. After reading the 55 pages devoted to a discussion of "A. The Local Causes" and 37 more pages of "B. The Humoral Causes," we have found nothing convincing and get back to just where we started—the underlying cause of cancer still remains "shrouded in obscurity."

Theilhaber then discusses the prevention of cancer; the fate of the remaining carcinoma cells left after operation or *x*-ray treatment; the development of recurrences; the therapy of carcinoma, and the prevention of recurrences. A six page bibliography, almost exclusively German, is appended.

In the section on treatment the usual conclusions are reached as to the desirability of operation with total eradication of the growth, but if the number of cancer cells left is not large he believes there may be spontaneous resorption. Most of this section is devoted to the consideration of other methods of treatment, namely, the *x*-ray and radioactive substances, diathermy, fulguration, chemotherapy, ferment therapy, serum therapy, toxin therapy, injection of tumor extracts, autoserotherapy, and the injection of organ extracts. The *x*-ray and radium have been of service, especially in the superficial growths, but in the deeper growths may do more harm than good and actually stimulate the cancer cells. He does not agree with Wickham in the statement that malignant tissues display a special and very selective susceptibility to the influence of radium, but thinks the cancer cells are merely more sensitive and the normal tissues do not escape unharmed. The de Keating-Hart method of fulguration is not considered to be of much value. While the book contains very little that is really new, it is well worth reading, since it gives opinions formed after a careful investigation of the whole subject and probably reflects the consensus of German opinion, where so much faith has been shown in the efficacy of the *x*-ray and radioactive substances.

Venenpuls und Herzschallenregistrierung als Grundlage für die Beurteilung der Mechanischen Arbeitsleistung des Herzens. Nach eigenen Methoden. Von Dr. med. Reinhard Ohm, Stabsarzt an der Kaiser Wilhelms Akademie für das militärartzl. Bildungswesen. Price 1 Mk. Berlin: August Hirschwald Verlag, 1914.

The author's method of diagnosis of mechanical capacity of the heart rests on the principle of direct transmission. Prof. Dr. Friedrich Kraus in his preface remarks that Ohm's inclusion of an electrocardiograph in his apparatus is especially adapted to help to analyze certain difficult problems of cardiac arrhythmias, for instance, the arhythmia totalis.

Diseases of the Skin Including the Acute Eruptive Fevers. By Frank Crozer Knowles, M.D. Instructor in Dermatology, University of Pennsylvania; Dermatologist to the Presbyterian, the Howard, the Children's and the Babies' hospitals; Assistant Dermatologist to the Philadelphia General Hospital, the Dispensary of the Pennsylvania Hospital; Consulting Dermatologist to the Church Home for Children, the Baptist Orphanage, the Southern Home for Destitute Children, the Eastern State Penitentiary and the Burd School; Member of the American Dermatological Association; Fellow of the College of Physicians, etc. Octavo of 546 pages with 199 illustrations and 14 plates. Price $4.00. Philadelphia and New York: Lea & Febiger, 1914.

This volume has been prepared as a guide for the student and the general practitioner in the study of dermatology and the writer has endeavored to cover all the eruptions that occur on the skin and contiguous mucous membranes. In order to make the work more complete, not only the exanthemata are included, but also the acute eruptive fevers that are constantly or occasionally accompanied by a dermal outbreak. He suggests that the practitioner who is refreshing his memory on cutaneous eruptions, and the student who is just entering upon the study of dermatology, should first obtain a working knowledge of the common skin diseases, rather than those which are described as rare. The numerous practical illustrations will prove of help both in the diagnosis and the differentiation of the various dermatological conditions. Therapeutic recommendations have been confined to remedies he has successfully used; he has not introduced a large number of prescriptions which might be confusing. The exact method of using applications has been particularly emphasized under the common diseases. The special methods of treatment, such as the *x*-ray, Finsen light, radium, carbon dioxide snow, therapeutic lamps, and vaccine, including tuberculin, have been fully outlined. Syphilis because of its importance has been treated in considerable detail, including the methods of straining and experimental studies with the *Spirocheta pallida*. The exact technique for giving salvarsan and neosalvarsan, and the after-effects, are described, and the Wassermann, lutein, and various tuberculin tests are given in detail. This book should serve a very useful purpose, particularly as a diagnostic guide, to the student and general practitioner.

Auricular Flutter. By William Thomas Ritchie, M.D., F.R.C.P.E., F.R.S.E., Physician to the Deaconess Hospital; Assistant Physician to the Royal Infirmary; Lecturer on the Practice of Medicine, School of Medicine of the Royal College; Lecturer on Clinical Medicine in the University of Edinburgh. Price $3.50. New York: Paul B. Hoeber, 1914.

It is only recently, scarcely more than a decade, that clinicians have paid any attention to the auricles of the heart; formerly diseases of the valves only were looked upon with any degree of apprehension, or at least they alone were regarded as susceptible of accurate diagnosis, though hypertrophy and degeneration of the ventricles were also held responsible for many of the consequences of "heart disease." Now, however, it is the auricles that are charged with many cases of heart failure, and the study of their condition and their pulsations, rendered possible by the modern method of clinical investigation introduced by Mackenzie, is receiving more and more attention. We are constantly hearing new things about the muscles, and among the newest of these is auricular flutter, a term first employed by Jolly and the author of this book three years ago, though the condition itself was described somewhat earlier. In this work Ritchie considers the disorder in all its aspects, his account being based upon a study of eleven cases occurring in his own practice and forty-two recorded in the literature. The practitioner wishing to acquaint himself with the disease in its etiological, diagnostic, and pathological relations will find nowhere a better or more authoritative account than that of Ritchie.

Essentials of Physiology. By F. A. Bainbridge, M.A., M.C. (Cantab), D.Sc. (London), F.R.C.P.; Professor of Physiology, University of Durham; and J. Acworth Menzies, M.D. (Edinburgh); Lecturer on Physiology, University of Durham College of Medicine. With 134 Illustrations. Price $3.00. New York: Longmans, Green & Co., 1914.

In this volume the authors have brought together, in a concise and readable form, the fundamental facts and principles of physiology. Many a physician would gladly keep up with the modern advances in physiology, but he is repelled by the details of laboratory and experimental work with which most of the standard works are loaded. For such readers, as well as for students preparing for examinations, the present work is well adapted.

The Germ-Cell Cycle in Animals. By Robert W. Hegner, Ph.D., Assistant Professor of Zoology in the University of Michigan; Author of "An Introduction to Zoology" and "College Zoology." Price $1.75. New York: The Macmillan Company, 1914.

This volume contains an outline of cellular biology as it is understood at the present day. The subject-matter of this book is necessary not only for the student of general biology, but also for the medical reader who is interested in the problems of cell activity, and such subjects as oogenesis and spermatogenesis. The book is well illustrated and the bibliography is of unusual excellence.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Annual Meeting, Held January 7, 1915.

THE PRESIDENT, DR. WILLIAM M. POLK, IN THE CHAIR.

Report of Board of Trustees and Treasurer.—This report stated that during the past year the Academy property had been put in good physical condition and was fully protected by workmen's compensation, accident and fire insurance. Since the last report the Academy had been informed of bequests in its favor made by Dr. Everett Herrick, who left $25,000 to the General Permanent Fund and $25,000 to the Library Fund, and by Dr. Joseph D. Bryant, who left one-seventh of his residuary estate to the Academy to be paid in case of the death or remarriage of his widow. The Endowment Fund had been increased by $1,500. The General Permanent Fund was increased $150. The Library Committee had made arrangements with the First District Dental Society for an annual donation of $75 for the purchase of books, etc., on dentistry. The Treasurer's report which was submitted with that of the Trustees showed that the trust funds of the Academy now totaled $687,090.

Report of the Public Health, Hospital, and Budget Committee.—This report had already been submitted to the fellows of the Academy and showed the wide and varied activities of this committee. Among the subjects with which they had concerned themselves during the past year were the following: Standards for tonsil and adenoid operations, gonorrheal vaginitis, mortality from degenerative diseases, street cleaning, cooperation with the Police Department, standards for physical examination for candidates for various city offices, standard for physical examination of children between the ages of fourteen and sixteen years working in factories, mental fatigue in school children, open-air classes in schools, the periodic examination of school teachers, pure food and proper nutrition, the coroners, autopsies, restriction of the free sale of bichloride of mercury, study of the municipal budget for 1915, public health legislation, advertisement of harmful drugs or quack treatment, public health instruction in medical schools, revision of the City Sanitary Code, subway sanitation, physical and mental examination of immigrants, and the New York State census of 1915.

Resolution.—The following resolution presented to the Academy by the Council was adopted: That the President be authorized to appoint each year a committee to be known as the Public Health Committee, and to fill such vacancies as may occur in it, or make such addition as may seem best. This committee shall be authorized to cooperate with public health activities and to make studies of, and issue statements upon matters pertaining to, public health and hospitals; but such statements shall not be issued until approved by three-fourths of the Committee and by the President of the Academy of Medicine. Subject to these provisions the Committee is authorized to appear before any committee, board, legislative, or other body, in order to make statements and express opinions on matters relating to public health and hospitals.

Address of Retiring President.—Dr. WILLIAM M POLK, in a brief address, referred to his period of office as having bestowed upon him some of the pleasantest moments of his life, but thought that possibly many of the fellows of the Academy failed to realize the responsibilities that were assumed by the officers of such an organization. In closing he stated that his reluctance in laying down his task was tempered by the fact that it was to be assumed by Dr. James whose worth and ability to meet the responsibilities of the office were so well known that it was not worth while to take time to recall them.

Address of Incoming President.—Dr. WALTER B. JAMES said that after listening to Dr. Polk and looking about the room at the lineaments of those who had preceded him he wondered that he should attempt a work that they had so well fulfilled. He recalled the circumstances under which the Academy was founded and said that the fact that the first meetings were held in the Museum of Natural History augured well for the future of the Academy, since it gave a background that took in other interests than that purely medical and furnished a broader viewpoint than the merely professional one. Dr. Chisholm, in discussing the subject of specialism, had said that specialism involved self sacrifice. The specialist was undoubtedly of greater value to the public than the general practitioner but it was very questionable whether specialism was of advantage to the physician himself because it narrowed his point of view. On this account it was well that in the early days of the Academy they should have been associated with collateral branches of knowledge and thus have had the tendency to narrowness counteracted. For this same reason they should still today give themselves occasionally to the contemplation of matters not strictly medical and surgical. It did them good to turn back and see what the medical worthies of the past had done. It was fitting that they should ask scientific men from other places to come to them and to talk of an anatomist who lived many years ago and whose services to medicine and to the world at large had been of incalculable value. It was highly appropriate that they should devote an evening to Vesalius, and it was equally appropriate that their distinguished confrère, Dr. Welch, who was so well known to New York that he needed no introduction, should give of his store of knowledge on this subject.

Vesalius and the Spirit of His Time.—Dr. WILLIAM H. WELCH of Baltimore made this address, which he prefaced by saying that he had only been asked to be present and to make a few remarks on "Vesalius and the Spirit of His Time," and was not aware until he saw the program that he was to make an address; he was, therefore, in somewhat of an embarrassing position. However, he understood that the occasion was informal and that he might use topics more or less remotely related to the subject. There were many points of view that one might take in celebrating the quadricentennial of the birth of Vesalius. This was the period of the renaissance, the revival of learning, the reformation, and this setting of the life of Vesalius would in itself be a large theme, but this part of the subject had been so well done by Dr. James J. Walsh in the "Century of Columbus" that he would not undertake it. Perhaps Dr. Walsh had been too enthusiastic, but nevertheless he had presented an imposing array of knowledge. Vesalius lived in a time when great events were transpiring that enlarged the boundaries of human knowledge and this was particularly true of medicine. At this time the physician was also the botanist and, the zoologist; he was a student in all the sciences based on observation. And of all the anatomists Vesalius did most to place anatomy on the solid basis of observation. It would also be appropriate to view the subject of the evening from the biographical standpoint, but the biography of Vesalius was so accessible that they need not linger here. Again one might consider his Teutonic origin and its influences, or his life in the university. On this occasion it was of melancholy significance that the University of Louvain, in which he received his early training, had been planning to celebrate the quadricentennial of Vesalius this winter when it suffered ruin and its professors were scattered. Vesalius began the study of anatomy at the age of fifteen and remained three years at Louvain. He then went to the University of Paris and studied for three years. Here he studied with Jacobus Sylvius. The one blemish on the character of Vesalius seemed to be his ingratitude toward Sylvius. Sylvius and his school were Galenites while Vesalius made observation and not tradition the basis of anatomical knowledge. However, without arguing the differences of these two anatomists which had been so ably discussed by Dr. Frank Baker, one should not overlook the fact that the contributions of Sylvius to anatomy were not to be ignored. Other famous anatomists associated with Sylvius at Paris were Andernacus Guinterius and Carolus Stephanus (Charles Esticune) who published a work in 1545 which was begun long before the figure of Vesalius appeared. Again, one might consider the life of Vesalius in Italy where his colleagues were R. Columbus, Fallopius, and Eustachius, who rivaled him in some respects, and surpassed him in others. They regarded themselves still as Galenites but were really no more Galenites than Vesalius himself. He remained at Padua from 1537 to 1542, when conditions became so intolerable that he relinquished the fight, and in a moment of despair, burned manuscript which there is evidence to believe contained valuable contributions to physiology and pathology. In 1542 he had published the "Fabrica," when he was not yet thirty years of age. During this period he also taught at Pisa and Bologna. In 1546 he became court physician to Charles V and

afterward to Philip II, but his active life as a scientist was over. Certainly life at court could not have been to the taste of an active scientist such as he had been. Then later came the strange pilgrimage to Jerusalem. Many theories were current to account for this. It was said by some to be expiatory; that in performing a post-mortem examination on a member of the royal family he found the heart still beating, and that he was permitted to expiate this offense by a pilgrimage to Jerusalem. That such an occurrence had taken place was highly improbable. It was improbable in view of his knowledge and also because the same accusation had been made against other anatomists. Another theory to account for the pilgrimage was that his domestic relations were unhappy. Whatever might have been the reason, he undertook the trip, and on his homeward pilgrimage was shipwrecked and cast ashore, exhausted and in poverty, on the Island of Zante, where he died in 1564.

The "Fabrica Corporis Humani" was the most sumptuous and glorious work in the history of medicine and copies were much sought after by collectors. The "Epitome" was even more rare than the "Fabrica." It would be very interesting to trace the actual contributions of Vesalius to anatomy. They had been treated in rather a summary way, perhaps because he had so covered the field that he left nothing possible to his time undone. Vesalius was spoken of as the father of anatomy but that was wrong; again he was spoken of as the father of modern anatomy, but Dr. Welch said he preferred to call him the "reformer of anatomy." He had presented the first comprehensive, scientific treatise on anatomy studied for its own sake. Some of his contemporary anatomists still regarded him as a Galenite but he had freed anatomy from the bondage of authority. He started anatomy on the path which it has since followed. Some of his work was of such permanent value that it might still be consulted today. Having furnished the basis of anatomy he had laid the foundation on which physiology, pathology, and therapeutics had been developed. He was the greatest figure in the development of anatomy between Modino and Harvey. Anatomical laboratories existed from the sixteenth century onward and it was perhaps due to the influence of Vesalius and his followers that anatomy had come to occupy a somewhat disproportionate place in the medical curriculum. Dr. Welch spoke further on Vesalius' part in the overthrow of Galenism and also of the influence that Paracelsus exerted in the downfall of the Galenic theory of pathology, and quoted to show how nearly Paracelsus had come to enunciating the germ theory of disease. It was a little disappointing, however, to find how many people in those times died of "polypus of the heart," meaning decolorized blood clots. In closing Dr. Welch again declared that Vesalius had laid the foundation stone of modern medicine as a science.

Anatomical Illustrations before and after Vesalius.—Dr. FIELDING H. GARRISON of Washington, D. C., editor of the *Index Medicus*, made this address which he illustrated by lantern slides. He said that he hoped the lantern slides would afford convincing evidence of the tremendous advance made by Vesalius in the single item of anatomical illustration. The "Fabrica" had never been fully translated and one was apt to ignore the text and base his perception of the greatness of Vesalius upon these pictures alone. Vesalius was to anatomy what Beethoven was to music; he literally exhausted the possibilities of his subject in the time in which his work was done. The work of Vesalius in anatomical illustration might be likened to Beethoven's Thirty-three Variations on a Waltz by Diabelli. Even as Beethoven gave a series of patterns of all the figurations possible on the piano in his time, so the illustrations of the "Fabrica" gave to the post-Vesalian anatomists all the figurations of the human body which were possible to the wood engravers of Vesalius' time. From the extraordinary way in which these engravings were plagiarized and copied by certain post-Vesalian anatomists and book makers it was to be perceived that, with all the technical beauties of Casserius and Bidloo, and with all the exquisite delicacy of Ruysch and Soemmering, hardly any new key, hardly any new note, was sounded until the advent of Scarpa and steel engraving, of Pirogoff and frozen sections, of lithography, photography, and electroplating, microscopical and morphological anatomy, of direct photography from nature and the nude. Vesalius set the vogue in high class anatomical illustration for three centuries until the time of Mascagni, Cheselden, William Hunter, and Soemmerring. Beyond vague references to paradigmata schemata, and diagraphs in Aristotle's "Historica animalium," there was no evidence of anatomical illustration among the ancients, and if these expressions referred to pictures the latter were merely comparative and not human. In the manuscript codices of Moschion, there were a number of stock figures representing the fetus in utero, constantly reproduced, and nude figures in various attitudes were a common feature of miniature paintings in old parchment manuscript. From the twelfth century on there began to appear various manuscript drawings and miniature paintings in the old codices which had been investigated mainly by Sudhoff and Giacosa. The great authority on published anatomical illustrations after the invention of printing with wooden blocks was Ludwig Choulant.

Dr. GARRISON stated that the lantern slides exhibited were from Dr. Frank Baker of Georgetown University who had made a careful and extensive study of anatomical delineation. These slides represented different concepts of the osseous, vascular, and nervous systems, and of the gravida with fetus in utero, showing the remarkable influence of tradition for nearly three centuries. All of the figures had the monotonous attitude of a child's jumping jack which had just been pulled. One of the illustrations was a zodiacal figure or "blood-letting man" from a calendar of 1475. In these the points of election for blood-letting were determined by planetary influences. The figures were quite similar to those in the Hagerstown and Hostetter's almanac of not so very long ago. The exhibit included figures from Phryesen's "Spiegel der Artzny" and écorché or flayed figures from Berngario da Carpi in which the muscles were held up for inspection, a pose which became characteristic of all the later works. There were drawings by Verocchio, Leonardi da Vinci, Michael Angelo, and Raphael. One illustration of a deep dissection of the viscera by Leonardo, Dr. Garrison said, was the most wonderful anatomical drawing of the time and would compare favorably with Max Brödel's rendering of the same subject in Kelly's and Burnam's recent work on "Diseases of the Kidney" (1914). None of these drawings of the great masters were ever published in their time. A picture similar to the latter from the "Fabrica" of Vesalius showed a difference in artistic technique, being more diagramatic and less fascinating than that of Leonardo. While Vesalius might have seen the drawings of Leonardo there was no conscious or unconscious plagiarism, though possibly they might have given Vesalius the happy idea of employing a great artist to illustrate his work, as it is supposed he did. After showing a number of the illustrations of Vesalius, Dr. Garrison showed those of a number of the post-Vesalian illustrators, through all of which the Vesalian influence could be traced.

Portraits of Vesalius.—Professor HARVEY CUSHING of Boston referred briefly to the various fields in which the influence of the renaissance was felt, speaking especially of Italian art and of the influence of Leonardo da Vinci, Michael Angelo and Raphael on the development of anatomical illustration. He showed slides of some of the anatomical drawings of these masters and a number of portraits of Vesalius; some of them were evidently authentic, while the authenticity of others was very questionable. Two were supposed to have been executed by Titian. In closing Dr. Cushing said it was rather strange that in anatomy nothing was named after Vesalius except the small opening in the sphenoid bone and the emissary vein passing through the foramen. He did not know why this was unless because Vesalius had covered the entire ground so well. It was known that he had described the semilunar valves, the trapezius, and the mitral valve for the first time. Some of the lines from Kipling's "Explorer" seemed especially appropriate to Vesalius.

Have I named one single river? Have I claimed one single acre?
Have I kept one single nugget—(barring samples)?
No, not I:
Because my price was paid me ten times over by my Maker.
But you wouldn't understand it. You go up and occupy.

Yes, your "Never-never country;" yes, your "Edge of cultivation"
And "no sense in going further"—till I crossed the range to see.

God forgive me. No, I didn't. It's God's present to our nation.
Anybody might have found it, but—His whisper came to me.

Vesaliana. — In connection with this meeting there was an exhibit of examples of the original editions of the books published by Vesalius. There were also examples of the works of the anatomists who preceded him, including his teachers and contemporaries and also examples of the works of his followers and imitators, and posthumous editions of his plates up to their latest impressions by Leveling in 1742. There was also an interesting group of books from his critics and opponents. The exhibits were from the Library of the New York Academy of Medicine, the Library of the Medical Society of the County of Kings, and by Drs. Harvey Cushing and Edward Clark Streeter of Boston, Dr. Fielding M. Garrison of Washington, Dr. W. B. Coley of New York and Dr. Lewis S. Pilcher of Brooklyn.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Adjourned Meeting of November 23, Held December 28.

THE PRESIDENT, DR. T. PASSMORE BERENS, IN THE CHAIR.

Reading of Resolutions upon the Death of Dr. H. Seymour Houghton.—Dr. CHARLES N. DOWD read these resolutions.

Reading of Resolutions upon the Death of Dr. L. Bolton Bangs.—Dr. JAMES PEDERSEN read these resolutions.

Election of Officers.—*President*, Dr. Howard Lilienthal; *First Vice-President*, Dr. Frederic E. Sondern; *Second Vice-President*, Dr. George O. Stewart; *Secretary*, Dr. John Van Doren Young; *Assistant Secretary*, Dr. Daniel S. Dougherty; *Treasurer*, Dr. Charles M. Richardson.

Further Observations on the Treatment of Sciatica by Perineural Infiltration with Physiological Saline Solution.—Dr. WILLIAM M. LESZYNSKY read this paper. (See page 211.)

Treatment of Sciatica by Epidural Injection of Saline Solution.—Dr. ISRAEL STRAUSS read this paper. (See page 213.)

Analysis of Narcotic Drug Addiction.—Dr. ERNEST S. BISHOP read this paper. He said that some years ago his definition of narcotic drug addiction would have been a condition based on some inherent weakness of will power and mental stamina; a condition arising from the habitual use of a narcotic drug which causes a deterioration and degeneration of the physical, mental, and moral being; an abandonment of the individual to the pleasure derived from sensuous indulgence; a habit; a vice; a morbid appetite to pander to which the debauchee would go to any length, and loss of self-respect, with no wish to escape from his degrading thraldom. A few months of bedside observation and effort showed him how far this conception fell short of clinical fact. What he had learned he had learned from the study of narcotic drug addictions as a medicoclinical problem, viewing the patient as a sick man, listening to his history and his statements of narcotic drug action, watching his clinical manifestations, and interpreting them in the light of physical action and reaction. In offering this analysis he said he was simply giving the results of personal experience and effort to interpret physical effect upon the basis of physical cause. His present definition of narcotic drug addiction was as follows: A definite physical disease condition, presenting constant and definite physical symptoms and signs, progressing through clean-cut clinical stages of development, explainable by a mechanism of body protection against the action of narcotic toxins, accompanied by inhibition of function and autotoxmia, often displaying deterioration and psychoses which were not intrinsic to the disease but the result of toxemia, anxiety, fear, and suffering. Dr. Bishop then proceeded to elaborate this definition. Observing a number of addicts over a length of time one could not escape the recognition of a chain of constantly present physical manifestations inevitably following the nonadministration of the drug. These might vary in priority of onset, in sequence, and in relative violence of manifestation in different cases, but they were the inevitable result of nonadministration of, for instance, morphine to a morphine addict. They constituted what were called the "withdrawal signs." Every case of well-developed addiction went through several stages definitely marked by clinical signs and reaction phenomena, as (1) stage of normal reaction to therapeutic and toxic dosage; (2) stage of increased tolerance; (3) stage of beginning addiction; (4) stage of established addiction. Most of their cases were in the stage of developed addiction when they were recognized by or came to them for treatment. Developed addiction for a narcotic drug meant physical bodily need for that drug; functional incompetency and suffering without that drug; comparative normality and efficiency only to be secured by the continued use of that drug. Experience had shown that the length of time over which a sufferer was free from his withdrawal agonies was in proportion to the size of his last dose. Each addict showed a definite and measurable daily minimum need for the narcotic drug of his addiction. The narcotic drug administered to an addict suffering withdrawal agonies would relieve those agonies exactly in proportion to the amounts of drug administered. Each addict had a constant sequence of symptoms attending the so-called "dying-out" of the drug. These symptoms were relieved in constant reverse sequence by the administration of the drug, and in exact proportion to the amount of drug administered. A small amount of drug would relieve the symptoms last appearing; another insufficient amount would relieve another proportion of the withdrawal signs, and so on until the narcotic drug administered balanced in amount the extent of the addict's deprivation. This was almost mathematical in its working and an addict after a few trials could tell within a very close margin just how much morphine had been administered to him by the extent to which it relieved his withdrawal signs. In speaking of the essential mechanism of narcotic drug addiction, physical results must be explained by physical cause and Dr. Bishop advanced his own solution. Tolerance of and immunity to the toxic effects of narcotic drugs were primary and striking characteristics in the development of addiction. An antitoxin and antidotal substance was the recognized mechanism of production in most diseases admittedly developing these characteristics. He, therefore, advanced the hypothesis that an antidotal substance was manufactured by the body as a protection against the poisonous effects of narcotic drugs constantly administered. A hypothetical antidotal toxic substance manufactured by the body as a protection against the toxic effect of continued overdosage with a narcotic drug would, therefore, explain the well-known development of tolerance and immunity in these cases, and would account for the violent physical withdrawal signs. In a word it would explain the disease fundamentals on a definite physical basis. Such an hypothesis would explain the stages of development of addiction above noted. This theory had been adopted by Dercum and other writers. Right or wrong, purely hypothetical as it was, it at least offered a working basis in physical explanation of definite disease manifestations. Narcotic drugs had the power to inhibit body function and they markedly arrested metabolic processes. They inhibited glandular activity. They inhibited unstriped muscle action and hence peristalsis. They, therefore, caused a slowing-up of glandular and intestinal elimination. This resulted in an accumulation of drugs, or of products of the drugs, and a constant residue exisiting in the body. It was this constant residue to which the body must become tolerant by the development of some mechanism for its protection. It was to the element of inhibition of function that they must look for an explanation of what was by far the most important element in the immediate picture presented by most of the individual cases. He referred to autotoxemia. Upon the extent of inhibition of function and autointoxication, therefore, depended the predominating manifestations in the individual case and the measure of disease in the individual sufferer. They contributed the immediate and compelling indications for rational therapeutic endeavor. They, to a great extent, determined circulatory efficiency and physical reaction. They largely controlled physical tone and physical reaction. With inhibition and autointoxication eliminated or reduced to a minimum, the patient could go through many years an apparently normal man, well-nourished, reactive, in good physical tone, mentally and physically sane. He showed practically nothing abnormal as long as he got properly administered his accustomed narcotic drug and in the amount of its minimum need. Treatment depended

upon rational appreciation and measure of narcotic drug need, and of inhibition of function and autotoxemia in their varying and interacting manifestations and symptomatology. It resolved itself into the rational care of the individual case. Supply the drug of body need as long as it was necessary, and in such amounts as were useful in the maintenance of body function. Do this at sufficiently wide intervals of administration to minimize drug inhibitory effect. Combat inhibition of function by strychnine in such doses as the toxic case required. Combat autotoxemia by intelligent elimination, based on individual reaction, being very careful not to exhaust eliminative ability by depleting overadministration of ill-advised and illy-timed catharsis. When the patient was in a condition of satisfactory reaction, sweep out the residue of drug and autotoxins, easing the removal reaction by the administration of an alkaloid of the belladonna group, preferably hyoscine or scopolamine. Administer the narcotic drug to your patient in sufficient quantities to meet indications and do not try to reduce the amount of the drug until you have reduced the extent of physical need for the drug. General tone and metabolic efficiency and adequate elimination were of far more importance than the mere fact that the patient was taking a smaller amount of the drug.

Dr. George E. Petty of Memphis, Tenn., said that if such a classical paper had been available sixteen years ago when he took up the study of the subject he would have been saved many anxious months of groping in the dark, seeking to find some rational interpretation of the varied phenomena presented by narcotic drug users when deprived of their normal drug supply. The literature of this subject, until recently, had been the most disappointing of any medical subject with which he was acquainted. At the time he took up the study of this subject he had before him a concrete example, a case in which he knew no element of vice entered into the formation of the addiction or into the continuation thereof. This early led him to reject the vice theory, and a little experience also soon led him to see that the condition was not a neurosis. Reaching these conclusions enabled him to approach the subject with a much less clouded field of vision, but did not at once furnish an answer to the burning questions: "What was the matter with the patient?" "What pathological conditions underlay the symptoms presented, and what could be done for their relief?" The fact that the patient was using a narcotic drug was dismissed from immediate consideration and an examination of the patient was undertaken with the purpose of ascertaining the condition of every organ and function of the body. This examination revealed marked functional derangement, especially of the gastrointestinal tract; her breath was foul, the tongue was coated, her bowels were constipated, the liver was enlarged, the portal system was engorged, the skin was dry and sallow, in fact there was every evidence of profound intestinal and auto-intoxication. It was then asked, "If this patient were not using a narcotic drug, what would be the indications in treatment?" There could be but one answer, "Cleanse the system from toxic matter!" It was decided to treat that part of the ailment according to the general principles of medicine. Purgatives of composition and dosage usually employed were given, but the results were not satisfactory. After repeated failure to successfully carry out even this step in a rational treatment, the cause of these failures began to dawn upon him. Intestinal atony and not sufficient secretions accounted for the failure to secure free purgation. The problem he was confronted with was that of restoring normal or efficient intestinal motion in spite of the restraining effect of the opiate. Strychnine was given for the purpose of exciting intestinal motion by direct stimulation of the motor centers. With this function restored it was found that the purgatives, which failed to act before, now acted promptly and efficiently as if the patient were not addicted to a narcotic. The reader was able to clear the system of his patient of toxic matter; when this was done, not more than one-quarter of the quantity of the opiate formerly used was necessary to meet the demands of the patient and keep her in comfort. A few days later the last of the opiate was withdrawn, but to his surprise the suffering, formerly so severe, did not occur. The employment of this plan of treatment in a few cases led him to place the proper estimate on the toxic element as a pathological factor in these cases, but about 150 cases were treated before he reached the conclusion that the essential pathology of narcotic drug addiction was toxemia, the toxins being of drug, intestinal, and autochthonous origin. This conclusion was reached about fourteen years ago and he felt sure that it would stand the test of time. For a number of years he had held that narcotic drug addiction was the most certainly and readily curable of all the chronic ailments. Narcotic drug addiction was, essentially, neither a neurosis, a psychosis, or a vice, but was a systemic disease, functional it might be true, but a disease nevertheless, one which yielded promptly and completely to rational treatment based upon well-established physiological laws.

Dr. Charles A. Rosenwasser said that Dr. Bishop had shown that narcotic drug addiction was a very complex condition, and this being so it was absurd to claim that any drug or combination of drugs had any specific properties in its treatment. For this reason any institution which claimed to cure narcotic drug addiction by the use of certain alleged specific remedies was to be condemned.

Dr. Bishop, in closing, said that the main point to be kept in mind was that these people, the narcotic addicts, were sick and sick of a definite disease. This disease was complex and widely variable in the individual cases. Fundamental disease could not be cured or handled by mental, moral or psychictrical approach. There was not and never would be any specific routine treatment applicable to any complex and variable disease condition. Narcotic drug addiction was a definite, curable disease in its fundamentals and should be so regarded and so treated.

NEW YORK NEUROLOGICAL SOCIETY AND NEUROLOGICAL SECTION OF THE N. Y. ACADEMY OF MEDICINE.

Combined Meeting, Held on November 10, 1914.

Dr. Smith Ely Jelliffe, President of the N. Y. Neurological Society.

Dr. I. Strauss, Chairman of the Neurological Section of the N. Y. Academy of Medicine.

Scleroderma, with Contractions.—Dr. S. P. Goodhart presented an unmarried girl, 24 years old, a Hungarian Jewess, whose family and previous personal history showed nothing of interest. Her present illness began about nine years ago, when she noticed a swelling of the toes, followed by increasing stiffness of the toes and knees. About the same time she also complained of a feeling of coldness and weakness in the lower extremities, with paroxysmal attacks of whiteness of the skin of the hands, together with pain and tingling. With the disappearance of the blanching, the hands would become congested and then cyanotic. Because of increasing weakness the hands lost in function, and flexure contractures soon appeared. These symptoms for a time increased in severity and then remained stationary. About five and a half years ago the patient noticed pigmentation of the chest and a peculiar stiffness of the face, so that she was scarcely able to open her mouth. Some months later there was some improvement in the power of moving the knees and toes. When the weather was cold she had noticed a numbness of the nose and tongue, but not of the lips nor ears. The legs could be separated for a distance of only about six inches at the knees, due apparently to fixation at the hip joints. Over the feet there was a hide-bound condition, but less marked than in the hands, which presented the typical appearance of a pronounced sclerodactyle. The face was distinctly masked in character, with all lines obliterated: the palpebral fissures were wide, giving a strange expression to the eyes. The margins of the lips were very narrow, and the mouth was held stiffly and always partially open, giving rise to a mummified expression. The nose was narrow and angular. The ears, which were indurated, thin and blanched, were held rigidly down. The mucous membrane of the mouth was becoming involved, showing some induration to the touch. The scalp showed no abnormality. The mammæ were fairly well developed. Trophic disturbances were well marked over the small joints of the fingers and toes. The skin showed glossiness as well as the pigmentation. Many scars were present, due to previous ulcers of the fingers and toes. Sensation: A few years ago there was a slight but manifest diminution to painful stimuli from the finger-tips up to the wrists: this was also true of the feet and ankles. At present, no sen-

sory changes were found excepting that there was a lack of proper appreciation of hot and cold stimuli. Dr. Goodhart said the interesting features in this case were the initial symptoms, which pointed strongly to Raynaud's disease; indeed, that was the original diagnosis and the one with which the patient was discharged from the Harlem Hospital. Further, the case offered a recognition of the various stages of the disease, so far as it affected the soft tissues, namely: oedema, induration and atrophy, and the characteristic cutaneous pigmentation. The restriction in the movements of the joints was by no means entirely due to the hide-bound condition; there were true changes in the joints giving rise to ankylosis. The hip joints were so restricted by the intra-articular pathological process as to afford very little movement to these joints. There was doubtless rarefaction and absorption of osseous tissue in some of the larger joints analogous to the atrophic process of the subcutaneous tissue. There had been periods of marked improvement in the condition of this patient, and for a time the administration of thyroid extract seemed to be responsible for it. The initial symptoms affecting the periphery of the extremities and suggesting Raynaud's disease, together with the dissociated sensory changes, indicated a trophoneurosis. An interesting symptom in this case was the beginning involvement of the mucous membrane of the mouth. The vaginal mucosa had not been examined. Dr. Goodhart said he did not believe that the pigmentation in this case was really indicative of adrenal involvement, there being no other symptom of Addison's symptom-complex.

Dr. WALTER TIMME thought this condition was one of generalized connective tissue hyperplasia, of which the scleroderma was only a single manifestation. This connective tissue hyperplasia, in turn, was secondary, as a rule, to a disturbance of the sympathetic and autonomic nerve supply. In most of these cases of scleroderma we get the history of an antecedent high grade sympathicotonia, and as this increases we begin to get the tissue hyperplasia, sometimes in the muscles and joints, and occasionally in the thyroid, the hypophysis cerebri and blood vessels. We have an overactive sympathetic and an under-active autonomic system. In the end, it probably resolves itself into a question of disturbance of the internal secretions, and from a therapeutic standpoint we had seen some benefit from the use of various internal secretions. These must be brought to bear upon the particular symptom that was in the foreground, and it required a good deal of application and patience to arrive at any result. Many of the symptoms of these patients, such as the lack of perspiration, the occasional rapid pulse, etc., went to prove the contention that the condition was due to a disturbance of balance between the sympathetic and autonomic nervous systems. In reply to a question as to whether he regarded the lesion in the case shown by Dr. Goodhart as cortical or sub-cortical, Dr. Timme said it had been shown that the ablation of one of the hemispheres gave rise to certain sympathetic manifestations, but just what part of the hemisphere was involved we did not know. The highest level to which they had been traced thus far was in the region subjacent to the corpora quadrigemina, to the hypothalamus, to the stalk of the hypophysis and some of the centers of the vagus. Manifestations of the autonomic system had been found in hypophysis stimulation.

Dr. GOODHART, replying to Dr. Timme, said that in spite of the lack of pathological evidence, the clinical evidence seemed to be very striking of a higher center, probably about the motor area.

Dystonia Musculorum Progressiva.—Dr. H. CLIMENKO reported this case (see Vol. 26, No. 24, p. 1000).

Dr. C. C. BELING of Newark, N. J., said that at a meeting of this society some time ago he presented a case bearing some resemblance to that shown by Dr. Climenko. That was the only case he had seen. The one shown to-night seemed to be in a rather earlier stage.

Dr. I. ABRAHAMSON said he showed a case of dystonia musculorum progressiva at a meeting of this society about two years ago, and since then he had seen two additional cases. In the case he had presented the disease had previously developed in the patient's sister, and these were the only instances on record, so far as he knew, of two cases in the same family. Oppenheim, in his description of this disease, spoke of its usually beginning in the hand, the child noticing that it could only write with difficulty, the symptoms later extending to the leg, etc. In a typical case which came under his observation about a week ago at the Montefiore Home, the patient, a girl, had hypertrophy of the lower extremity which was affected by the dystonia, and from time to time there were cramplike spasms in these muscles. This hypertrophy and hypertonicity is also observed in Thomsen's disease. The case shown by Dr. Climenko, Dr. Abrahamson said, seemed to present a typical case of dystonia musculorum progressiva.

Dr. I STRAUSS said that in one case that came under his observation, in addition to the hypertonicity, there was reaction of degeneration in the muscles of one leg. That patient died. No autopsy was obtained. The condition began in one arm following a trauma, and the first appearance of the tremor was in the injured arm. From here it spread over the entire body, and the child was in a constant state of spasm, so that repeated doses of hyoscine were required to keep it quiet. In this case the dystonia and lordosis were extreme.

DR. WILLIAM M. LESZYNSKY said that the case of dystonia musculorum progressiva which he showed at a meeting of the New York Neurological Society about nine years ago was the first case of the kind presented in this country. That patient had been subjected to various forms of treatment, including tendon cutting to relax the muscular spasm, etc. At a later date he was again shown at a meeting of the society by Drs. Hunt and Kruna. Dr. Leszynsky said that at the time he presented the patient no diagnosis was made. There was no scoliosis, but the boy moved about on all-fours, with constant peculiar and fantastic movements. He improved for a time, but subsequently his symptoms became exaggerated.

Dr. CLIMENKO, in closing, thought that Oppenheim emphasized the fact that there were no organic muscular changes, hypertrophy nor atrophy, and that the characteristic marks of the disorder were hypertonia and atonia: these he regarded as the only cases that should come under the category of dystonia. Other writers on this subject failed to agree with Oppenheim and cited cases in which atony was lacking.

Pilous Cerebral Adiposity.—Dr. WALTER MAX KRAUS, in showing this case, said that many instances of genital dystrophy associated with obesity had been described since Froelich first separated the syndrome from the general class of obesities, but he had not found any account of a class of cases complicated by an anomalous condition such as was presented in this case; namely, a marked increase of the body hair, accompanied by a lack of the dry skin characteristic of the classical Froelich syndrome. This patient, in the service of Dr. Alexander Lambert, in the medical wards of Bellevue Hospital, was a white man, 31 years old; a watchman by occupation. His father was living and an alcoholic; his mother died of nephritis following childbirth. One brother died in infancy of unknown cause; one sister was living and well. Otherwise the family history was negative. The patient had been married since 1906. His wife had had one miscarriage and four normally born children; three of these had died in infancy, one of meningitis, the others of unknown causes. The living child was two years old and well. The patient had been accustomed to drink from five to seven glasses of beer daily up to the onset of his present illness in 1910. He smoked moderately. He gave a history of measles, chicken-pox, diphtheria and whooping cough in childhood, and some form of arthritis from the age of 24 (1908) until one year ago. The soles of his feet were sore and later the tissues about the knees became red, swollen, hot and painful. After several of these attacks there was some limitation of motion, but one year ago, after treatment at the Metropolitan Hospital in this city, the patient was cured. Between the ages of three and four years he fell from the fifth story of his residence to the ground, resulting, as he states, in a fracture of the crown of the skull. He was unconscious for about fourteen hours and disabled for six months. From that time until the age of thirteen he was entirely well. Then he began to have attacks of Jacksonian epilepsy, which occurred from three to six times yearly and were not of sufficient severity to cause the patient to either tell his parents or seek the aid of a physician. At the age of twenty-five, a little over twelve years after the first attack, the attacks ceased and had not since recurred. Four years ago, at the age of twenty-seven, the patient began to grow fatter. At that time his weight was 150 pounds; in 1912 it had increased to

204 pounds; in 1913 to 263 pounds, and his weight at the present time was 282 pounds. At about the same time as this increase in adipose tissue began the following symptoms made their appearance: his hair began to increase over the trunk and extremities, he felt sleepy, and as time went on he would fall asleep involuntarily in addition to sleeping a good deal voluntarily. In 1910, while driving a large automobile beer-truck, he fell asleep, allowing the truck to run into a saloon. This accident deprived him of his chauffeur's license. These narcoleptic attacks had continued since. The patient's appetite for food, especially meat and carbohydrates, had increased. He also complained of shortness of breath and sweated a good deal. Three and a half years ago he noticed that his penis was smaller and that shortly afterwards his sexual desire grew less until now he had none at all. Dr. Kraus said it was difficult to form any clear conception of the basic cause in this case. A fall on the head at four years of age, followed nine years later by mild Jacksonian epileptic attacks, which lasted thirteen years, led one to believe that some neoplasm was present. The beginning increase in the accumulation of fat two years later pointed to an involvement of the glandular hypophysis, with the probability that in the interval the glandular part was gradually decreasing in power until its limit of safety was overstepped, with the ensuing appearance of the Froelich syndrome, complicated by atypical changes in the skin and blood. The absence of any involvement of the cranial nerves or of a cranial neoplasm made it impossible to settle on any diagnosis other than hypopituitarism. A blood examination showed 6,720,000 red cells; 10,800 white cells; polymorphonuclear neutrophiles, 56 per cent; eosinophiles, 3 per cent; transitionals, 1 per cent; large lymphocytes, 19 per cent; small lymphocytes, 11 per cent; large mononuclears, 10 per cent; hemoglobin, 110 per cent (Sahli). Urine: Albumin ranged from 1 to 6 grams per day during two weeks' observation; usually about 3 grams. No sugar. Many granular casts and a few white blood cells. Carbohydate tolerance: From 100 to 500 grams of dextrose were all without effect in causing glycosuria; 700 grams was followed by only a trace of sugar in the urine. Blood pressure: Systolic, 170 mm.; diastolic, 120 mm. Wassermann negative.

Dr. ABRAHAMSON said that in the wards of Mt. Sinai Hospital they had at the present time a young woman with very similar manifestations to those in the case shown by Dr. Kraus. She gave a history of amenorrhea, hyperidrosis, peculiar skin changes and adiposity; she complained of sleepiness and had a growth of hair on the face and body, but the urine contained sugar and showed, as in Dr. Kraus's case, evidences of an advanced nephritis. A blood count gave 6,100,000 red cells and 10,000 white cells, with 110 per cent of hemoglobin. It was noteworthy that the urine constantly contained a small percentage of sugar. The sugar tolerance was being investigated. The facies looked like a typical one of polycythemia. The moist skin in this case might be attributed to the nephritis as well as the polycythemia, but was most likely a part of the polyglandular disease. As he had not seen the *x*-ray plate he could not report on the findings.

Dr. STRAUSS said that in the case mentioned by Dr. Abrahamson the *x*-ray showed an enlargement of the sella turcica which was enough to be due to a tumor.

Dr. TIMME said that the hypertrichosis present in this case was not quite as generally distributed as had been stated, for upon closer inspection it could be seen that the distribution was radicular in character, and furthermore skipped the areas supplied by the cervical roots, to begin again at the dorsal level. This arrangement corresponds with the position of the cells of the superior spinal sympathetic nucleus, which is non-existent in the cervical region of the cord, and begins at about the first dorsal level. This is rather suggestive, therefore, of sympathetic involvement.

Wilson's Lenticular Degeneration.—Dr. CHARLES E. NAMMACK presented a boy, twenty years old, who was admitted to Bellevue Hospital on June 20, 1914. He had never had any regular occupation. His father died at the age of forty-two of glandular tuberculosis; his mother at about the same age of pulmonary tuberculosis. His parents were not consanguineously related. The mother had seven children, the patient being the last child. Of the seven children, four were living and in good health. One brother died of pulmonary tuberculosis. The patient stated that so far as he knew no one in either branch of the family had a condition similar to his. The family history was negative as to gout, rheumatism, syphilis, alcoholism, or nervous affections. One of his brothers was married and had one child, in good health. There was also a married sister with two children in fair health. This patient attended school until he was unable to stay in the class. He smoked cigarettes and occasionally drank a glass of beer. He had the usual diseases of childhood and at the age of five years he lost his speech and the power of walking, being obliged to creep around, but he was able to go to school at the age of ten, and left six years later, in 4-A grade. He states that he was always near the head of his class and liked to study. He had a bad temper and would get into quarrels with the other boys. He left school at the age of sixteen because his left arm began to shake so that he could not hold objects in it. After he left school he remained at home, occasionally going out with draymen, etc., but he had never had any regular work. The first symptom of the disease occurred when he was six years old, when it was noticed that his left hand trembled considerably and that his right leg slowly turned in, as the patient expressed it. The foot finally got into such a condition that he walked on the side of the foot and had to catch hold of bed-posts, etc., to support himself. He was taken to the family physician, who said that he had St. Vitus dance. There was no history of epileptic fits or periods of unconsciousness. Gradually the tremor of the hand became more aggravated, the condition of the foot became worse, and his speech became so nasal in quality that it was difficult to understand him. When he started to do anything he had to wait a few minutes and then quickly arose; as soon as he got up he would start swaying around and would have to take hold of some support to pull himself along. If he was in the open, without support, he would throw himself forward and drag or slide his feet. After he started walking he got along very well unless he stopped; states he could walk across the Brooklyn bridge provided he did not stop but kept right on. The muscles of the arm and trunk were remarkably well developed. The patient's facial expression was fixed; the mouth was large and drawn, and when walking or doing any form of exercise he protruded his tongue. He understood everything that was said to him and was usually in a jolly mood, although he had a bad temper. His intelligence was about on a par with that of a boy of twelve or thirteen. He was able to dress and to feed himself; only it took him longer. His condition had apparently remained unchanged for several months; at least it did not appear to differ physically or intellectually since the date of his admission on June 20, 1914. The patient was well developed and nourished. His movements were jerky; that is, his head and arms would jerk while his spine became rigid with a functional anterior curvature, with talipes equinovarus of the left side. As he bent forward the right foot was thrown out in an inverted position, and the left foot was drawn by sliding, in the meantime the head, arms and pelvis going through jerky motions. The speech was long and drawling, making it difficult to understand him. Swallowing was normal. The tremor of the hand was coarse. The grip was good; the knee and angle jerks were exaggerated; sensations appeared to be normal. The Wassermann test was negative. There was atrophy of the muscles of the right leg, hip and calf, with compensatory hypertrophy of the other muscles of the body. Dr. Nammack said that when this boy was about ten years old he was treated at the Cornell Dispensary, without diagnosis. About two years later he was under treatment at the Vanderbilt Clinic; diagnosis withheld. When he was admitted to Bellevue Hospital in June, 1914, the case was regarded as a puzzle until Dr. Foster Kennedy called attention to Wilson's article on lenticular degeneration, when it was placed in that category. So far as he was aware, Dr. Nammack said, this was the first case of Wilson's lenticular degeneration to be shown in this city. One case had been reported in Philadelphia.

Dr. FOSTER KENNEDY said that while he was inclined to regard this case as an example of Wilson's lenticular degeneration, he recognized the fact that there was considerable scope for argument in the diagnosis. In several important respects, this case did not absolutely conform with the clinical description given by Wilson in his paper. One was the comparatively slow progress of the disease in this case—its long duration. Then, again, there was the lack of emaciation and pyrexia and the absence of any evidence of liver disease. Of course, it was fair to presume that the len-

ticular nucleus could be diseased without visceral involvement and give rise to a syndrome somewhat dissimilar from that described by Wilson, but as the case stood now, it did not conform in the above particulars with the original description of Wilson's disease, which was regarded by him as a clinical entity, dependent on toxic causes, and the main features of which were involvement of the liver, associated with degeneration of the lenticular nucleus. It was unfortunate that the name adopted by Wilson, *i.e.* progressive lenticular degeneration, did not suggest the presence of concomitant liver disease. Whether or not the liver was cirrhosed in the case shown by Dr. Nammack could not be definitely stated at this stage. In only one of Wilson's cases was there jaundice.

Dr. J. Ramsay Hunt said that he had been very chary in making the diagnosis of Wilson's disease since an experience with a case which had been under observation for a number of years at the Montefiore Home in which the clinical picture was typical of this condition. The progressive rigidity and the terminal symptoms corresponded in almost every particular with Wilson's description of lenticular degeneration. At the autopsy, however, the liver was found to be perfectly normal and careful serial sections of the lenticular nucleus showed no macroscopic lesions. Some histological studies were now being made in this case which were not yet complete. The clinical picture of Wilson's disease, therefore, may be very closely simulated by a clinical type which is probably a juvenile paralysis agitans. In the case presented by Dr. Nammack, the symptoms, which are now of 14 years duration, seemed to have been consecutive to an acute cerebral affection of early childhood. It was not unlikely that the entire clinical picture was simply the result of a polio-encephalitic process in early life, and not a progressive, degenerative condition.

Dr. Smith Ely Jelliffe said that the bilateral character of lenticular degeneration as originally described by Dr. Wilson assumed importance. This patient did not show a bilateral tremor. The patient had athetoid movements of the left upper extremity, and palsy and spasm of the right leg, and the speaker said he was inclined to agree with Dr. Hunt that we had here the results of a polio-encephalitic occurring in youth, with athetosis on one side and spasm on the opposite side. In the cases described by Wilson the tremor was invariably bilateral. In some of the patients which were presented at the meetings of this Society by Dr. Jeliffe, as probable cases of multiple sclerosis with paralysis agitans like syndromes, the possibility of Wilson's degeneration was considered and the relationships to this disease taken up. He thought that the diagnosis of lenticular degeneration could not be successfully maintained in this case on account of the absence of any hepatic involvement, the long duration of the disease, the non-bilaterality of the symptoms, and the doubtful clinical findings.

Dr. Nammack, in closing, said the possibility of an old cerebral hemorrhage, with post-hemiplegic athetosis, was considered in connection with this case, but subsequently rejected. The patient's symptoms had not been noticeably progressive since his admission to the hospital four months ago. As regarded the long duration of the disease in this case, and its bearing upon the possible diagnosis of Wilson's disease, Dr. Nammack said there was considerable difference of opinion among those who had reported cases of lenticular degeneration since Wilson's original description. Wilson divided his cases into two groups, *i.e.* acute and chronic, the duration of the latter averaging four years. Sawyer's case lasted seventeen years, but when Wilson saw this case he threw it out. None of the cases reported in this country entirely agreed with Wilson's description. While this case was somewhat analogous to the juvenile type of paralysis agitans, there was enough difference to separate them clinically.

The Treatment of Syphilis of the Nervous System with Salvarsan in the Frankfurt and Hamburg Clinics.—Dr. F. J. Conzelmann read a paper on this subject in which he described in detail the methods employed in the treatment of syphilis of the nervous system with salvarsan in the two representative clinics in Germany—the Dreyfus clinic at Frankfort and the Nonne's clinic at Hamburg. At the Dreyfus clinic the first idea of salvarsan was conceived, and here the great master Ehrlich visited the clinic, rendered individual supervision and offered suggestions. One was impressed with the well planned and orderly arrangement of the clinic, and the feature that stood out most prominently was that Dreyfus did not treat the patients as merely cases, but as individuals. He first selected the type of the disease; secondly, he gave the intensive treatment of salvarsan and mercury; thirdly, he adapted the dose of salvarsan or mercury to the individual and was guided by the constitutional reaction; and, fourthly, the treatment was continuous, with definite periods of intermission. Ehrlich and Dreyfus preferred old salvarsan to neosalvarsan, and used the latter only on certain indications, especially when a mild, non-irritating action was desired: nevertheless, the initial treatment was frequently begun with neosalvarsan. The concentrated solution of salvarsan was always used, and was prepared as follows: The dose of old or neosalvarsan was dissolved in 35 c.c. of double distilled water; then the sterile sodium hydroxide was added and the solution injected with the syringe directly into the vein. A searching physical examination of the patient preceded every course of treatment with salvarsan: in fact, it determined the final treatment. Patients suffering from syphilitic affections of the nervous system soon after the primary infection were as a rule strong, robust individuals, and could tolerate a much larger dose than those in whom the infection had been present for many years. If the patient suffered from gastric trouble, a thorough stomach analysis was made and the condition treated before giving salvarsan. In patients over 60 years of age, salvarsan was given with a great deal of care. In cases with tuberculosis, chronic heart disease or nephritis, the pros and cons were carefully considered. A course of treatment lasted six or eight weeks, during which time the patient received from three to six grams of old salvarsan, or from four and a half to nine grams of neosalvarsan, with from six to twelve mercurial injections of 0.02 to 0.05 of a 40 per cent. calomel solution, or the same dose of some especially prepared oily solution of mercury. Patients, after receiving a dose of salvarsan intravenously, were kept in bed for twenty-four hours; if at the end of that time there was no feeling of illness nor rise of temperature, they were permitted to get up. Two examinations of the urine weekly were considered imperative. After the physical examination of the patient, which included lumbar puncture and a Wassermann test of the blood and spinal fluid, had been completed, the diagnosis of the stage of the disease was agreed upon, and a carefully planned, systematic course of treatment was begun. The approximate outline of such a course of treatment in early brain syphilis was as follows: A course of mercurial treatment consisting of five injections of 0.02 to 0.05 c.c. of a 40 per cent. calomel solution every third day. If, at the end of this time, the patient showed no febrile reaction to the injections of mercury, the injections of salvarsan were begun. The mercury injections were continued every third day, and a concentrated solution of 0.15 grams of neosalvarsan was injected directly into the vein with a syringe. If this dose produced no reaction, the patient received a second dose of 0.3 grams on the following day: no untoward symptoms developing, he received 0.45 the third day and 0.6 on the fifth day. This was continued every other day until the patient had received from one and a half to two grams of neosalvarsan. Dreyfus began the treatment with old salvarsan, generally starting with a small dose of 0.1 and never going beyond 0.4. The dose was repeated every second day. If at any time during the treatment the patient had a febrile reaction after the injection, the treatment was discontinued and not resumed until the patient was free from fever at least two days. A favorable prognosis was given in early brain syphilis—in fact, a positive cure was promised—to all who returned for re-examination and took the treatment if the physician advised it and considered it imperative. In the majority of cases of late syphilis of the cerebrospinal system the prognosis in the Dreyfus clinic was generally favorable for improvement, but not for cure. In tabes the patients were treated with salvarsan alone for three weeks, giving one injection of salvarsan of 0.1 to 0.2 grams every other day. At the end of that time the treatment was combined with mercury. As a rule, Dreyfus preferred mercurial inunction in cases of tabes, but often used the mercurial salicylate. With this form of treatment the patients improved rapidly, gastric and lancinating pains disappeared and the ataxia and visceral symptoms improved. Tabetic cases were always emphat-

ically advised to take a course of treatment every three months until four courses were taken. In the intraspinous administration of salvarsan, Dreyfus used Gennerich's modification of the Swift-Ellis method. He dissolved 0.15 grams of neosalvarsan in 300 c.c. of sterile salt solution, and of this solution five c.c. were injected intraspinously after the withdrawal of an equal quantity of spinal fluid. His results in initial lues cerebri were very encouraging, while in tabes the results of the intraspinous method of treatment were symptomatic but nevertheless very striking. Dreyfus had no cases of general paresis in his ward. Since February, 1914, Dreyfus had used two new preparations of salvarsan from Ehrlich's laboratory: the one was copper salvarsan, the other sodium salvarsan. Both could readily be dissolved in water and did not entail the manipulation required in the preparation of old salvarsan. The solutions were given in concentrated form directly into the vein with the syringe. With this mode of administration, three or four cases could easily be treated in the course of half an hour. Iin Nonne's clinic at Hamburg, every patient suffering from syphilitic or metasyphilitic disease of the nervous system received a course of mercurial inunctions, irrespective of the stage of the disease. For purposes of treatment Nonne had his tabes cases divided into groups: one group received mercury inunctions, another group mercury inunctions and intravenous injections of salvarsan, a third group mercury inunctions plus intraspinous injections of salvarsan and a fourth group received no treatment whatsoever. In cases of general paralysis he used the mercurial inunctions and intraspinous injections of salvarsan: in cases of cerebral lues he preferred to give mercurial inunctions, with intravenous injections of salvarsan. He employed von Schubert's modification of the Swift-Ellis method. In his tabes cases Nonne got improvement, symptomatically, by the intraspinous method, but in some cases the bladder symptoms were very much worse after the treatment.

Dr. J. F. TERRIBERRY said he had under his observation at the present time a man about 30 with tabes who was so much disturbed by the old-time antisyphilitic treatment that all treatment was discontinued. Under this let-alone method he had remained comparatively free from symptoms during the past year, and excepting for a slight difficulty in locomotion he seemed to be in perfect health. We must not underestimate nature's restorative powers under good hygienic and dietetic conditions.

Dr. CONZELMANN, in reply to a question, said that so many of Nonne's cases of tabes got along well without any treatment aside from rest in bed that Nonne was rather skeptical in regard to the value of the intraspinous injections in cases of tabes.

Persistent Erythema of an Erythromelalgic Type.—G. N. Meachen reports the case of a girl aged 15 years whose ailment was diagnosed as erythema nodosum. For the last two and a half years she was said to have had pain in the legs, relieved by assuming the horizontal position, and the shins were of a purplish-red color. There was no history of actual joint pains, but eighteen months ago she had had pains in her arms like rheumatism. On examination the shins and calves of both legs were of a deep red color, and appeared somewhat tense. The upper and lower margins of these erythematous areas faded gradually into normal skin, and the feet were unaffected. There was no edema. No nodose lesions of any kind were present. The hands were in a condition of erythema perstans. The fingers had never become dead. The heart was normal. A blood count gave the following results: hemoglobin, 75 per cent.; red cells, 3,296,000; white cells, 7,600; small lymphocytes, 28 per cent.; large lymphocytes and transitionals, 7 per cent.; polymorphonuclears, 60 per cent.; eosinophiles, 3 per cent.; mast cells, 2 per cent.; no poikilocytosis; slight anisochromia. The blood coagulation time was seven and a quarter minutes. Though presenting some of the features of erythromelalgia, the condition was not wholly typical of that affection.—*Proceedings of the Royal Society of Medicine.*

Prophylactic Use of Sensitized Vaccines in Puerperal Sepsis.—S. T. Champtaloup believes that in view of the fact that 80 per cent. of the cases of puerperal sepsis are caused by streptococci, it would be well to use a stock sensitized polyvalent streptococcal vaccine as a prophylactic in the face of an epidemic of puerperal infection.

Therapeutic Hints.

A New Treatment for Tuberculous Ulcers.—Ottorino Marroni adds an additional case to the five reported by him before the Tuberculosis Congress in Rome, 1912, in which cases he demonstrated the value of the double salts of mercury and silver in combination with iodine, injected into the interior of tuberculous ulcers. This method of treatment is said to be a definite and a rapid one, being cited as a successful instance of chemotherapy.—*Annali di Medicina Navale e Coloniale.*

The Treatment of Bronchial Asthma.—M. T. Schnirer recommends the following:

℞ Tincture of lobelia,
Wine of antimony, āā, 5 grams.
Anisated solution of ammonia, 1 gram.
S.: During the attack 10 drops may be given every 15 minutes.

Bamberger employs the following mixture:

℞ Tincture of lobelia.
Tincture of digitalis, āā, 5 grams.
Cherry laurel water, 10 grams.
S.: Twenty-five drops may be given every hour during the attack.

Pyridine may be inhaled from a suitable apparatus in doses of 10 to 20 drops.

Kraus has found that one dose of the following powder is effective if administered at the beginning of an attack:

℞ Antipyrine, 0.8 gram.
Caffeine sodium salicylate, 0.2 gram.
—"Taschenbuch der Therapie."

Apomorphine in Bronchitis of Children.—L. Freyberger recommends the following mixture as suitable for a child two years old:

℞ Apomorphine hydrochloride, gr. 1/3.
Dilute hydrochloric acid, ♏ ii.
Syrup of lemon, ♏ xxx.
Distilled water, ad ℥ ii.
M. S.: One teaspoonful every two hours.

The Administration of Paraldehyde.—Whitla employs the following mixture as a hypnotic:

℞ Paraldehyde, ℥ j.
Mucilage of acacia, ℥ ii.
Simple syrup, ℥ ii.
Cinnamon water, ad ℥ ii.
M. S.: To be taken at bedtime.

Treatment of Subacute Alcoholism.—H. A. Hare has found the following prescription of great service in this condition:

℞ Tincture of capsicum, ℥ jss.
Deodorized tincture of opium, ℥ ii.
Spirit of chloroform, ℥ j.
Compound tincture of lavender, ad ℥ jv.
M. S.: Dessertspoonful every four or five hours.

A Powder for Urticaria.—The following is recommended as an effective antipruritic:

℞ Menthol, 0.20 gram.
Camphor, 1 gram.
Magnesium carbonate.
Zinc oxide, āā, 40 grams.
Pulverized talc, 20 grams.
—*Journal de Méd. et de Chir. pratiques.*

Apomorphine in Bronchitis.—L. Freyberger has found the following of service:

℞ Apomorphine hydrochloride, gr. 1/3.
Dilute hydrochloric acid, ♏ij.
Syrup of lemon, ♏xxx.
Distilled water, ad ℥ij.
M. Sig.: ℥j every two hours for a child two years old.
—"Pocket Formulary for the Treatment of Disease in Children."

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 7.
Whole No. 2310.

New York, February 13, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE INTOXICATION IMPULSE.*

By ALEXANDER LAMBERT, M.D.,

NEW YORK.

When your committee asked me to read a paper before you on my experience in the treatment of alcohol and drug intoxications, I greatly appreciated the compliment, both because you should wish to hear a paper from me on the subject, and also that after all these years you should care to listen to a subject with which I think most of the profession has grown weary. Their weariness, however, in my opinion, grows from false conceptions of both the causation of the intoxications and of the possibilities of regeneration that each patient will show if properly handled. The old time-honored conceptions have still such hold upon the profession in general that in their busy lives they have neither the inclination nor the time to study the question anew. Morphinism is still looked upon as a vice deliberately acquired, not as a misfortune sometimes accidentally inflicted on the patient by a physician. Alcoholic intoxication is still regarded as a poisoning from which the patient can voluntarily extricate himself, or, failing to do this, must be punished rather than treated medically. Only when physicians must face with some individual in their own practice the many problems that arise with the various forms of Intoxications, do they wish to go into the matter and solve the problems in hand.

My own interest in these problems arose from the necessity of understanding them in order to deal intelligently with my service in Bellevue Hospital, for alcoholism changes the type of clinical manifestations of the various diseases that appear in the service of a large city hospital, and the various drug addictions, until a few years ago, were looked upon as incurable conditions. The sight of the suffering of the drug habitue, his haunting terror lest the drug be taken away from him, his pitiful suffering when it was withdrawn, and the traditional belief in the profession that it was absolutely hopeless to deal with them in any way, combined to awake a keen desire in my mind to search and to see if something could not be found to relieve this misery. Especially did it seem incumbent to do this when I realized how many patients came into the hospital suffering from morphine addiction who had acquired this addiction through legitimate medication, and they were at that time hopelessly condemned to an unhappy and useless existence.

You all are aware that some nine years ago I met a layman, Mr. Towns, who was endeavoring to introduce a treatment for various intoxications. He was sent to me by physicians whose patients he had successfully treated and successfully removed their addiction. At first this gentleman, a business man, could see no reason why, as a business proposition, he could not retain his secret and still have the support of the medical profession in treating patients. When the ethical side of the question was clearly explained to him, he appreciated the standpoint of the medical profession and he appreciated the impossibility of anything but absolute ethical frankness. I did nothing with his treatment until I knew its fullest details, then I used it for some months and published it as soon as possible.

You are all familiar with the details of this treatment. Briefly stated, it consists in the hourly dosage of a mixture of belladonna, hyoscyamus, and xanthoxylum, and at stated intervals vigorous catharsis with some form of mercurial purges. The belladonna mixture is increased or diminished as the patient shows symptoms of the full physiological effect of belladonna. The patient is not cut off suddenly from his drug or his alcohol, but is given the narcotic to which he is addicted at definite intervals, and in diminishing doses, until finally it is withdrawn altogether. The patient is stimulated with various cardiac stimulants as the occasion may require. This treatment is kept up usually from about fifty-six to eighty hours, when a final dose of castor oil is given, the time for the giving of the oil being when the patient is passing green bile.

The basis on which this treatment is conceived is that whether the patient is poisoned from alcohol or drugs, it is necessary to eliminate thoroughly these poisons from the body; in other words, to unpoison him. This the abundant catharsis does, at the same time the belladonna and hyoscyamus acting on the nerve endings of the secretory nerves prevent the excess of action of these nerves following the withdrawal of the habitual narcotic.

This treatment as at present used has been a growth and a development as all such things must be, and the articles published four years ago concerning it do not describe accurately the treatment as carried out to-day. It has been simplified and developed as experience has taught the wisdom of so doing, and these changes I have published. With the experience gained in dealing with these patients both during the medicinal treatment and after they have finished, my ideas concerning the fundamental reasons of men's various intoxications and the wisest way to deal with the individual have also changed and developed. It seemed wise to take the experience gained in the last four years, during which a definite treatment has been used, and see if the results obtained with these patients can help us formulate a broad conception of the causation of the various intoxications in the different ages and stages of a man's life, and consider also what can be done with each individual to solve his problems and rehabilitate him from a diseased and useless

*Read before the College of Physicians and Surgeons, Pittsburgh, December 10, 1914.

personality into a healthy and useful member of the community.

Let us first consider, in figures, the results of the treatment to which I have just referred. Of 1019 patients treated for alcoholism there have been 105 known relapses, that is, 10 per cent. Of these several have relapsed once or twice, but are now hard-working, sober members of the community. Double the number of known relapses to give due weight for those who may have relapsed unknown to us, and even counting those patients as relapses who have relapsed but have since successfully been brought to sobriety, and there still remains 80 per cent. of successes and 20 per cent. of relapses.

Of 345 morphinists there have been 29, or 8.4 per cent. relapses. Again doubling the known number gives 17 per cent. relapses and 83 per cent. successes. This doubling of the patients that have returned for treatment is purely arbitrary, but it seems the fairest method of giving a conservative statement of the percentage of patients that, with this treatment, one may be justified in expecting to remain free from their addiction.

After the medical treatment has been finished the real solution of the problems begins. There is no question but that these patients should be taken and built up by vigorous physical exertion as quickly and as completely as their age and blood vessels permit. This, in my experience, is best accomplished by sending them to some physical trainer where they can go into strict training and acquire the habit of existing without resorting to their narcotic, and with a body in good condition have no physical excuse to turn again to their indulgence. They also learn to resist and not to do as they formerly have done, turning to their narcotic because of every increased joy or every slight annoying factor in their lives.

Let us consider then what is the propelling motive which will force men at times against their will, against two of the strongest primeval motives of their existence, those of self-preservation and self-interest, to indulge in their intoxications which they know will bring about their destruction and their economic ruin. What is this intoxication impulse?

It is not a development of modern times. It cannot be rightly claimed that it is a recent desire in man to ease the pain of an overstrained existence. The memory of man goeth not back to the time when alcohol was not used and used to excess. The oldest literature we have—Sanscrit, Hebrew, Chinese—all describe religious ceremonies in which wine and the excessive indulgence in it were a noticeable feature. Dr. White of Washington, some years ago, summed up the use of alcohol by saying that man had always used some substance to increase the celebration of his joys and to cut the keen edge of his sorrow, and alcohol had been most often used for this purpose. Partridge* in a recent book expands fully these ideas and draws attention to the fact that alcohol, in its uses at social functions, in its use as a ceremonial drink on all solemn occasions, in the time when all men were savage, was a great civilizing aid in allaying the mutual suspicion of men and in enlarging their social consciousness and increasing their willingness to make treaties and friendly pacts together that feuds and wars between tribes or individuals might be forgotten. The peculiar action of alcohol—that of intensifying and expanding the sense of personality—explains its use among the vigorous and developing races, and it was used as an expression of their expanding growth. Among the savages alcohol was used to bring them out of the hard reality of their existence and its use caused them to believe that it contained some divine essence with which they could become disassociated from their present existence and commune more fully with their spirit world. Hence it was among savages that their religious ceremonials always had some form of alcoholic indulgence and among some peoples only the men were permitted to indulge.

As civilization developed drinking became more of a social custom and more interwoven with the daily life and less confined to religious ceremonial functions. Partridge well points out that it is not an accident that the Greek conception of Bacchus was at first that of a youth in the exuberance of his early manhood and that the great bacchanalian festivals of that nation were in the early vigor of their civilization just previous to their greatest development in arms, philosophy and art. The later excesses of older civilizations, such as the excessive debauchery depicted by Juvenal in Imperial Rome, are undoubtedly an expression of a decaying race trying to forget the tedium of life and its waning powers.

Past racial development of a race and its decay can often be seen in the individuals of the race as they develop from childhood to old age. It would seem, therefore, that we should find an expression in the individuals of to-day in their actions toward alcohol and their reaction to the impulses leading to intoxication which shows the development and racial use of alcohol in the past. Looked at from this standpoint, we will see the intoxication impulse as an expression of the social instinct of an individual, that it is the expression of vigorous youth straining to enjoy the teeming abundance of sensations. Later it is a means to stimulate a belief that the waning youth can still be retained or it is the means with which the still further waning of the powers may be forgotten. This is not offered as an excuse for intoxication, but rather as an explanation of the impulse inherent in the race that, uncontrolled, drives the individual on and overpowers often the instincts of self-preservation and self-interest.

There is no question but that the reasons for excessive drinking in youth are different from those of the late twenties and early thirties and still different from those of the forties and later life. In early manhood, in the early twenties, excessive drinking, such as is often seen in college students and in youths of that age, does not necessarily mean a weak personality or inability to exert self-control. We see too many who, after a short period of intoxication in which they attempt to celebrate their increased joy in life and to obtain a fuller expression of the intensity of their experiences, cease altogether and never again in later life indulge to excess. Others, however, of less vigorous personality, whom we usually classify as possessed of weaker wills, persist too long in their alcoholic poisoning and develop a diminished resistance from which they never free themselves. The dangers and injury of these youthful intoxications are that they poison a developing organism and develop a lack of self-control within the individual. It comes at a time when the outer control of the home is being relaxed and the inner control of the individual is being developed, and the danger is that the inner

*"The Psychology of Intemperance."

control will be weakened and fail to develop and a weak and poisoned personality result.

The social side of intoxication is the causation of the next stage in the late twenties and early thirties. It is the period of full vigor of early manhood. It corresponds to the time when our savage forefathers expected a man to uphold his end at the feast as well as he had held it up in the battle, and to-day, during these years of a man's life, we find the greatest difficulty when alcohol is beginning to poison his personality in persuading a man to cease the indulgence that is doing him harm, because he feels that he is unwilling to acknowledge to himself that there is something in life he cannot do and he feels that the social requirements among his fellows are such that he shall be able to drink as much as any other man. It is difficult for the weaker ones in life to realize that it requires greater strength of character to refuse to do that which is injurious than to endeavor to keep up with those who are stronger. When a man has reached middle life, after forty, the causes which lead to intoxication are those which are found in the narcotic effects of alcohol rather than in the stimulation and expansion of his ego. He no longer becomes drunk because he happens to be drinking with his friends, but he deliberately drinks that he may become drunk and forget both himself and friends and all existence. These reasons, it seems to me, explain the great unexpressed motives of the great mass of humanity that drinks to excess without any particular reason. They express the unknown impulses at the various times of life. We must further remember that alcohol produces the insidious narcotic effects that, when persisted in, generate the desire for more and cannot be broken away from without the painful symptoms of withdrawal and deprivation. Hence in all those who are naturally of weak self-control, in whom the power of control has not been taught or developed, or in whom it has been lost through alcoholic poisoning, the toxic mental perversion due to the alcohol may be stronger than the social impulses or the desire for the narcotic effects, and will be the governing force to continue their alcoholic excesses.

One meets many exceptions to this general rule. Women only in a small number drink to excess through social exigencies. The vast majority that drink, however, do so for the narcotic effect. They wish to obliterate something which they do not wish to or cannot face in consciousness. Often, moreover, after struggling against a desire to drink and bring forgetfulness, they will in their desperation and weariness drink that they may forget the struggle and cease to remember both the dreaded memory and their struggle to forget it.

Another cause of alcoholic indulgence more common in women than in men is the inability to face the harsh realities of life without seeking periods of forgetfulness. Women are more prone to live in day dreams of their own weaving in their endeavor to live in a world they prefer which does not contain the harshness which the realities of life bring to them, and when real life seems too hard they will drink that they may live in their dream consciousness. This, in some cases, goes so far that the alcohol is taken to produce the real dissociation of consciousness so that as long as they are indulging, while they may appear rational and natural, they are really living in a dream consciousness separated from and oblivious to their real waking consciousness. In this they forget their hurt feelings, the sensation of being misunderstood and the unhappiness and disappointments which may be in their lives. From its very nature this is more often an occurrence among the women whose indulgences are periodic. Often the moving factor which drives a woman to alcoholic excess is unknown to her waking consciousness, and is translated in her mind only as an intense fear or an intense desire for alcoholic narcosis. It may be simply the expression of the desire for something through indulgence in which she knows she is able to forget. When the real reason has been found by psychological analysis her alcoholic indulgence will often automatically cease. This retention of unconscious mental remnants of former periods of existence is not uncommon and is not in itself a pathological condition. These remnants are disturbing factors to the mind because they cannot consciously be brought up from the unconscious into the waking consciousness, or if so brought up, they have lost their purpose and meaning in the present existence of the patient. Sidis* explains this condition as pathological "just because they have no purpose, no meaning in the life of the patient." Often they are memories which stand in such contrast to the present existence that the patient turns to alcohol to forget the present. All these hidden mental remnants which recognized or unrecognized so strongly influence human psychology are not confined to Freud's conception that all motives and relations of existence are under sexual domination. Such a conception of human psychopathology is as distorted and perverted as the sexual perversions it endeavors to explain.

There is a large class of men whose individual problems driving them to narcotic forgetfulness occur only in those possessed of sensitive natures: men who from their early youth have harbored feelings that have been hurt by being misunderstood, have been hurt by feeling that in some way they were not the same as their average boyish companions, and therefore inferior. The sense of inferiority, and the struggle against it as they felt handicapped, the hurt feeling of being misunderstood and carrying a burning sense of injustice, is often the unknown motive power that drives a great many men to irregular sprees. Often, because of the failure to resist the intoxication impulse, there unconsciously becomes attached to this unknown mental complex, which has developed from boyhood, a sense of sin and shame which further drives them to alcohol to obtain its narcotic effects. Each one of these problems has to be unraveled as an individual snarl, and although the number is large, these patients must be not handled in masses but separately handled with a very personal individual interest.

The last four years have forced upon me the belief that the majority of periodic drinkers who are endeavoring hopelessly to cease their periodic sprees are really cases of chronic tobacco poisoning. This is seen more frequently among the incessant cigarette smokers than among those who usually smoke a pipe or cigars. It is seen most commonly among those who always inhale their tobacco smoke. Lauder-Brunton mentions the fact that drugs are absorbed by the tracheal mucous membrane as quickly as by subcutaneous injections. Small wonder is it then that the effect of the pyridine and collidin, and other substances contained in tobacco smoke, is quickly felt by those who inhale. The ease with which cigarettes can be smoked, the un-

*Sidis: "Symptomatology, Psychognosis and Diagnosis of Psychopathic Diseases."

versality of the habit, and the accepted permission that a cigarette can be smoked often where a pipe or a cigar cannot, add to the frequency of the cigarette indulgence. Tobacco at first is used to soothe the nerves, and is taken for its soothing effect. In the early stages it slightly quickens the circulation and thus increases cerebral action. It, therefore, helps in mental rapidity in the early stages of moderate indulgence. Soon it is the accepted panacea for any worry or disturbance of the equilibrium of daily life. Then it is soon necessary to have a certain number of cigarettes that a certain amount of the narcotic may be absorbed to smooth out the daily existence. In this stage of tobacco poisoning the lotos eating contentment and mental inertia are evident and further overindulgence brings on a nervousness which, in the beginning, a very little more indulgence in tobacco will allay. Soon, however, the more tobacco that is smoked and the more that is inhaled, the greater is the nervousness. It has then ceased to produce its narcotic effect and is producing its chronic poisoning. The individual therefore turns to something that he knows will have a narcotic effect and quiet his overwrought nerves. This he knows alcohol will do, and in these individuals the first drink of alcohol leaves them not sober and starts in them its narcotic craving which drives them on to the full expression of their spree. As they sober up they cease for a few days both smoking and drinking, and as soon as they are over the spree they begin to smoke again, and the vicious cycle is sooner or later completed.

As I said above, in my own experience I am firmly convinced that this double narcotic poisoning explains the majority of the periodic drinkers of to-day. If these patients are made to cease their smoking their drinking ceases automatically. The periodic wishes to keep away from it. He does not enjoy his spree; it is taken against his better judgment and against his will and desire. It is the expression of an uncontrollable poisoning. If he does not cease his smoking he continues both to smoke and to drink, and the only way to break successfully the vicious circle is by the cessation of his smoking.

There are other periodic alcoholics whose debauches express a recurrent manic depressive condition, and the alcoholic indulgence is but the symptom of an uncontrolled manic desire to run amuck. These often begin with a sexual outburst, the alcoholic indulgence being secondary. The opinion so often expressed that periodic alcoholism is an expression of an epileptic explosion may be true in a few instances. In the last four years I have seen two patients who made me think that this might be so, but only two in one thousand is not a large percentage, and both these individuals had received head injuries so that an expression of their spree was more like the expression of the Jacksonian epilepsy than of the so-called idiopathic. Many of these so-called epileptic explosions will be found in the real manic depressive class or most frequently in the plain tobacco group.

Turning now to that large group of intoxications and poisonings produced by opium and its alkaloids and cocaine do we find the same type of intoxication impulses governing humanity in their addiction to these drugs? It seems to me more than a mere curious coincidence that we do find a very similar condition in the choice of the drug used and the usual time of life when the addiction is begun and the purposes for which the separate drugs are chosen. Cocaine, and recently heroin, are the drugs of the young developing organism seeking to increase its sensations and enjoy life more abundantly and possessing the same curious sense of expanding and intensified ego that alcohol possesses in the early stages of its intoxication. Cocaine as a habit or addiction was first used to spur on a flagging or worn-out body or mind. Many physicians drifted into this habit in the endeavor to tide over long stretches of overwork; others used it as a quick stimulant to relieve the overindulgence of alcohol and other excesses. Under this tremendous stimulus, the young criminals and the gangsters soon found that they were possessed of greater self-confidence, they were convinced that all they attempted would be successful, and that all they desired would surely come to pass. It gave their bodies a greater muscular strength and a heightening and quickening of the reflexes. It gave their minds more courage and greater alertness, and deeper cunning. Small wonder, then, it became universally used both as a means to increase their reckless daring and to enable them to outwit those opposed to them. Centuries ago Peruvian Indians had shown the tremendous increase of endurance that this drug gave to its users, and the criminals and those using it found that under its stimulation they could tirelessly go on almost unlimited hours without sleep and without rest. The laws of action and reaction that to every action there is a contrary and equal reaction forced before long even this group of individuals to realize that in the end the day of reckoning of mental and bodily destruction from cocaine scarcely paid for the short time in which the stimulation of cocaine seemed to place them mentally and bodily above their fellows. The strict enforcement of the laws against cocaine and the discovery by the cocaine habitue that heroin gave the same expansive sense in his personality, gave the same sense of heightened cunning and mental confidence, gave the same sense of bodily vigor, and lasting longer, and lacking the tremendous intensity was not followed by so great a reaction, has turned the majority of cocaine users into heroin habitues. Being three times stronger than morphine, easily absorbed through the nasal mucous membrane as snuff, of comparatively recent discovery, its peculiar effects being little known, hence less restricted by law, and more easily obtained, heroin has become the ideal drug of the criminal and the "tough" young person of both sexes to use in appallingly increasing numbers in our great cities.

Opium smoking and morphine, the former indulgences of the underworld, gave a contented freedom from care and worries that their lives might bring to them. These endowed them with sly and reckless cunning, but they did not give the recklessness and the daring and the increased muscular activity that cocaine and heroin give. These did not give them in their youth the sense of expansive personality, and small wonder is it that the morphine and opium should be discarded for the heroin and the cocaine.

The deterioration under cocaine and heroin is more rapid than under the other alkaloids of opium. Cocaine rapidly destroys what moral sense there may be in any given individual, and if alcohol is added to the cocaine or heroin addiction, the degeneration of moral sense and of personality is exceedingly rapid and exceedingly intense. The impulses leading to the addiction of codeine, morphine and opium arise from the desire for narcotic

forgetfulness rather than for a stimulation of personality. The smoking of opium has a social side to it, and in the East it is used socially as Western nations use tobacco. But even the smoking of opium is often used to ease the weariness of life, not that it always brings about pleasant, happy dreams which tradition has painted, but it does bring about the freedom from care and a happy, dreamy, contented existence and an indifference to the worries of life that gives relief to wearied souls.

The desire for relief of pain, mental or physical, the desire to blunt unbearable sorrow, and the desire to be able to forget, are the impulses which lead humanity into these addictions. Codeine, morphine, and opium addictions belong, therefore, to the years of life after youth is past, and we usually so find them. In recent years it is astonishing to realize how great a part, in well-to-do classes, legitimate medication plays in the formation of morphine and opium addiction. Lichtenstein,* in a recent article, says that in 1,000 cases in the New York City Prison only 2 per cent. acquired their habit in this way. But in his set of cases it is evident that the heroin and cocaine addict were present in large numbers. That even 2 per cent. should be found drifting into the city prisons among the criminals and the gangsters shows that even in the city prisons a small but persistent percentage owe their addiction to medical treatment. In my own private practice the percentage which have acquired their morphine and opium addiction through medication is as high as 80 per cent. Twenty-five years ago, when an interne in Bellevue Hospital, I was struck by the number of unfortunate women who came into the hospital suffering from morphinism following surgical operations. Antiseptic surgery was then not a decade old, and surgeons were only beginning then to learn of the dangers of the morphine habit following the giving of this drug to relieve the pain after operation. Since the technique of surgery has improved, morphine addiction under the surgeon's hands has greatly diminished, and to-day it is in the hands of the practicing physician that the danger lies. To relieve various pains, to relieve insomnia, and the tendency to treat a symptom as a disease and relieve a symptom alone when the symptom is that of pain and suffering, is the cause of such a high proportion of morphine addicts acquiring it through legitimate medication.

It is an almost universal custom to regard the habitual taking of morphine as a vice showing viciousness and depravity, no matter from what cause the addiction may have been acquired, whether taken up voluntarily or acquired unwittingly. It is looked upon as an expression of moral degeneracy, and those afflicted with this habit feel the humiliation and the stigma far more than is usually realized. In the young criminals that acquire it it is but a symptom of their low standard of morals, and adds but little to their depravity, although it may intensify that which they already possess. But to those who have taken it up as a means of surcease of sorrow or who have found themselves in its clutches before they realized that the medication they were taking was thus leading them on, it cannot be put down as a sign of depravity; it surely is under these conditions a great misfortune but not a vice. Without medical assistance, without the proper care, these unfortunate creatures cannot free themselves from the clutch of these drugs. They cannot bear the withdrawal pains and the suffering that deprivation brings on. It is more than we should ask human beings to endure to take these narcotic drugs away from them and not properly care for them in the process.

When once thoroughly poisoned and when the personality has become degenerated, morphinists are inaccurate, their memory is poor, their observations are dulled, they are self-centered and selfish and indifferent to their environment; hence one cannot expect them to react in a normal way and be either accurate or truthful even in ordinary matters. But until this degeneration of personality has occurred, with the exception of trying to hide his habit and about his drug, the morphinist is not a worse liar than his ordinary acquaintances who are not addicted to the drug. I may have had greater good fortune among my morphine patients or greater misfortune among my acquaintances in ordinary life, but I have not found my morphine patients, except concerning their drug and their habit, any more untruthful than my acquaintances. The living horror of the morphinist is that he will be deprived of his drug, and he will lie, steal or commit any crime to obtain his drug when once deprived of it, and in the throes of such frightful suffering that such deprivation brings on. I have cared for individuals in the hospital who were brought in suffering from actual physical starvation and who had thirty or forty dollars in the bank which they did not dare to use for food, but kept to supply themselves with morphine. They were willing to die of starvation and cut its pangs with morphine, but they could not face the horror of the inability to obtain their drug. If the majority of morphinists are relieved from the fear of the deprivation of their drug, in ordinary every-day matters they are as truthful as the average person, and as reliable. This view, which goes against the teaching of the profession, and which goes against my former belief, has developed from my experience of the last few years, and of its accuracy I am convinced.

Most morphinists desire to be free from their enslavement. They are universally condemned because of the belief that they are responsible for their vice and that by mere exertion of will power they could be free from it, and the medical profession rather joins in this lay view of the matter. But this view is based on ignorance, and it is as unjust as it is inaccurate. A morphinist successfully taken off of his drug and protected through the few weeks immediately following until his body and mind can be built up again will, in the vast majority of cases, stay off his drug, and the percentage of relapses among morphine patients is always smaller than among alcoholics. The alcoholic and the cocainist are prone to have a lurking desire to go back to the sensation of expansive personality, and go back to the time when they could believe that they possessed the power of accomplishing all that they hoped for and dreamed to do. But the morphinist looks with horror on the enslavement of his habit, and the majority dread to return to it.

Of recent years there has been a growing number of patients addicted to still another form of narcotic indulgence, that is, the addiction to the various forms of coal tar hypnotics. Formerly, some thirty years ago, one saw examples of the chloral habit, for chloral then was considered the ideal hypnotic and had proved its worth to cause sleep, but the profession realized that with the use

New York Medical Journal, Nov. 14, 1914.

of it there arose the possibility of a genuine habit. They thought then it was due to the drug itself, and failed to realize that the condition necessitating the giving of hypnotics was the fundamental cause of the formation of the habit. To evade, therefore, the possibility of a habit-forming drug, various new substances have been used hoping to obtain the hypnotic result without producing the habit-forming qualities.

The dreamless sleep of tired childhood stands in all our minds as the ideal rest that body and mind desire when night comes round after each day's work, but that ideal boon is not given to all wearied souls even in health, and when afflicted with mental worries or worn out with the strain of life or disturbed by physical disease, the restful, dreamless sleep does not come, and each succeeding day has to be taken up by tired humanity without the healthful rest and recuperation from the previous night's natural sleep. The habits of the human mind regarding sleep are as full of idiosyncrasies as the rest of human psychology. Human beings can sit up all night in the pursuit of pleasure, dance or read, or play bridge or poker, and be proud the next day that they can go about their work and show so little strain from that which gives them pleasure, but let these same individuals when they desire sleep toss and turn for a small part of the night, and fail to obtain the desired sleep, the next morning their mind and talk are full of woe and self pity for the terrible strain and wearisome night they have been through. They crave sympathy from each friend and desire condolences that they have not slept a wink. Many nervous people begin in the afternoon to fear that they will not sleep, and by night time they have a growing dread of the weary, racking hours of the night in which they must lie wakeful and restless until morning comes. They honestly endeavor to go to sleep, and lie there straining to sleep, and by such straining to sleep, and such fear that they will not sleep, do they drive away sleep hour after hour. Well did the ancients conceive that there was a god of sleep, for they must have realized that the more he was wooed the more did he flee from them, but when treated with indifference how quickly did he return and fall upon the indifferent mind. Few people indeed can bring themselves to such a philosophical view of sleep or the lack of sleep and can contemplate the wakeful night with indifference. Hence, with the increasing strain of existence and with the increased intensity of the wear and tear of life, humanity has demanded a hypnotic that sleep may be brought about when naturally one cannot obtain it.

The theoretically ideal hypnotic would be that amount of muscular fatigue products that would bring about the required effect. There is no question that physical exercise in the fresh air is the best hypnotic, but this is not always obtainable in our modern city life, and the profession has been vainly seeking some drug that will benumb the higher consciousness of the mind and leave no ill effects. Most of the drugs proposed have some bye effects that remain the next day in their mental heaviness, or drowsiness, or headache, or even some motor effect. Certain of the common hypnotics leave behind them a changed disposition. This is particularly true of the barbaturic acid group, usually sold under the names of veronal, medinal and luminal. The patients are out of sorts, there is a peevishness developed in the disposition, they are mean towards their companions, they like to say mean and cutting things, ill natured and viciously stinging, their minds are benumbed and they are not themselves; in some people this barbaturic acid group causes a very intense motor incoordination, so that even with 5 or 10 grains I have seen patients stagger as if drunk with alcohol. In larger doses of 20 or 30 grains I have seen patients unable to walk. When mixed with alcohol it seems to be particularly benumbing. This barbaturic acid group produces a genuine habit formation, and the patients quickly show a mild dementia, or in the chronic poisoning a very distinct and pronounced dementia. This group of hypnotics is one of the most widely used and usually considered one of the most harmless, but in my experience it is one of the most harmful, and produces the greatest functional changes in the mentality of its users.

The hypnotic habit is a widespread and increasing one, but one the consequences of which are too lightly considered by both the layman and the medical profession. Ill-natured peevishness brought about by these drugs can work an incalculable harm in the patients' daily life, and can go on increasingly and the real cause of their changed disposition can remain unrecognized unless the profession is awake to the symptoms caused by some of these hypnotics. I do not expect to revolutionize the habits of the laity or of the profession by any warnings, however timely, but I am sure that when the injurious mental bye effects of many of these drugs, especially the barbaturic acid group, is recognized, there will be less poisoning of humanity by these drugs and many an unhappy problem will receive its solution through the recognition of these facts. I have had under my care several patients suffering from the chronic poisoning by these hypnotics, and in treating them I have found the same impulse for narcotic intoxication driving them to this indulgence as I have found in other patients who have sought relief from opium and its alkaloids.

Does this conception of the intoxication impulse and the causation of alcoholic and other drug indulgences help us in the solution of these problems? It seems to me that it does. It forces us to the logical conclusion that in the mass of humanity which we meet in hospitals, this mass of humanity that we mistakenly punish to-day and turn from an occasional intoxication into chronic alcoholism, and with which we fill our police courts, our workhouses, and our alcoholic wards, that this same discouraged, hopelessly discarded mass must be regenerated through a change in their environment and through their work and recreation. It is among this mass that the missions and the Salvation Army, through their religious influences, have produced the greatest results, and they have done so because, when religious influence has changed a man's outlook and started regeneration, the man himself has also changed his environment and his companionship in that environment, and thus he has succeeded unconsciously in working out the problem of rehabilitation. We have heretofore taken the poisoned mind of the alcoholic and insisted that it should act in a normal manner, and have doled out punishment and condemnation when it has failed to act normally, instead of medically unpoisoning that mind and then building up the body and permitting the mind to build up with it as near normal as it was possible to arrive. As our medical knowledge has developed we have realized that disease is a perversion of the normal functions in the body, and

yet we have failed to act with the alcoholic on this realization, for the poisonings by alcohol or by drugs produce certain perversions of normal functions and these intoxications as truly represent a form of disease that requires medical treatment as any of the infections which we so classify as a matter of course. Alcohol differs from opium in the effects produced in the body. Alcohol destroys the essential cells of the viscera, degenerates the blood vessels, and increases the connective tissue growth. These three processes, varying in degree in any given individual, produce innumerable variations in the amount of degenerations and destruction. Alongside of the destruction there is always some degree of functional poisoning from which the cells can recover if the poison be eliminated and cease to act. Thus, until an alcoholic is unpoisoned and built up, one cannot say how much of the poisoned and degenerated personality it is possible to redevelop. Opium and its alkaloids and the coal tar products, on the other hand, poison only functionally; they do not produce tissue changes. Hence the elimination and cessation of action of these poisons permit a full recovery, even though most patients build up more slowly from the opium than from the alcoholic poisoning.

The problems then as they occur to us can be summed up as those of a physically poisoned body and mind that must be medicinally dealt with and physically unpoisoned. When this shall have been accomplished there remain the problems of psychology, and we are dealing in the vast majority of cases with psychopathology; we are dealing with the sick-souled, misunderstood personalities, distorted from many causes. We must learn to recognize the abnormal psychology of each individual and deal with that individual in whatever way the situation leads. It is often an economic situation that has to be readjusted; it is almost always a psychological distortion that has to be straightened out, and it is usually a social readjustment that has to take place. But with infinite patience and infinite persistence we can deal with and solve the problems presented by the distorted psychology of this unhappy group of patients.

43 East Seventy-second Street.

WHAT FIRST AID IN RAILWAY SURGERY DOES NOT MEAN; AND WHAT IT ACTUALLY DOES MEAN.*

By DONALD McCASKEY, M.D.,

WITMER, LANCASTER COUNTY, PA.

There is a fallacious notion that the moment a man is injured he must be rushed at breakneck speed to the nearest hospital. To get there quickly and at all costs is the idea. Everybody tries to help achieve this purpose. It does not matter much whether the injured one is suffering from a hemorrhage; whether he has been profoundly shocked; whether an agony of pain exists—haste is the dominant thought. Every process is speeded up to achieve this end. But this is wrong. It is an extravagant waste of the vitality of the injured patient to be rushed under all conditions to the nearest hospital.

First aid does not mean that our machinery must be set in motion with the same dramatic fervor as do we see our city fire department respond to the alarm of fire. Neither does first aid mean the theatrical and skilled ability to put a bandage around a man's injured head or injured arm or leg in the seventeenth fraction of a second such as we see in motion pictures, particularly. This all looks very wonderful and awe inspiring to the average spectator—of whom there are usually many standing around loudly criticizing what should not be done and very emphatic in the declaration as to what you should do.

The major thing to decide in all our first aid work is "What is the best for the injured man or woman"? Certainly haste is not the chief requisite.

Here is another point. Oftentimes when a person is injured it is absolutely wrong for that person to be lifted by unskilled hands. The tender sympathies of the surrounding bystanders may be strongly aroused and every effort may be made by them to afford the injured one such degree of first aid care as they may be able to administer. However, first aid does not mean this type of help, for it is simply and solely because the average type of first aid help is so unskilled, imperfectly trained and utterly incompetent,—oftentimes not trained at all in the modern methods of first aid science,—that bad results accrue.

We don't want to sacrifice everything to speed in our first aid work. Thorough training and first aid competency is the great essential in all our efforts which we should get in behind and work for.

What first aid actually does mean is that kind of aid given to an injured man by a thoroughly competent trained helpmate who has made a special study of first aid principles and practices, proving himself to be a first aid expert possessing a comprehensive practical knowledge rather than but a half and utterly inadequate training about the treatment of wounds, bruises, fractures, sudden illness, etc., etc.

Please get these two facts clearly fixed in your mind: (1) A wound although superficial is often treated by anyone wherever there is a handy first aid package (and these are scattered everywhere). This wound might lead to an infection, simply on account of an unclean condition of the person applying the dressing from the first aid package. Such an infection, because of incompetent first aid treatment would, therefore, cause the injured man to lose time, which time loss is not only a loss and a waste to the man, but also to the company employing him. (2) By having a thoroughly trained man where a superficial wound can be treated in a proper aseptic manner the injured man, in a great many more instances, is able to continue with his work and have his wound redressed as the occasion requires. This method does not cause any undue waste of time; likewise the company does not lose his services on account of his wound becoming infected from improper first aid treatment in the beginning.

There are new standards of efficiency which have developed in medicine and in surgery and in first aid to the injured during the past decade, just as there have been improved standards developed in the operating department of the Pennsylvania Railroad. New principles have been searched for and developed as the need would arise for more adequate measures of workmanship. Instead of the old principle of speeding an injured man to the hospital with all dispatch, irrespective of his physical condition, I respectfully refer to the newer

*Being part of a discussion before the second annual Industrial Welfare and Efficiency Conference of the Pennsylvania Department of Labor and Industry, Harrisburg, Pa., November 17, 18, and 19, 1914.

principle evolved of *taking the hospital to the injured patient*, as is now employed on our Philadelphia Division of the P.R.R. in the Enola Shop and Freight Yards. At these yards, where over a thousand workmen are employed, General Foreman C. D. Gray has made over an old wrecking train car into a hospital car. He placed one of his men in charge of this car thoroughly stocked with sterilizers, surgical solutions, bandages, dispensing tablets, stretchers, blankets, etc., etc. Everything complete and in readiness to take the hospital to the injured man as soon as the engine can be coupled to this car.

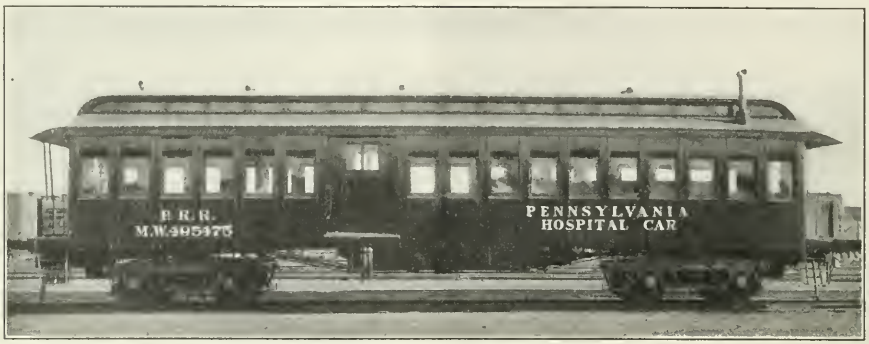


FIG. 1.—The hospital car at the Enola shops, P. R. R.

The following is a list of supplies on the hospital car:

Cupboard (A)—6 wool blankets, 3 rubber blankets.

Cupboard (B)—4 meat platters, 4 sugar bowls, 1 coffee pot, 1 frying pan.

Cupboard (C)—6 wool blankets, 3 rubber blankets.

Cupboard (D)—2 dippers, 3 meat forks, 3 large spoons, 26 knives, 31 forks, 23 table spoons, 34 tea spoons, 1 can opener, 1 steel, 1 butcher knife, 28 soup bowls, 1 4-qt. pitcher, 1 1-qt. pitcher, 1 2-qt. pitcher, 5 cups, 5 salt shakers, 4 pepper shakers, 6 tin cups, 1 frying pan, 1 roaster, 28 dinner plates, 1 stewing pan, 3 basins.

Cupboard (E)—1 bottle iodine, 24 first aid boxes, 4 1-lb. boxes absorbent cotton, 6 5-yds. packages of Red Cross gauze, 1 pound bottle of antiseptic discs, 1 pint bottle of alcohol, 1 roll adhesive plaster 12 in. wide 5 yds. long, 12 roll 3-in. Linton gauze bandage, 28 rolls 2-in. Linton gauze bandage, 40 rolls 1-in Linton gauze bandage, 32 different sized splints.

Cupboard (F)—1 5-gal. can, 1 coffee pot, 1 bag ground flax seed, 1 can litholine, 2 Schapps tourniquets 36 in., 2 Esmarch tourniquets, 1 Fowler's infusion apparatus.

Cupboard (G)—2 rolls antiseptic towels, 2 boxes individual drinking cups, 4 cotton blankets.

Cupboard (H)—4 rolls 3-in. gauze bandage, 5 rolls 2-in. gauze bandage, 4 rolls 1-in. gauze bandage, 6 hot water bottles, 1 ½-lb. bottle chloroform, 100 tablets physiological salt solution, 1 drop bottle for chloroform, 1 pilling folding Yankauer mask, 1 bottle Martin's toilet wash, 4 bottles Carron oil, 1 bottle antiseptic discs, 1 bottle compressed boric tablets, 1 bottle spirits of ammonia, 1 bottle cocaine, 1 jar moist gauze 5-yds., 3 medicine droppers, 1 eye cup, 5 1-yd. packages gauze, 10 1-oz. packages absorbent cotton, 1 box Thymol iodide, 1 bottle chlorodyne, 1 aseptic hypo syringe, 25 hypo tablets atropine sulphate 1-100 G, 25 hypo tablets morphine sulphate 1-4 G, 25 hypo tablets strychnine sulphate 1-30 G, 25 hypo tablets digitalin pure (German) 1-50 G, 1 1-lb. bottle of Dioxogen.

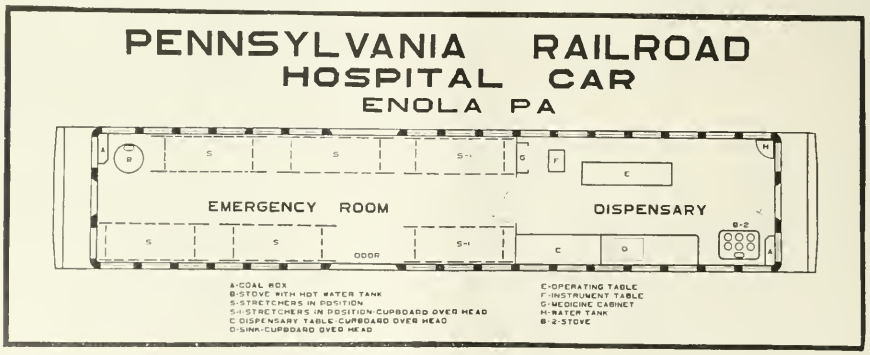


FIG. 2.—Floor plan of the hospital car.

Drawer (J)—12 towels.

Drawer (K)—5 pillows, 12 pillow cases, 11 sheets.

Miscellaneous—8 stretchers, 1 operating table, 1 slop bucket, 4 cots and mattresses, 3 tables, 6 benches, 8 chairs, 6 camp stools, 1 instrument table.

When a workman is seriously injured now, instead of the injured man being lifted and bumped and oftentimes being made to lose a quantity of blood in addition to suffering a greater amount of shock, the hospital car is pulled up to the injured man. Under the competently trained direction of the Red Cross attendant the injured man is promptly treated by the standards of first aid. For instance, if he suffers from badly lacerated muscle wounds of the thigh, a solution of tincture of iodine is poured directly into the wound. Then it is carefully dressed with sterile bandages and the man passed on to the hospital, still in the same car and under the same skilled care of the attendant who never touches a wound or makes a dressing without first of all having thoroughly scrubbed his hands. There is little suffering to the injured man, little loss of blood and little of the unavoidable shock. The injured man's chances by this new principle of taking the hospital to the man are immeasurably increased for a prompt recovery and a much sooner return to duty than when he is handled by the average half-trained first aid spectator or employee. Merely to apply mechanically a lot of bandages, no matter how cleverly the series of movements may be carried out is not modern efficient first aid.

Here is a point we all need to realize.

Oftentimes a man who is not very much injured is induced to believe that he is seriously hurt if suffcient dramatic first aid efforts are employed by the bystanders attempting to render the best aid they know how to render when their hearts' sympathies are stirred. I have a further theory that many an injured man or woman whose injury is slight is oftentimes started on the road to malingering, just because of incompetent applied first aid treatment at the initial stage of the accident. Whenever possible, therefore, the most efficient type of first aid is to take the hospital to the injured man. In large industrial concerns, first aid hospital trucks might be effectively utilized in place of hospital cars.

We do not need to obtain an exaggerated idea of the importance of first aid in its actual meaning as a contributory measure towards better efficiency. We should merely try to keep ourselves up to the best standard, and one of these I respectfully repeat

Fig. 3.—Interior of the hospital car showing two cots ready for use. Along the side of the car are many stretchers, each equipped with blankets. Boiling water is kept constantly on hand in the tank at the end of the car.

again is the first aid hospital car in railroad accident work as already in use on the P. R. R.

Cases Given First Aid Treatment in Enola Hospital Car

	Burns	Injuries to Head	Injuries to Eye	Other Injuries	Injuries Re-dressed	Hospital	Total
June	2	25	35	90	120	1	273
July	0	7	33	45	50	1	136
August	0	12	31	55	41	0	139
September	2	14	22	55	42	1	136
October	3	14	30	42	49	3	141
Total	7	72	151	287	302	6	825

First aid should be regarded on the same plane of efficiency much as was the problem of the P. R. R. wrecked bridge at Tyndall, Ohio, just east of Co-

lumbus. This bridge was a four-tracked structure six hundred and fourteen feet long, weighing two and a half million pounds, and was washed from its bearings by the 1913 flood. It had been planned according to the best available standards of information over a decade ago. But, and here is the point—after the 1913 flood of the Muskingum River when the river bed was gouged out and washed away to much deeper channels, and the masonry work and abutments were destroyed, and general havoc played, the engineering department of the P. R. R. found it necessary to reconstruct their bridge building to meet the stiffest, biggest flood of the future which might sweep down the Muskingum River. The engineering department, therefore, improved their efficiency standards. They constructed a seven hundred and twenty foot bridge in length. Instead of two and a half million, they built it seven million pounds, thus providing extra strength to meet the growth of traffic and possible worse floods of the future. It is along much the same lines that our application of first aid principles must be made. Half knowledge regarding first aid means a loss, not only to the injured employee, but to the employer. When we expect men to apply this half knowledge in treating an injured individual it is about as wasteful as would be a group of engineers who would attempt to construct a railroad bridge like the one at Tyndall, Ohio, with only half knowledge of the actual conditions they were going up against.

It is exact, it is thorough knowledge efficiently applied that we need in our first aid work of the future. One man thoroughly trained in first aid work in every railroad crew is worth much more than any number of men only half trained.

First aid has certainly outgrown its swaddling clothes. We must recast our ideas and our methods of coping with the injuries of the future. When we can save an injured person the loss of vitality by the avoidance of unnecessary nerve shock from ignorance in sympathetic handling and lifting; when you,—and I say you advisedly, because possibly at some future time you may be called upon,—when you can treat an injury so as to avoid any possible germ contamination from meddlesome technique because of inadequate and incompetent training, you are giving the injured man or woman the best possible degree of first aid treatment, and only then. A first aid package of gauze and iodine solution is not enough. It requires the man behind the gun and not a horde of half trained men standing with a first aid package in their hands, who may possess the tenderest of sympathy for their injured comrade and fellow workman, but who lack the competency and safety-first thoroughness that goes with special first-aid study and training, embodied in the newer principle of Competency.

Fig. 4.—Operating room in the hospital car; there are sockets in the car deck in which the feet of the operating table are sunk. In the lockers on the left side above are blankets, surgical dressings, bandages, etc.

Heterogenetic Sera.—F. Micheli and F. Negro point out that this term is used in contradistinction to the expression immune or isogenetic sera and is based upon the fundamental investigations of Forssman who in 1911 demonstrated that the guinea-pig responds to the parenteral introduction of a fine emulsion of various organs of the rabbit with an active production of hemolytic amboceptors for the red blood cells of the sheep.—*Archivio per le Scienze Mediche.*

AN EXPERIMENTAL STUDY OF A NEW REMEDIAL AGENT AND OF ITS EFFECTS IN PULMONARY TUBERCULOSIS.

By BERTRAM H. WATERS, M.A., M.D.,

NEW YORK.

SENIOR INSTRUCTOR IN PHTHISIOTHERAPY AT THE N. Y. POST GRADUATE MEDICAL SCHOOL AND HOSPITAL; VISITING PHYSICIAN TO RIVERSIDE HOSPITAL-SANATORIUM; CHIEF OF TUBERCULOSIS CLINICS, THE DEPARTMENT OF HEALTH.

THE employment of inhalations, in the treatment of pathological conditions of the respiratory tract, has appealed to many as a rational therapeutic procedure, and medical literature is replete with descriptions of generators, vaporizers, and pneumatic cabinets, together with the various substances thought to possess remedial properties, which have been employed. A review of this literature is interesting, showing that from the earliest times the subject of inhalation has held an important place. As early as 1664 this method was applied by Bennett in the treatment of pulmonary tuberculosis. Laennec in 1810 employed it with considerable success; Schneider and Valz constructed the first nebulizer in 1829, and Auphan applied pulverization and nebulization in the treatment of chronic diseases of the respiratory tract in 1847. About the same year Salles-Girons established an inhalatorium at Pierrefonds, and for the first time the question was raised of the possibility of reaching the lungs by these methods. A lively discussion followed, and repeated experiments by such investigators as Dumarquay, Fournie, Bourouilloux, Gratiolet and Travenier, Poggiale, Gerhardt, Waldenburg, and Solis-Cohen, have finally demonstrated that by pulverization and nebulization remedies may be efficiently administered, the latter observer even going so far as to state that a physician had not done his full duty, in some cases, unless he resorted to such methods. Many other studies of this subject have been made, among the more recent being those of Heryng (1902), Freund (1907), Foxwell (1907), Cointet (1909), and Bulling (1909), the general result of which has been one of approval. Though the therapeutic and even the germicidal action of inhaled sprays, especially, has been confirmed, such action seems to be limited to the surface of the respiratory mucous membrane, and the influence upon pathogenic conditions, such as tubercle, in the lung tissue, is very problematic.

The ethereal oils and the balsams have been found to be the most useful substances for inhalation, oil of turpentine, oil of eucalyptus, oil of cade, the balsams of peru and tolu, and creosote, having been employed with more or less success, either in vapor form or nebulized by means of atomizers and nebulizers.

Oil of turpentine and some of the other volatile oils, owe their therapeutic value to terpenes. The terpenes are hydrocarbons having the composition represented by $C_{10}H_{16}$, or some multiple of that formula. The principle common to all terpenes is *pinene*. It is a constituent of the volatile oils of the pine family and of several other families of plants. This study deals not with turpentine, the complex oleoresin of the pine tree, but with its chief constituent, pinene. To it are attributed the physiologic and therapeutic actions of oil of turpentine.

Locally, pinene is a powerful stimulant to the skin and mucous membranes. It is also antiseptic and bactericidal, and appears to be especially antagonistic to the typhoid bacillus. When taken by a healthy person, in moderate doses, it produces a sense of warmth in the stomach, soon followed by exhilaration, and, if the amount be sufficient, giddiness and even a species of intoxication. The pulse is increased in force and frequency. Pinene is excreted through the lungs and kidneys, and its irritant action upon the latter and upon the genito-urinary tract is very decided.

Oil of turpentine, on account of the pinene it contains, has acquired a reputation as a hemostatic in passive hemorrhage from the stomach, intestine, lung, and uterus. It is often very efficient in ulceration of the bowels when taken by the stomach, probably acting locally in the intestine, and in old gastric ulcers good results are sometimes derived from its use. It is given internally as a diffusible stimulant of especial value in exhausting fevers. It has long enjoyed high repute as a remedy for the treatment of typhoid fever, especially if diarrhea persists and relapses occur, indicating unhealed ul-

A B

FIG. 1.—*Micrococcus pyogenes aureus*; A, control plate; B, exposed plate

ceration of Pyer's patches. Locally it is very useful as a counterirritant in pleurisy and bronchitis, applied in the form of turpentine stupes. Probably some of the benefits derived from turpentine stupes in pneumonia is due to inhalation of its vapor.

Standing in the way of a more general use of oil of turpentine as a remedial agent is its irritant action upon the kidneys and urinary tract. When its vapor is inhaled it is readily absorbed, and instances are recorded in which persons engaged in the turpentine industries have experienced renal inflammation.

When the vapor of pinene is exposed to a current of ozonized air, prepared by the action upon dry air of a high tension electrical discharge, an addition occurs between the pinene and oxygen, resulting in the production of a dense white vapor. To this substance I have given the name oxypinene, a convenient general term, descriptive of all combinations of pinene with oxygen, either as O_2 or O_3. It is, however, chemically a pinene monozonide, occurs also as a diozonide and other multiples of the oxygen atom, and readily dissociates into its active principles, peroxide of hydrogen and pinonic acid, aldehyde and ketone.

It possesses the valuable therapeutic properties of pinene without its irritating effects upon the kidneys and urinary tract. Applied to the skin and mucous membranes it acts as a mild stimulant, markedly differing in this respect from the powerfully irritating oil of turpentine. The vapor is respirable for hours at a time, and its use may be continued indefinitely day after day without producing symptoms of renal irritation. It is antiseptic and bactericidal when applied to cutaneous and mucous surfaces.

Antiseptic and Germicidal Properties of Oxypinene.—From pure broth cultures of typhoid, diphtheria, and colon bacilli, and staphylococcus, smears were made on cover slips. These were thoroughly dried in the incubator, and placed under a bell jar, into which oxypinene was allowed to enter through an opening near its base, and escape through an opening at the top which was lightly plugged with cotton. At intervals of forty minutes, one hour, one and a half hours, and two hours, a smear of each culture was removed and dropped into broth tubes. After incubation all the controls except that of diphtheria, showed growth. All exposed smears produced growth, except those of diphtheria.

The same organisms were used, but instead of incubator dried smears, large drops of broth cultures of each on cover slips, were exposed, in the same manner as previously, for fifty minutes, seventy minutes, and one hour and fifty minutes. After incubation, all controls showed marked growth. All exposed drops failed to produce growth, except that of staphylococcus, growth of which was markedly retarded and very slight. As all the exposed drops became dry before the expiration of forty minutes, and as in the previous experiment, none of the incubator dried smears were killed, it was concluded, either, that the organisms in all exposed drops were killed under forty minutes, or that at least some moisture is necessary to obtain a germicidal effect. As on theoretical grounds, the latter supposition seemed probable, the use of incubator dried preparations was abandoned.

Agar-agar, in petri plates, was substituted for cover slips, and upon the surfaces of these, broth cultures of the organisms already used were planted in streaks. These plates were then exposed in the manner already described, for one and one-half hours. All controls showed marked growth after twenty-four hours' incubation. All exposed plates produced no growth after five days' incubation.

A B

FIG. 2.—*Bacillus anthracis*: A, control plate. B, exposed plate.

Large drops of broth culture of the typhoid bacillus, after exposure on cover slips in the manner described, for twenty-five and forty minutes, were smeared upon agar-agar slant tubes. The controls showed marked growth after eighteen hours' incubation. The tubes inoculated with culture which had been exposed for twenty-five minutes, showed marked growth after twenty-four hours' incubation. The tubes inoculated with culture which had been exposed for forty minutes, showed no growth after ninety-six hours' incubation.

Large drops of broth culture of each of the organisms previously used were exposed in the same manner and for the same periods, as in the preceding experiment, and planted on agar-agar slant tubes. The controls showed marked growth after eighteen hours' incubation. The tubes inoculated

with culture which had been exposed for twenty-five minutes, showed growth after twenty-four hours' incubation. The tubes inoculated with culture which had been exposed for forty minutes, showed no growth after ninety-six hours' incubation.

The conclusion seemed to be justified that for typhoid, diphtheria, and colon bacilli, and the staphylococcus, in pure broth culture, when even the slightest moisture is present, oxypinene is germicidal in from twenty-five to forty minutes.

Upon the surface of agar-agar, in petri plates, broth culture of subtilis, anthrax, and pneumococcus were planted in streaks. These plates were exposed, in the manner already described for one and one-half hours. The controls showed marked growth after eighteen hours' incubation. The exposed plates showed no growth after forty-eight hours' incubation. At the end of five days no growth had appeared.

Upon the surface of agar-agar, in petri plates, broth cultures of typhoid, diphtheria, and anthrax bacilli, and staphyloccus were planted in streaks. These plates were exposed for two and one-half hours, not under the bell-jar, *but in a room* having a cubic capacity of about 2,500 feet. The room was fairly well filled with oxypinene. The controls showed marked growth after eighteen hours' incubation. The exposed plates, after twenty-four hours' incubation, showed no growth, except that of staphylococcus, on which a very slight growth appeared. After forty-eight hours' incubation, anthrax seemed to show slight growth, but at the end of seventy-two hours it had not spread, and a smear of it planted on an agar slant tube failed to produce growth. A single agar petri plate, on the surface of which the same organisms, in broth culture, had been streaked, was exposed under the bell-jar, for two hours, and failed to show growth of any organism, after seventy-two hours' incubation, while anthrax overgrew all other growths, on the control plate, after twenty-eight hours' incubation.

These experiments have been repeated many times, in the same manner, with uniform results, and from them it seems conclusive that oxypinene is a germicidal gas, of high efficiency, which is at once respirable and easily produced, continously, in large quantities.

Figures 1 and 2 are photographs from agar-agar petri plates upon which were planted pure cultures of *M. pyogenes aureus*, and *B. anthracis*. Similar experiments with similar results were made with cultures of *B. typhosus*, *B. coli communis*, and *B. subtilis*, but lack of space has necessitated our omission of illustrations of the same. These plates were exposed to the action of oxypinene for two and one-half hours, in a room of about 2,500 cubic feet capacity, in which the generator was constantly operating and keeping it fairly well filled. Control plates were made of each organism, and both exposed and control plates were incubated for seventy-two hours.

Clinical.—Observations were made of twenty-one patients. As with two exceptions they were of the dispensary class, they were difficult to control for as long a period as could be desired, some insisting upon their discharge with the alleviation or disappearance of their active symptoms. With the exception of Case V, a very early tuberculous infection, and Case 21, a child ill with pertussis, following an unresolved bronchopneumonia, all were in the second or third stage of pulmonary tuberculosis

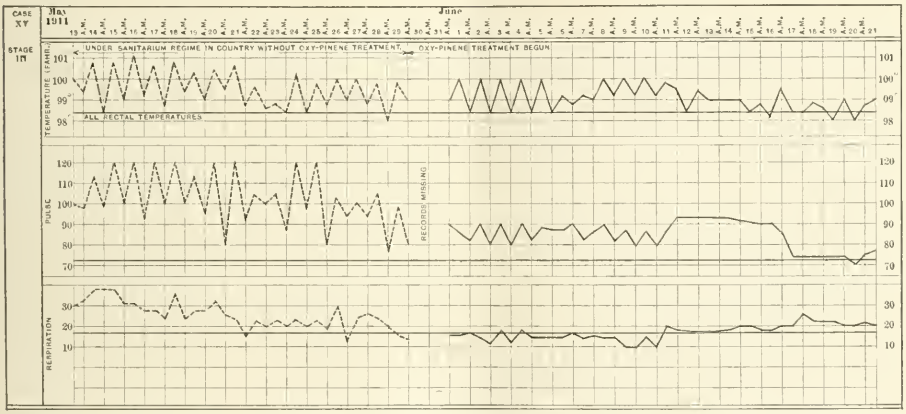


Chart 1.

(Classification of the National Association for the Study and Prevention in Tuberculosis), and tubercle bacilli were demonstrated in the sputum. It seemed desirable to select lesions of such severity, but equally so that they should offer some hope of improvement, in order that, as far as possible, the amelioration of symptoms which so often follows any change in environment, and dietic regime, might de discounted. However, to study fully the effects of oxypinene upon special symptomatic features or types of disease, such as active hemorrhage, marked pyrexia, constant dyspnea, tuberculous laryngitis, acute phthisis, chronic pulmonary tuberculosis, and the toxemia of extensive cavitation with secondary infection, certain patients were admitted to treatment whose prognosis seemed hopeless, and who, though showing for a time the beneficial effects so generally observed in the others, finally died. With the exception of Cases XX and XXI, who were treated in their own homes, the entire group was observed in a private hospital in the city, for three months and thereafter for five and one-half months in a private sanatorium in the country. The periods of observation varied from nine days to nine

months. With a few exceptions all were studied according to the following routine. Each was observed in bed, for forty-eight hours before beginning treatment, during which time two hourly records of temperature (rectal), pulse, and respiration were made, twenty-four hour total amounts of urine and sputum examined, and a hemoglobin estimation and differential blood count made, in addition to a complete physical examination. Thereafter temperature (rectal), pulse, and respiration were recorded every twenty-four hours or twice daily, weights were taken, twenty-four hour total amounts of urine and sputum examined, and a hemoglobin estimation and differential blood count made, weekly. Twenty-four total records were also kept of urine and sputum daily. Physical examinations were made at

In no other respects were the routine and conditions of observation varied. During the first epoch treatment was given continuously, with only sufficient open air for proper ventilation, and several of the patients had no direct sunlight, their windows opening on a court. During the second and third epochs, treatment, when given at all, was continuous during the night, and for periods of from one to two hours twice during the day, the remainder of the time being spent in the open air. The blood, sputum, and urine examinations were made by the Lederle Laboratories, the Higgins Laboratories, and by my assistant and resident, Dr. W. A. Glanville. While there is probably some variation of results because of differing personal equation, they have been so checked up as to make this negligible, and in Cases

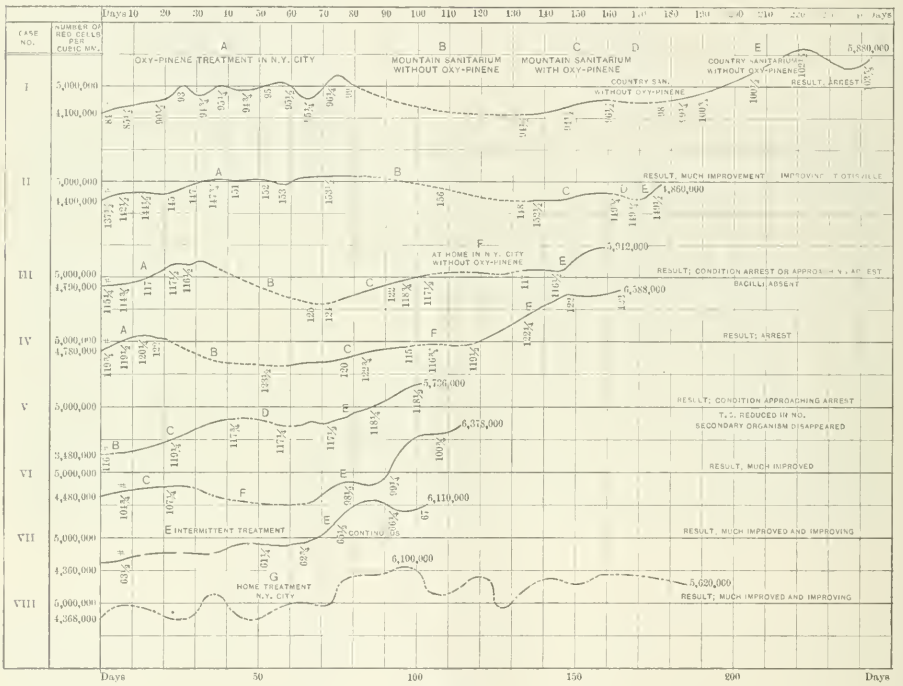


CHART 2.

frequent intervals, and at least once a month. The patients were in bed or up and about, as their temperatures or general condition required, and no other treatment was given, except cathartics, and heroin or codeine occasionally. In some instances an iron preparation was used to study the behavior of the hemoglobin. The diet consisted of three wholesome meals daily, and one raw egg in one glass of milk twice daily. Partly through circumstance, partly with the design of checking up and controlling results, the period of observation was divided into three epochs. The 1st, for three months, in the city; the 2nd, for two and one-half months in a sanatorium in New York, at an elevation of 1,500 feet; and the 3d, for three months in a sanatorium in New Jersey, at slight (500 feet) elevation. During these epochs an opportunity was afforded of observing and contrasting the effects of ideal sanatorium régime without, and also with, oxypinene treatment.

XX and XXI all these examinations have been made by the same examiner.

The following indicates the types of cases studied:

	Stage I	Stage II	Stage III
Number of cases.	1 (Case V)	4 (Cases XIII, XIV, XVI, XVII)	15 (all other cases)

The other case, XXI, was the child referred to with pertussis, following an unresolved, possibly tuberculous, bronchopneumonia.

As space is lacking for a detailed description of each of these, a brief synopsis of several, together with the blood findings, and the temperature curves of two, are given. These are average cases, and illustrate the points noted.

CASE I. *Woman, 34 years, Stage III, Improved.* General condition poor. Extensive infiltration, both upper lobes with softening, especially on left side, where there is well marked cavitation. Complicating nephritis. Moderately toxic. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
3,750,000	75	8,200	96	Before treatment.
4,960,000	81	13,600	101½	After one month's treatment

Constant racking cough, with thick tenacious sputum. Sputum increased from 15 c.c. to about 150 c.c. daily with relief of cough. Discontinued treatment against advice, because of being needed at home, and her condition becoming again progressive, she died eight months later.

Case VI. *Woman, 24 years, Stage III, Arrested.* General condition poor. Fairly diffuse infiltration, right lung with softening in upper lobe anteriorly. Thickened pleura with adhesions, lower portion. Infiltration left apex. Little toxemia. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
4,100,000	75	10,000	84	Before treatment.
5,100,000	92	13,300	99	After six weeks' treatment.
5,552,000	78	15,060	103½	After 7½ months' treatment.

These cases illustrate the effect upon the sputum, with relief of cough, the changes in the blood picture, and what is usually observed, and is an indication of such result, a white cell count, which remains high in favorable and arrested cases. In several instances, though not uniformly, the hemoglobin percentage has fallen after ceasing treatment.

Case VII. *Woman, 24 years, Stage III, Improved.* General condition fair. Infitration right upper lobe without softening. Diffuse infiltration left upper lobe with cavitation. Complicating emphysema and general bronchitis. Little toxemia. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
4,400,000	86	7,200	137½	Before treatment.
5,170,000	92	12,100	153½	After 2½ months' treatment.
4,860,000	82	12,800	149½	After 5½ months' treatment.

During the last three months, treatment which had been continuous was interrupted, but patient was under sanatorium régime, in the country. She was then admitted to a sanatorium, where previously she had been refused admission on account of the extent of her lesion.

Case XII. *Man, 41 years, Stage III, Improved, Approaching arrest.* General condition fair. Infiltration both upper lobes, with areas of softening and fibrosis; small cavity in right upper; left lung adherent at base; left chest much contracted. Complicating chronic bronchitis of years' duration. Little toxemia. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
4,790,000	81	11,600	115½	Before treatmeot.
5,942,000	91	10,420	116½	After 5 months' treatment.

Tubercle bacilli disappeared from the slight morning sputum, and he returned to employment.

Case XIII. *Man, 28 years, Stage II, Arrested.* General condition fair. Extensive infiltration right upper and middle lobes, with softening in the upper. Infiltration left apex. Moderate toxemia. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
4,780,000	81	9,200	119½	Before treatment.
6,588,000	85	13,200	122	After 6 months' treatment.

Returned to employment.

Case XV. *Man, 21 years, Stage III, Improved, Approaching arrest.* General condition poor. Infiltration right upper lobe, and scattered areas throughout left lung, with softening in upper lobe. Considerable toxemia. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
3,480,000	66	22,400	116	Before treatment.
5,736,000	73	12,400	118½	After 3½ months' treatment.

As he felt well he refused longer to continue treatment and returned home. Lesion still active. Tubercle bacilli were reduced in number and all secondary organisms had disappeared.

Case XVI. *Man, 28 years, Stage II, Arrested.* General condition poor. Diffuse infiltration right upper lobe, with softening. Scattered infiltration throughout rest of lung. Infiltration left apex. Considerable toxemia. Sputum positive.

Red Cells	Hb.	White Cells	Weight	
3,110,000	66	7,600	109	Before treatment.
5,530,000	96	12,220	110	After 2½ months' treatment
6,422,000	104	14,210	115½	After 3½ months' treatment

Interesting in that for two and one-half months he received no inhalations, but was under sanatorium régime in the country. Inhalations were begun there, and after two months he returned to employment. Slight morning cough persisted with about 5 c.c. of sputum daily, from which tubercle bacilli and all secondary organisms had disappeared.

Case XXI. *Child, 2½ years.* Pneumonia two months previously, coughing continuing with failing health. Apparently had pertussis. General condition extremely poor; pale, languid and apathetic. Respiration 60, pulse uncountable, a feeble cough with each expiration. Both lungs full of moist rales. Over right lower lobe voice intensified and respiration bronchovesicular.

Red Cells	Hb.	White Cells	Polys.	Lymphs.	
5,536,000	62	84,000	62 8	34 6	Before treatment.
5,460,000	70	27,000	34 0	53 6	After nine days' treatment.
5,480,000	79	39,000	41 0	54 4	After sixteen days' treatment.

Apparently made perfect recovery. Reported well since.

Case XX. *Man, 41 years, Stage III, Improved.* General condition fair for duration of disease (8 yrs.) Nutrition had been well maintained. Infiltration right upper lobe. Extensive diffuse infiltration entire left lung, with large cavities in both lobes.

Red Cells	Hb.	White Cells	Average Daily Urine, c. c.	Per Cent Urea, Gm.	Weekly Sputum, Oz.	Hours Treatment Monthly,
4,368,000	74	24,100	350	10.5	90	Before
4,480,000	80	30,500	425	32 4	142	174
4,960,000	86	14,400	980	19 4	92½	152½
5,984,000	84	19,200	1,023	14.2	85	144½
4,860,000	78	22,000	773	17.6	87	121
5,920,000	76	16,400	807	29 2	90	88½
5,620,000	73	17,400	883	25 4	87	67½
6,208,000	72	23,200		18 2	87	
5,800,000	75	20,000		17 4		

After completing a second sanatorium course returned home and for fourteen months previous to treatment had been confined to bed. During treatment toxemia was reduced (see temperature and pulse curve, Chart I) there were no hyperidroses, and after the fourth month, no rigors. He was able to be dressed, and about his rooms, and to do something for himself. The enormous cavities continued large daily secretions and were a constant source of exhaustion. A permanently favorable result could scarcely be expected. Tubercle bacilli greatly diminished in number, and all secondary forms disappeared. Improvement continued and he was able to return to business for part of the day.

The results of treatment may be indicated as follows:

	Stage I	Stage II	Stage III
Unimproved			1 (Case III)
Improved	1 (Case V)	2 (Cases XVI, XVII)	9 (Cases I, VII, VIII, IX, XII, XV XVIII, XIX, XX
Arrested		2 (Cases XIII, XVI)	1 (Case VI
Died			4 (Cases II, IV, X, XI)

Case XXI was markedly improved.

This classification is conservative, as of the Stage II cases, one, Case XVII, reported as improved, was in a condition approaching arrest, but would not remain longer under observation, and of the Stage III cases, three, Cases XII, XV, and XIX, reported as improved, were also in a condition approaching arrest, and two of them have returned to employment.

Accurate studies of the blood of tuberculous patients are of comparatively recent date. While many observations are recorded in the literature, they are confused by a lack of agreement among the reporters, either in their technique, or in their identification and classification of the several cellular constituents of the blood, or in their interpretation of the frequent and often rapid variations noted in

their numbers and forms. Even to-day, with our fuller knowledge of hematology, the personal equation of the examiner influences considerably a differential count, and there is more or less difference of opinion among hematologists as to the meaning of certain findings. What are probably the first entirely reliable studies were made by Ullom and Craig. From observation of thirty-nine patients reported in 1906, they conclude:

1. In pulmonary tuberculosis, without cavity formation, a mild anemia, with a decrease in erythrocytes and a relatively greater decrease in hemoglobin is constant.

2. From the standpoint of prognosis, an increase of the erythrocytes, in cases without cavity formation, is of favorable significance.

3. In advanced cases a decrease of the leucocytes is of unfavorable import.

4. In our investigations we have received the impression that the actual increase of lymphocytes seems to correspond to the increase of resistance on the part of the organism to the tuberculous infection, but further study is required to confirm this deduction.

5. The transitionals seem to follow the same rule as the lymphocytes in this regard.

6. At the beginning of the investigation the cosinophiles seemed to increase with the patient's improvement, but further study did not support this view.

Curry, in studying the effect of altitude upon the blood, found in normal and tuberculous individuals, an increase in red and white corpuscles, but notes little variation in the different kinds of leucocytes, while Webb and Williams have shown an increase in the proportion of the mononuclear cells, in normal persons, and in cured, stationary, and improving tuberculosis. That under various forms of treatment the blood findings correspond closely with those of Ullom and Craig, has been shown by Solis-Cohen and Strickler, who from 182 blood counts of fifty tuberculous patients treated with Bier's hyperemia, blisters, iodoform, creosote carbonate, and nuclein, observe that there is an increase in the proportion of lymphocytes and of polynuclear cells with one or two nuclei. These investigators have previously reported that the percentage of lymphocytes was increased in incipient, moderately advanced and improving cases and that the percentage of large mononuclears and transitional cells, while within normal limits, was greatest in incipient and improving cases.

The findings of my own series of cases of twenty-one patients are largely in accord with these observations and seem to indicate that:

1. The percentage of hemoglobin (Tallquist scale, controlled by von Fleishl or Dare hemoglobinometer) was reduced. It was increased under treatment. This increase did not seem to depend upon the administration of iron.

2. The erythrocytes were reduced in number They increased under treatment, at least temporarily, irrespective of the lesion.

3. When marked leucocytosis existed, due to toxemia, it was reduced. When the number of leucocytes was below normal, it was increased by treatment.

4. The lymphocytes were usually reduced, and were increased and remained so in those patients who improved. It seems probable that this increase may be considerd as a reliable indication from a prognostic standpoint.

5. The large mononuclears seem to follow the curve of the lymphocytes. It seems probable that they may be included with them, and that their increase or decrease may have a like significance.

6. No conclusion could be drawn from the behavior of the transitionals, eosinophiles or basophiles.

7. The classification and grouping of the polynuclear neutrophiles according to von Arneth's method seems to have some prognostic value.

To summarize, there seems to be, under this method of treatment of pulmonary tuberculosis, and temporarily at least, even in the progressive and fatal types of the disease, a distinct and constant tendency of the cellular elements of the blood and the hemoglobin to approach their normal ratios, and especially for the number of erythrocytes, lymphocytes, and large mononuclears, to be augmented, and for the hemoglobin percentage to be increased.

The most immediate and noticeable effect of treatment was relief of dry, ineffectual cough. In all cases it was relieved and in many patients it was limited to a necessary pulmonary toilet, or disappeared entirely. This seemed to be due to the effect upon the sputum, which was increased in amount and rendered more liquid, so that it was raised with much less difficulty. This effect seemed to be attributable to the action of the pinene on the bronchial mucous membrane. In all cases the complicating bronchitis was diminished or disappeared entirely. While it is recognized that it is not always a trustworthy or permanent indication of improvement, there was noted a marked diminution of tubercle bacilli and the secondary organisms, in the sputum, and in some instances they were absent on several successive examinations, when treatment had been of any duration or continuity.

The temperature, pulse, and respiration of those patients who presented any hope of improvement were reduced and steadied, the curves showing decidedly less variation. In no instance was an acceleration of respiration observed, which might in itself account for improvement, through better aeration of the lungs.

In those patients who improved there was a noticeable diminution of toxemia, indicated by the less frequent occurrence, or disappearance of rigors and hyperidrosis.

The amount of urine and the excretion of urea were increased.

The appetite was in no instance impaired, but rather seemed to be improved.

Partly perhaps from a phychological effect, but certainly also because of the relief of cough, sleep was more continuous, more sound, and more refreshing.

At no time, except when an inferior quality of turpentine was used, were there any evidences of irritation of either the heart, lungs, or kidneys.

The weight increased and the improvement both of the general condition and of the pulmonary lesion seemed to be as rapid and satisfactory as under any other form of treatment, and to compare favorably with that obtained under sanatorium care. Indeed it is noticeable and interesting that all of the patients who were treated in the city made quite as rapid progress here, as afterward in the country, and their improvement here was quite as marked as that of those who began their treatment in the country, or who were under sanatorium care there without treatment. This is true also of those pa-

tients who throughout their treatment have remained in the city. Interruption of the treatment was followed by a diminution of the erythrocytes (Chart 2).

Conclusions.—The researches and their results above reported, while preliminary and incomplete, seem to justify the following conclusions:

1. Oxypinene, prepared by the interaction of pinene vapor and dry ozonized air, possesses the valuable properties of refined and purified oil of turpentine (pinene) minus its undesirable irritating properties. In other words, pinene is modified by oxidation so that it is no longer as penetrating as pinene, nor as quickly absorbed, yet it is capable of producing the same beneficial therapeutic effects.

2. It has marked germicidal effect, *in vitro*, upon *M. pyogenes aureus, B. anthracis, B. typhosus, B. coli communis*, and *B. subtilis*. It also appears to be germicidal to the tubercle bacillus, in sputum.

No experimental work has been done with tubercle *in situ*.

3. When inhaled it does not produce irritation of the respiratory tract, neither does it produce frontal headache or renal irritation, thus decidedly differing from oil of turpentine or pinene.

4. It is a valuable expectorant. It acts as a mildly stimulating diuretic without renal irritation. It seems to stimulate the appetite and digestion and thus to improve nutrition.

5. Its use in the treatment of pulmonary tuberculosis has been beneficial, not so much from its limited bactericidal action upon tubercle bacilli, as by its effect upon the associated organisms and its hematinic power.

6. In subacute and chronic affections of the respiratory system it is indicated as a mild stimulant to the mucous membranes and other tissues.

7. When brought in contact with infected surfaces it inhibits the growth of certain pathogenic microorganisms, and, by its hyperemic property, increases the circulation in the infected area, thus promoting the destruction of such organisms by phagocytosis.

A brief preliminary report upon this subject was made at a stated meeting of the New York County Medical Society on May 27, 1912. Since then the clinical observations noted have been confirmed by several colleagues and in my own hospital service.

BIBLIOGRAPHY.

Bennett: Tabidorum theatrum, sive phtisios atrophiae et hecticae xenodochium, Frankfort, 1665.

Laennec: Quoted by Cointet.

Schneider and Valz: ibid.

Auphan: Traitement hydro-minérale de la chlorose et des ses complications, Paris, 1868.

Salles-Girons: Sur la respiration des eaux minerales pulverises, *Gaz. heb. de Med.*, Paris, 1861.

Dumarquay: De la pénétration des corps pulverulents volatile et solides dans les voies respiratoires, au point de vue thérapeutique, Bul. Acad. de Med., Paris, 1861.

Fournie: Sur la non-pénétration des liquides pulverulentes dans les bronches et les cellules pulmonaires. Bul. Acad. de Med., Paris, 1861-1862.

Bourouilloux: Quoted by Cointet.

Gratiolet et Travenier: Quoted by Cointet.

Poggiale: Rapport sur les pulverisations. Bul. Acad. de Med., Paris, 1862.

Gerhardt: Quoted by Teissier.

Waldenburg: Die locale Behandlung der Krankheiten der Athmensorganen, Berlin, 1872.

J. Solis-Cohen: Inhalation: Its therapeutics and practice, Phila., 1876.

Heryng: Nouvelles methodes d'inhalations, Warsaw, 1904.

Freund: Experimentelle Untersuchungen mit Inhalationen, *Thieranz Wochensch.*, Berlin, 1907.

Foxwell: An address on inhalation. *Lancet*, 1907.

Lepel-Cointet: Thesis. Faculté de Médecine, Paris, 1909.

Bulling: Inhalation therapy. *Klin. Therap. Woch.*, Wien, 1909.

Regnault and Reiset: Recherches chimiques sur la respiration des animaux des diverses classes. *Am. de Chim. et Phys.*, Paris, 1849.

Bert: La pression barométrique; recherches de physiologie expérimentale, Paris, 1878.

Quinquard: Études de thérapeutique experimentale et clinique, Soc. d'Ed. Scientifiques, Paris, 1892.

Smith, J. H.: Inhalation of oxygen. Trans. Am. Climat. Assoc., Phila., 1898.

Hayem: Leçons sur les modifications du sang sous l'influence des agents medicamenteux et des pratiques thérapeutique. Paris, 1882.

Robin: Quoted by Teissier.

Senator: Valeur des inhalations d'oxygéne. *La Médecine Moderne*, Vol. XIII. 1902.

Michaelis: ibid.

Bureau. Des inhalations d'oygène. *Gaz. Med. de Nantes.* 1908.

Teissier: Pneumotherapy and inhalation methods. A System of Physiologic Therapeutics, Cohen, 1903.

Aune: Effects physiologiques des inhalations d'oxygène d'apres des experiences exécutées sur lui-même par l'auteur, Paris, 1880.

Carizalis: Thesis. Faculté de Médecine, Paris, 1900-1901.

Labbe: Action thérapeutique et physiologique de l'ozone. Communication au Congrès International de Médecine. Paris, 1900.

Butte et Peyron: Action de l'ozone sur la nutrition. *Ann. de la Policlin.*, Paris, 1897.

Collart: Traitement de la tuberculose pulmonaire par les inhalations de l'ozone. *Ann. de la Soc. med. chi. de Liège*, 1891.

Coustan: De la valeur thérapeutique de l'ozone. *Gaz. hebd. de Med.*, Bordeaux, 1893.

De la Caux: L'ozone, Paris, 1904.

Sletoff: Traitement de la tuberculose par l'ozone, Moscow, 1895.

Morton: Ozone and its uses in Medicine, *New York Medical Journal*, June 23-30, 1894.

Stokes: Quoted by Teissier.

Graves: Ibid. *Journal of the American Medical Association*, Editorial, Vol. LVII, No. 17, Oct. 21, 1911.

Ullom and Craig: Examination of the blood in pulmonary tuberculosis, *American Jour. Med. Sci.*, Sept., 1905. Examination of the blood in pulmonary tuberculosis with special reference to prognosis. Annual report, National Association for the Study and Prevention of Tuberculosis, 1905.

Webb and Williams: Some hematological studies, in tuberculosis, *ibid.* 1909.

M. Solis-Cohen and Strickler: A study of leucocytes in pulmonary tuberculosis, *ibid.* 1910; The effect produced by some therapeutic measures on the different forms of leucocytes in pulmonary tuberculosis, *Boston Med. and Surg. Jour.* Vol. CLXV, No. 15, Oct. 12, 1911.

Curry: On the nature of the blood changes due to altitude, *Am. Med.*, 1902, IV. 367.

Pottenger: A study of fever in tuberculosis with reference to its causation and treatment. *Jour. Am. Med. Assoc.*, Vol. LVII. No. 13, 1911.

40 East Forty-first Street.

BLOOD PRESSURE VARIATIONS, WITH SOME REFERENCE TO TREATMENT.*

By WILLIAM MARTIN, M.D.,

ATLANTIC CITY, N. J.

A CONSIDERATION of the present status of our knowledge of blood pressure shows remarkable advances, which no doubt are due largely to a recognition of its vital importance on the part of the profession as a whole, and also to the perfection of instruments of precision.

A subject so comprehensive as this will occupy too much time if entered into in detail, and, therefore, it is the writer's purpose to deal only with some of the important variations and in a sugges-

*Read before the American Electro-Therapeutic Association, Battle Creek, September 15-17, 1914.

tive way as regards treatment of these varied conditions.

The use of the sphygmomanometer to any extent for practical purposes is confined to the last ten or twelve years, but it has been in general use only during the last four or five years. Even at the present writing blood pressure work has been termed a fad by some, and of no real practical value. It is fair to say in this connection that such pseudo-scientific men are few, and will grow less in number as the years roll on.

One writer of prominence states that Nature often knows what is best for the patient, as regards the proper amount of hypertension, and the "physician should not meddle with Nature's methods until he has good reasons for believing that they have become injurious, or, if we may use such a term, unwise." (Hare: *Therapeutic Gazette*, October 15, 1913.) He states further that "High blood pressure may be said to be, in a majority of instances, as necessary for the maintenance of an approximately normal existence, as cardiac hypertrophy is essential if life is to be maintained in the presence of chronic valvular disease."

There is no question but that a statement of this type may be misleading, unless taken to mean "a hypertension in accord with the physiological lack of exercise, and not considering its cause and correction," as stated in an editorial of the *Journal of Advanced Therapeutics* made in reply to the above. The idea of "hypertension being produced by Nature as a defence does not hold when the cause of this high pressure is toxemia, which does not tend to alleviate the existing condition." To quote further, "in other words, a vicious circle is created in which the poison acting upon the adrenal, or cardiovascular centers, induces a condition without effecting a relief thereby."

The fact that at present we realize the necessity of knowing the amount of cardiovascular compensation in all cases of blood pressure, whether they be high or low, has led to a closer study of all pressures, or in other words, what the systolic, diastolic, and pulse pressures stand for. During the preceding four or five years it has been the custom largely to depend upon one pressure as the guide to prognosis and treatment, some using the systolic, while others argued in favor of the diastolic as being most valuable for these purposes. Gradually as our knowledge has extended the significance of the diastolic and pulse pressures has grown, and from this has come the newer method of estimating all pressures by means of auscultation. In the mercurial instruments this method is much more correct and to be preferred, owing to the sluggish oscillations of the mercurial column.

To read the pulse pressure properly it is essential that both the systolic and diastolic should be correct, and with the mercurial instrument the uncertainty of the diastolic is apparent to all. By the auscultory method the systolic is determined to be at the point where the sound is lost as the bag is inflated, or where it returns on releasing the air. The minimal or diastolic is where the tone begins to diminish in its intensity. Ettinger, after a number of observations, has decided that there are five tone phrases, and the diastolic should be read at the disappearance of all sound. The first mentioned method appears to be the one generally accepted at present. The pulse pressure, being the difference between the two, is easy of determination. The systolic represents the maximum or kinetic energy of the blood column, and the diastolic or minimum the potential energy exerted by the vessel walls; while the difference or pulse pressure "represents the intermittent burden of pressure imposed on the arteries by the heart's energy in systole in order to force the blood toward the periphery and maintain the circulation," as stated by Stone. He further says "the pulse pressure may, therefore, be defined as the amount of pressure exerted by the heart during systole in excess of the diastolic pressure. It measures the excess of dynamic over potential energy."

This then really represents the load of the heart. His studies show that it approximates 50 per cent. of the diastolic pressure under normal conditions. "The systolic and pulse pressures represent myocardial values, while the diastolic pressure represents arterial resistance." These studies show the value and necessity of a careful noting of all pressures instead of a reliance upon either the maximum or minimum for purposes of information relative to cardiovascular conditions, and we are not doing our full duty toward these cases unless we are thorough in this regard.

There are cases of myocardial inefficiency where there may be systolic and diastolic pressures within normal limits, yet the mass movement of the blood be much impaired, as shown clinically by a positive venous pulse dyspnea, cyanosis, and edema, as stated by Hoover.

It has been further demonstrated that persons with high pressure and impaired valves are not seriously embarrassed for a number of years, owing to a compensatory hypertrophy. This is shown by a slightly increased diastolic and a corresponding increase in the pulse pressure, as a compensatory attempt of the heart to adjust itself to new conditions.

There has been much study of late as regards the etiology of hypertension, one theory being that there was an increase of epinephrin in the blood current. While there may be an increased functionating of the adrenals under excitement, this theory has not been sustained by further study. Toxemias of various kinds are perhaps relatively the most frequent causes of hypertension. Contributing factors, such as altered viscosity of the blood, stenosis of arterioles, venous stasis of the liver and other organs, all play their part.

The treatment of simple hypertension without organic changes needs no description here, as it is well known. Of necessity the cause must be removed if possible; therefore, aside from the use of electrical modalities, dietetic and general hygienic regulations must be observed. Of great importance is the care of the eliminations, first of all being that of the bowels.

Hypotension appears to have received less attention than has hypertension, yet its importance is no less; in fact, these cases are ofttimes most urgent for relief and cure. Whether the low tension be from a decompensation or due to a wasting illness, the urgency of the case usually demands that prompt measures be taken to restore organic function, but unfortunately these do not respond so promptly as do the cases of hypertension. There are cases of hypotension that have a low systolic with a correspondingly low diastolic, giving a relative pulse pressure, which may not imply a diminished reserve power of the circulation, but only a condition of lowered vitality with fair organic functioning; but these cases are not relatively frequent. Those that usually come to our notice are of the irregular pres-

sure type, with a low systolic, comparatively high diastolic, and consequently a small pulse pressure that shows myocardial weakness, or perhaps a chronic nephritis or an arteriosclerosis, and these are not favorable prognostically.

When we have the conditions reversed, a comparatively high systolic and a low diastolic, making an excessively large pulse pressure, it may mean one of several things, such as a purely functional derangement, aortic regurgitation with compensation, myocardial degeneration without nephritis or arteriosclerosis, or vasomotor dilatation from any cause.

The diastolic pressure appears to be more stable than the systolic, and less often shows any deviation from the normal without pathological cause. The systolic appears to accommodate itself to the diastolic more readily than the latter to the former. Any wide variation of the diastolic beyond the normal health range throws an overload on the pulse pressure, in order that adequate circulation be sustained. Cardiac depressant drugs may lower the diastolic pressure by diminishing the systolic force of the heart and producing a pulse pressure overload. The vasodilator drugs improve circulation by increasing pulse pressure.

Toxemias may produce hypotension by dilating the blood-vessels and weakening the myocardium, but their effect is largely due to a vascular dilatation, either through the vasomotor center or locally. Chronic tobacco poisoning is one of the causes of persistent low pressure. In early tuberculosis, hypotension is the rule, but if the case is amenable to treatment as it progresses toward recovery, the pressure increases relatively, and may be considered a prognostic guide. In active infections a falling pressure usually means trouble and is another example of the value of a careful study of blood pressure.

Probably one of the most careful and extended studies of a series of cases of hypotension with a definite symptom complex was made by Dr. E. H. Goodman (*Am. Jour. of the Medical Sciences*, April, 1914), who states that all pressures below 120 mm. hg., determined by the auscultory method, should be regarded as low, and he classifies the causes of hypotension as follows: "(1) Acute infections, excepting epidemic cerebrospinal meningitis. (2) Chronic wasting diseases: carcinoma, tuberculosis, cachexia from whatever cause, Addison's disease. (3) Hemorrhage, drugs, chloroform. (4) Nervous diseases: general paralysis of the insane, neurasthenia after epileptic seizures, sometimes in tabetic crises, after lumbar puncture, Grave's disease (at times), osteoarthritis, exhaustion, shock, surgical or anaphylactic. (5) Cardiovascular disease: tachycardia, dilatation of heart, arteriosclerosis (at times), mitral stenosis, decompensatory cardiac lesions. (6) Blood dyscrasias: anemia, polycythemia with splenomegaly. (7) Renal conditions: cyclic albuminuria, nephritis (at times), amyloid disease. (8) Intoxications: alcohol, tobacco, acute adrenal insufficiency. (9) Terminal hypotension preceding death."

There is another type of cases with low pressure that do not show any organic lesions similar to those mentioned earlier in the paper that have as the main symptoms vertigo, headache, and mental and physical tire. These show no evidences of toxemia, and give no history of drug or tobacco poisoning, and, so far as our present knowledge goes, appear to be unexplainable. Such cases usually react favorably under careful regulation of diet, physical exercise, and a general regulation of the mode of living.

A type of pressure that has received less careful study than the aforementioned is that of the irregular form, where the ratio of pressure is different in one arm from the other, and higher lying down than sitting. These are those of vasomotor insufficiency, as described by Abrams and Arnold Snow. Many of these cases have not been recognized in the past, owing to the fact that so few physicians have taken the trouble to take the pressure in both arms and in the prone position. Much additional work is made for the examiner by this method, considering the necessity of registering the three pressures in each arm, both sitting and lying down, but the writer can testify to the diagnostic value of the method from an examination of a fairly large number of cases.

It has been a matter of interest to note the discrepancy of pressures in the two arms, also the increase of pressure in the prone over the sitting posture. This difference in the two arms has been peculiar in another particular. The pressure will frequently change from the lower sitting to the higher lying, in the one arm, while the reverse will be the case with the other arm. When there has been a change in the ratio of the systolic and diastolic under these conditions, the greater range has been observed in the systolic. When with this type of cases there is associated a fairly uniform symtom-complex, they may be termed splanchnic neurasthenics, as designated by Abrams. The liver is usually found to be much enlarged and sensitive to palpation, as is the whole abdomen in some cases; there are gaseous accumulations, while in addition we find nervous depression, very much in proportion to the hepatic engorgement. According to Abrams, there is an exaggeration of the "cardiosplanchnic phenomenon." Quoting further from him, the factor that contributes to this development is "essentially nerve-force lacking in the muscles of the abdomen and in the nervous mechanism which regulates the supply of blood in the abdominal vessels." In these cases, as shown by Dr. Arnold Snow, the pulse irregularity corresponds with the variations of pressure.

The treatment of these cases is largely by intervertebral vibration, the ball electrode being applied to the spaces of the second and third dorsal vertebræ for reversing the pressure and pulse, and to the spaces of the seventh cervical and first dorsal for cardiac insufficiency. According to Abrams, concussion of the spines of the second and eighth dorsal will relieve intraabdominal congestion. In most of these cases the writer has supplemented this treatment by liver thermopenetration followed by the wave current, which has given happy results.

In all cases that come under our jurisdiction it is essential that due care be taken to ferret out the causative factor or factors, whether they be errors of diet, faulty living, diseases, or whatever, and do our best to correct and eliminate them. Constipation offers one of the problems in most of these cases, as it is an accompaniment, if not a factor, in the majority of cases. Corrective measures must be taken, therefore, either as regards enemas or by the use of mechanical agents, such as mineral oil or agar-agar, together with physical measures as are suited to each case.

In hypotension it is equally important that the cause be found and eliminated, but there are often different problems to be met. As regards toxic

causes, the same care can be used as in other cases.

When there is decompensation efforts must be directed toward improving myocardial and cardiovascular tone as one of the first steps toward relief and cure. In some cases the wave current will supply this need, and in others the resonator effleuve will meet the requirements. As each case requires individual study, no one can lay down a hard and fast rule by which we can treat, but constitutional up-building must be the keynote of the situation.

In considering a subject of this kind before such a body of men the writer is fully aware that he can offer little that is new, but there is always an advantage to all in having even the most ordinary and trite subjects rehearsed from time to time. But at this time it is the writer's main thought to emphasize the importance of greater care in our daily routine of pressure work, and particularly in the estimation of the three pressures, in order that we may have a full scientific knowledge of our work.

Maryland and Pacific Avenues.

A CASE OF GUMMA OF THE LOWER EYELID.

By ANDREW J. GILMOUR, PH.B., M.D.,

NEW YORK.

CONSULTING DERMATOLOGIST, MANHATTAN STATE HOSPITAL; ASSISTING ATTENDING DERMATOLOGIST, NEW YORK CITY CHILDREN'S HOSPITAL AND SCHOOLS.

M. F., female; married; white; age 32 years; nativity, Austria; occupation, actress. Fourteen years previous to June 18, 1914, the date when the patient was first seen, she contracted lues and was treated for two years by a well-known Chicago specialist who told her she was cured. After that until six years ago the patient was in perfect health at which time "ulcerated sores" appeared on her body. Various doctors were consulted who treated the matter lightly and gave only salves which cleared up these lesions on several occasions.

Again a year ago a sore appeared on the back of the neck which "ran around the head, neck, and ears." Again the patient was told there was nothing the matter with the blood and this lesion healed under the use of ointments without any internal medication.

Seven months ago a sore came over the right shoulder blade and later ulcerated. This now shows as an ulcerating papulo-serpiginous syphilide which has healed as it advanced and is still progressing. I quote the written history that was sent me by the patient: "I awoke one morning the latter part of April, 1914, to find my eye slightly swollen and itchy. On examining it I found a small red pimple with a yellow center. In a couple of days pus began running from it and the sore was creeping up toward the edge of the eyelid and eating along the lid toward my nose. It became very painful and I consulted a private doctor who diagnosed it as a specific ulcer and confirmed the diagnosis by a Wassermann test. He sent me to the clinic."

Physical examination shows an ulcer three-quarters of an inch long along the outer half of the edge of the lower lid of the right eye. It is slightly purulent showing little tendency toward healing.

Treatment.—Locally an ointment of 1 grain of yellow oxide of mercury to 1 dram of vaseline was used on the eyelid.

July 8, 1914.—Since first seen the patient has had two injections in the vein of 0.2 gram of salvarsan and three injections of 1 grain each of mercury salicylate. This was sufficient to heal the lesion on the eye as also the one on the back.

133 East Fifty-seventh Street.

Medicolegal Notes.

Agreements Not to Practice—Right to Injunction.—Suit was brought in equity for dissolution of a partnership relation between physicians, and for the enforcement of a restrictive covenant contained in the partnership agreement, by the terms of which the defendant bound himself, in case the partnership was terminated because of violation of the contract by him, to refrain from practising his profession in Atlantic City for a period of three years thereafter. The plaintiff, Dr. Marvel, began the practice of medicine in Atlantic City about 1884. His practice gradually grew to such an extent that in 1905 it became necessary for him to employ an assistant. The defendant, Dr. Jonah, who had graduated from a medical college five years before, was selected by him for that position. In 1906 Dr. Marvel found it desirable to employ a second assistant, and took in Dr. Durand. In 1908 Dr. Marvel and Dr. Jonah entered into a parole partnership agreement, which, in 1910, was superseded by a written agreement. The evidence showed that the purpose of Dr. Marvel in having the restrictive covenant put in the partnership agreement was to prevent the younger members of the firm, after having been brought into association with his patients, as his representatives, from setting up an independent practice in Atlantic City, and taking with them such patients, or any of them. The New Jersey Court of Chancery denied relief, on the ground that it would be unjust and unnecessarily oppressive to enforce the restrictive covenant. This conclusion was apparently based upon the idea that, although the independent practice of his profession in Atlantic City by Dr. Jonah would result in the loss of patients by Dr. Marvel, yet, even after such loss, the latter's practice would still be so large as to be beyond the ability to cope with it without the assistance of others, and, consequently, that the restraint sought by him against Dr. Jonah would be of little value to him if granted. On appeal it was held that Dr. Marvel was entitled to an injunction. It was said by the court that it would not do to say that a man who has built up a business so extensive that he cannot handle it without the aid of a staff of assistants suffers no loss or injury by its diminution in volume to such an extent that he no longer needs assistance to carry it on, provided that what remains of it is sufficient fully to occupy his own time. But the complainant's right to an injunction was held not to depend upon the extent of the injury to his business which would result from the violation of the covenant. It was sufficient that the injury be material. Where there is an express covenant, and an uncontroverted injury arising from the breach of it, equity will grant an injunction to restrain such breach, where the injury arising therefrom cannot be repaired, nor estimated in dollars and cents. The damages arising from the breach of such a covenant would be continuing, accruing from day to day, and it would be impossible to ascertain the money loss sustained by Dr. Marvel therefrom with anything approaching accuracy. A suit at law, therefore, would afford no adequate remedy; and when this is the case a Court of Chancery should enforce the covenant by granting an injunction to prevent the breach of it. Three judges dissented on the ground that, while it was proper that Dr. Jonah should be prevented from taking Dr. Marvel's patients, the present covenant penalized Dr. Jonah by prohibiting him from practising, not only among such patients of Dr. Marvel, but also among the hundreds of thousands of other persons who annually visit Atlantic City. —Marvel v. Jonah, New Jersey Court of Errors and Appeals, 90 Atl. 1004.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 13, 1915.

AMERICA'S MEDICAL SUPREMACY.

AN editorial writer in a recent issue of the *Long Island Medical Journal* expresses the fear, or the threat, that the American post graduate medical student will not be persona grata in Germany and Austria in future if the people of this country do not speedily shift their sympathy from the Allies to the Austro-Germans. We do not share the apprehension of our esteemed contemporary, for by the time this war is over American dollars will look as big as cartwheels to a Privatdozent in Vienna or Berlin, and his only distress will be to find that they are not to be picked up so readily as they were before the politicians brought on the war and spoiled his market. Spoiled his market will surely be if the war lasts over another winter, for American students have been discovering their own country this year and are now learning by necessity what they have often been told but refused to believe, that the facilities for post-graduate medical instruction are as good in half a dozen cities of the United States as they are in any city in Europe. And why should they not be? The best surgeons in the world are Americans; internal medicine is nowhere further advanced than it is here; some of the greatest discoveries in medical science have been made in this country; nowhere are the specialties studied and practised with greater zeal and more brilliant success than among us, and our research laboratories, though of more recent growth, need not fear comparison with those of Europe.

We reached this point while Europe was still at peace and the universities in every country were teeming with scientific activity. Now all the young blood of the laboratories has been drawn into the army and much of it has reddened the snows of Poland, France, and Belgium, the universities and laboratories meanwhile marking time with the problems of military medicine, with no opportunity for following the antebellum lines of scientific research. Here, however, study and research are unaffected by the transatlantic insanity, and if with the advantage of a nearly even start America does not now leap ahead and take admittedly the first rank in the world of medicine, it will have lost the opportunity of a century. But it will not lose it. Already during the last decade foreign medical men have been coming here in increasing numbers to observe our progress and study our methods, and if these scientific pilgrimages from the East to the West do not increase in number and volume when the war is over and the former combatants have recovered their breath and earned the wherewithal to travel, it will be a strange thing and discreditable to America. There will, of course, be many Americans going to Europe, for one can always gain something by observing things from a new angle, even if this angle is no better than one's own, but the number of such will be far smaller than before, and the average American will be content to get his post-graduate instruction in his own country, for he will know that he cannot get better, if as good, in any other land.

ANALGESIA AND ANESTHESIA IN LABOR.

THE undue prominence given to the Freiburg method by an enterprising though questionable publicity has tended to divert attention from the traditional and probably little less effective methods of subduing the pangs of childbirth. Edwin P. Davis (*American Journal of the Medical Sciences*, January, 1915) finds that the experience of various American observers in the use of scopolamine-morphine seminarcosis is not as yet sufficient to warrant a decision as to the efficacy of this procedure. In his own hands the use of these drugs has produced severe headache and vomiting in the mother.

In the management of labor Davis has adopted a procedure, the results of which are apparently safer and none the less certain than those of "dämmerschlaf." During the first stage of labor the suffering is allayed by thoroughly emptying the bowel by means of a hot, high enema, by frequent emptying of the urinary bladder, by the use of bromides by the mouth, by enforcing quiet, and by securing the comfort of the patient. If these measures fail and if the patient is threatened with exhaustion from irritation, morphine and atropine should be given hypodermically.

During the second stage of labor, if there is considerable suffering and if the uterine contractions are irregular, there are administered hypodermically strychnine 1/60 to 1/30 grain, digitalin 1/100 to 1/50 grain, and codeine ¼ to ½ grain. These may be repeated in an hour if necessary. When expulsion is imminent the patient is made to inhale a small amount of ether at the height of a pain, and this anesthetic is given freely and quickly at the moment of expulsion. The results of this method of treatment are that the patient does not know when the child was born, nor does she recall any sensation of suffering. Shock, headache, and nausea are absent, and there is no bad effect upon the child.

One important advantage of this method of treatment is that it is adapted for routine private practice and requires no especial degree of skill or vigilance. The author condemns the use of chloroform on the grounds that this tends to produce uterine relaxation and is more apt to be followed by hemorrhage than ether is. Although the fetus is affected by large doses of morphine and prolonged anesthesia, no serious result is to be feared from the ordinary and careful use of morphine and ether.

The Antinarcotic Law.

The attention of our readers is called to the fact that the so-called Harrison Antinarcotic Law goes into effect on March 1, 1915, and any physician who violates, knowingly or unknowingly, any of its provisions after that date will incur the penalty of a fine of $2,000 or five years' imprisonment or both. It therefore behooves everyone to acquaint himself with the law and to obey its irksome provisions if he would continue to practise his profession in this free land of ours. In brief, the law commands that every physician who would buy, sell, give away, or *have in his possession* any "opium or coca leaves, or any compound, manufacture, salt, derivation, or preparation thereof," shall register his name and office address with the collector of internal revenue of his district and shall pay to said collector an annual tax of one dollar. A registered physician may prescribe any of these drugs, but the prescription must be signed and dated by him and must bear the name of the person for whom the drug is prescribed; he may also dispense or give to a patient any of these drugs, but must keep a record showing the amount of such drugs dispensed or given away and the name of the patient to whom they are given, "except such as may be dispensed or distributed to a patient upon whom such physician . . . . shall personally attend." As a physician is not likely to have a patient whom he does not personally attend, unless he is doing a mail order business, this exception apparently frees him from the necessity of keeping records of his dispensing; he had better keep them, however, for there is no telling what interpretation some idiot official may put upon this section of the act. But while he may possibly be free to prescribe or dispense, he cannot purchase any of the taboo drugs without filling out a duplicate order upon a form supplied by the collector at a further expense of one dollar a hundred. This order must be kept by the vendor, and the duplicate by the buyer, for a period of two years and must be shown on demand to any inquisitive "officer, agent, or employee of the Treasury Department" or to any State or municipal official charged with the enforcement of a law regulating the sale or prescription of these drugs. And so on March 1, 1915, the physician too will enter upon the enjoyment of his new freedom, at one dollar a year and order blanks extra.

von Mayer and the Doctrine of the Conservation of Energy.

Robert von Mayer, the German protagonist and claimant of first honors for the discovery of the persistence of energy would have been one hundred years old had he survived to 1914. His death took place in 1878, but his activities are frequently quoted to show what can be done by young men who are handicapped in various ways. In a communication to the *Deutsche medizinische Wochenschrift* for November 26, Mamlock gives credit to the American Count Rumford for pioneer studies in this direction, he having shown plainly that "heat is a mode of motion." In 1842 Mayer upheld the notion of the persistence and transformation of energy. Helmholtz later sought to show that such a law was merely a corollary from Newton's teachings on motion. Mayer continued to defend his views as originally stated, but he was doubtless a victim of psychopathic constitution of direct inheritance. Upon this substratum he developed manic-depressive insanity during the very years in which he was most active polemically. He was undeceived in many respects as to certain phases of his doctrine. In 1869 he was ceremoniously given credit in Germany for his great discovery. Amid all his other troubles he had to contest his priority rights with the English physicist Joule, who receives but scanty mention in this connection. It was during the beginning of the Mayer-Joule controversy that Mayer began to suffer from nervous disorders.

War Aneurysms.

Professor Bier is at the head of the medical staff of the German navy, but owing to the inactivity of the latter, has turned his attention to the treatment of aneurysms among the wounded (*Berliner klinische Wochenschrift*, December 14). In the past two months he has performed 43 operations on 42 patients for aneurysms of the larger vessels (28) and arteriovenous aneurysms. Traumatic aneurysms, he says, are really false aneurysms. First there is a perforation of the artery, a form of hematoma resulting. The cavities formed may equal a child's head in size, and the method of their genesis is not apparent. The projectile first makes a wound cavity in which the blood escapes and clots. A bowl-shaped cavity results, varying much in size and location. The margins are constituted of muscle and fascia. These aneurysms pulsate. In time the blood is absorbed and the sac organizes. The arteriovenous aneurysms form when both kinds of vessels are wounded. Blood flows from arteries to veins. Direct adhesion or varicosities may form. Fourteen cases were treated by the old method of ligation, while in the balance suture or venous transplantation was employed. Two patients with intrathoracic subclavian aneurysm were lost, and there were two technical failures in suture cases which required secondary intervention.

Chemical Disinfection of Water.

Although in many parts of this country the public water supply is as good as anywhere on earth, in other places it is not safeguarded as it should be, and, as Earle B. Phelps says in *Public Health Reports*, Oct. 9, 1914, writing on chemical disinfection of water, there are few untreated water supplies in the United States to-day which are so well protected that they do not at times show evidences of pollution. Consequently, the chemical disinfection of water is not only of use in large and small cities throughout the country, but can be employed in emergencies on quite a small scale. Phelps refers to the three agencies for the chemical disinfection of water which have alone thus far proved satisfactory, namely, ozone, hypochlorite of calcium, and gaseous chlorine. The hypochlorite process is one not largely employed, although according to Phelps, the proper application to a water of the requisite qualities of this disinfectant will bring about a practically complete removal of pathogenic organisms without affecting the water to any noticeable extent. But, in order to obtain these results the proper quantity of the disinfectant must be applied in the proper way, and therefore in any important installation the services of a qualified expert who had experience in this particular line are almost indispensable. For the purification of

smaller water supplies Phelps gives clear directions as to how to proceed in installing small hypochlorite plants. It appears from his description that what he terms "first aid" remedies can be applied to a polluted water with a quite simple paraphernalia, and by the exercise of common sense, such a hypochlorite installation can be provided by means of which the water supply of any community can be absolutely safeguarded within a few hours after commencing work.

An Early Symptom in Intestinal Obstruction.

The importance of an early diagnosis in this condition is fully emphasized by the statistics of Naunyn, which show that 70 per cent. of the patients that are operated upon within the first forty-eight hours survive, whereas only 34 per cent. survive if operated upon on the third day. The diagnosis of intestinal obstruction is usually based upon the presence of four symptoms: abdominal pain, absolute retention of feces and gas, tympanites, and stercoraceous vomiting. None of these symptoms is by itself pathognomonic. The fecal and gaseous obstruction and the fecal vomiting may be relatively late manifestations, and if waited for in every instance before a diagnosis is made the safety of the patient may be compromised. Pasquale Cataldi (*Il Policlinico,* December 13, 1914), calls attention to dilatation of the stomach as a constant and early manifestation of intestinal obstruction. In the four cases which he reports this symptom was quite prominent. Without regarding it as pathognomonic, the author attributes considerable diagnostic importance to this manifestation, particularly when it is associated with or followed by the other well-known symptoms of intestinal obstruction. He believes that the dilatation of the stomach is of purely reflex nervous origin, that is to say it is a paresis of the stomach caused by excitation of the abdominal sympathetic.

The Vesalius Quadricentennial in Berlin.

The birth of Vesalius four hundred years ago was honored by the united medical societies under the auspices of the Berlin Medical Society on December 23 (*Berliner klinische Wochenschrift,* January 11). The papers of the evening were by Hans Virchow and Holländer the antiquarian. Doubtless the inception of the movement antedated the war and the conquest of Belgium and the latter event was not allowed to dim in the least the brightness of the meeting. Vesalius was a citizen of conquered Belgium, a fact several times mentioned, but with the added assertion that he was born at Wesel of German parents, which may be true but will be news to many of the great anatomist's biographers. It was proposed and carried that on December 31, the actual birthday, the societies cause a laurel wreath to be hung upon the Vesalius memorial in Brussels. Among the wealth of biographical details, and enumeration of honors which belong to Vesalius, we fail to note in the report of the meeting any allusion to the fact that he was educated at the University of Louvain. This omission may, of course, have been an oversight, but to have mentioned his alma mater, whether with or without some expression of regret, would perhaps have thrown a shadow upon the success of the meeting.

The Pathogenesis of Peptic Ulcer.

In 1913, Corica, in studying the behavior of the hemolymphatic system in the experimental anemia produced by the injection of pyrodine into dogs, discovered the presence of ulcers in the stomach and duodenum of these animals. Further investigation along this line was carried out by R. Crescimone and B. Anglesio (*Riforma Medica,* November 21, 1914) in two sets of experiments. In the first of these the animals were subjected to experimental pyrodine anemia. In the second set this was preceded by bilateral subdiaphragmatic resection of the vagi. The results of these investigations may be summarized as follows: The prolonged and slow poisoning by means of pyrodine leads to the death of the animal and in fifteen out of sixteen instances gastric and duodenal ulcerations are present. These lesions are more pronounced if there has been a preceding subdiaphragmatic section of the vagi. The gross and microscopic appearances of the ulcers are identical with those of the typical peptic ulcers in the human being. The origin of gastric and duodenal ulcer is attributed in large part to a diminution in the resistance of the tissues by virtue of a deficiency in the antiproteolytic ferments, a sequence which may readily occur in the case of the peptic ulcers occurring in anemia.

News of the Week.

For the Relief of Belgian Physicians.—The treasurer of the Committee of American Physicians for the Aid of the Belgian Profession reports the following contributions received during the week ending February 6, 1915:

Dr. Willard Bartlett, St. Louis, Mo.	$10.00
Dr. M. Manges, New York, N. Y.	15.00
Dr. G. D. Hale, P. A. Surg, U. S. N., San Francisco, Cal	10.00
Dr. Alfred Wiener, New York, N. Y.	10.00
Dr. John Woodman, New York, N. Y.	5.00
Dr. Robert T. Frank, New York, N. Y.	10.00
Cash—B., Pittsburgh, Pa.	10.00
Dr. R. O. Raymond, Flagstaff, Ariz.	10.00
Dr. A. Hymanson, New York, N. Y.	5.00
Dr. Mazyck P. Ravenel, Columbia, Mo.	15.00
Oklahoma State Med. Assoc., Muskogee, Okla.	100.00
Dr. H. H. Sherk, Pasadena, Cal.	25.00
Dr. James Williamson, Philadelphia, Pa.	5.00
Dr. J. S. Kauffman, Blue Island, Ill.	5.00
Dr. John P. Treanor, Dorchester, Mass.	10.00
The Clinical Club of Albany, Albany, N. Y.	25.00
Dr. Thomas J. Watkins, Chicago, Ill.	50.00
Dr. H. E. Oesterling, Wheeling, W. Va.	10.00
Dr. Leslie W. Schwab, Chicago, Ill.	2.00
Dr. A. Howard Smith, Marietta, Ohio.	5.00
Dr. Woodson H. Taulbee, Maysville, Ky.	5.00
Total	$362.00
Previously reported receipts	2,166.00
Grand Total	$2,528.00
Previously reported disbursements	$2,090.00
Disbursements week ending Feb. 6th	440.00
Total disbursements	2,530.00
Deficit	$2.00

Dr. Lewis S. McMurtry of Louisville, Ky., and Dr. Charles A. L. Reed of Cincinnati, Ohio, have consented to become members of the Committee of American Physicians for the Aid of the Belgian Profession. At the request of the treasurer the executive committee has arranged to have a quarterly audit of his accounts. The first audit will be made about March 20, 1915.

The Health of the Canal Zone.—The report of Dr. Charles F. Mason, Chief Health Officer of the Canal Zone, for November states that there were five deaths from disease among the employees during the week, the rate being 1.61 per thousand as compared with 4.68 for the preceding month and 4.89 for the corresponding month last year. Among the residents of the Zone there were 39 deaths

from disease, giving a rate of 12.66 per thousand, as compared with 13.85 for the preceding month and 15.82 for the corresponding month last year. In Panama City the death rate was 33.20 per thousand, as compared with 32.00 for the preceding month and 37.14 for the corresponding month last year.

The Death Rate of New York.—During the week ending January 30 there were 1,460 deaths in this city as against 1,628 during the corresponding week last year. The death rate for the first five weeks of this year was 14.08 per 1,000 of the population as against a rate for the corresponding period of 14.75, a decrease of .67 of a point.

Street Accidents.—The National Highways Protective Society reports that there was a reduction of 30 per cent. in fatal accidents in the streets of this city in January of this year as compared with the same month in 1914. During the month sixteen children lost their lives, fourteen being killed by automobiles, one by trolley, and one by wagon. The total number of persons killed was thirty-one, of which number automobiles killed twenty-three, trolleys four, and wagons four. The number of persons killed on the streets and highways of New York State, outside of New York City, during the past month was eleven. Automobiles caused the death of seven and trolleys four, as compared with five by automobiles, five by trolleys, and one by wagon in January, 1915. In New Jersey thirteen persons were killed by automobiles, as compared with eight during the month of January, 1914. Nine persons were killed at railroad grade crossings in New York and six in New Jersey during the month.

An American Doctor Insulted for Speaking English.—An Associated Press report from Vienna states that Dr. Frank C. Davis, president of the American Medical Association of Vienna, has addressed a complaint to the Vienna *Neue Freie Presse* in which he says that recently he has been molested three times in the Austrian capital because he spoke English. In one instance, he says, a woman wanted him ejected from a street car, and in another case the proprietor of a café ordered him to leave the establishment.

Working of the Eugenics Law.—The Wisconsin State Board of Health in its annual report shows that since the eugenics law went into effect January 1, 1914, the number of marriages in Wisconsin dropped 3.800. In 1913 there were 21,052 marriages and in 1914 only 17,252.

The Report of the New York City Health Commissioner for 1914, recently issued, shows that there was a notable decrease in infant mortality, that the death rate was the lowest ever recorded in New York, that sanitary conditions have been improved generally. There were 5,513 more births in 1914 than in 1913, and that 1,784 more marriages were reported than in 1913.

The old sanitary code of the city was revised, and a number of new amendments were adopted, among them being the prohibition of the sale of bichloride of mercury except upon a physician's prescription. Three deaths from rabies occurred during the year, and 852 persons received Pasteur treatment. In a letter to Dr. Goldwater, expressing his satisfaction with the excellent work of the Health Department during the year, Mayor Mitchel wrote: The taxpayers ought to know that out of its appropriations for 1914 the Department of Health turned back into the city treasury the sum of $170,000; that the city's milk supply is now protected by the most complete municipal inspection system in the country; that the more important officials of the department are now giving their undivided time to its work; that private physicians are now sharing the medical inspection of school children, thus reducing the municipal cost of this work; that a bureau of public health education has fulfilled its promise to put the Bureau of Food Inspection on an effective footing, and that the department is engaged in numerous other activities which are directly and indirectly productive of health and welfare.

Dr. John H. Huddleston has been elected chairman of the medical board of the Willard Parker and Riverside Hospitals of the New York City Department of Health to succeed Dr. John Winters Brannan, who has resigned after many years' service. Dr. Brannan retains his association with the hospitals as consulting physician.

Dinner to General Gorgas.—The local Medical Reserve Corps, U. S. A., gave a banquet last week at the McAlpin Hotel in honor of Surgeon-General William C. Gorgas. Dr. Victor C. Vaughan of Ann Arbor, Mich., president of the American Medical Association, Col. L. Merwin Maus and Col. A. E. Bradley of the U. S. Army Medical Corps, Col. Richards of the Army War College, Dr. John A. Wyeth, and Dr. George Henry Fox were among those present.

Examination of Candidates for the United States Public Health Service.—Boards of commissioned medical officers will be convened to meet in Washington, D. C., Boston, Mass., New York, Chicago, St. Louis, Louisville, New Orleans and San Francisco on Monday, March 8, 1915, for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service. Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Candidates must have had one year's hospital experience or two years' professional work. Successful candidates will be numbered according to their atttainments on examination, and will be commissioned in the same order. They will receive early appointments. After four years' service assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500, and assistant surgeon generals $4,000 a year. When quarters are not provided, commutation at the rate of $30, $40, and $50 a month, according to the grade, is allowed. All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years up to 40 per cent. after twenty years' service. Any one wishing to come up for this examination should address the Surgeon-General, Public Health Service, Washington, D. C.

Civil Service Examinations.—An examination will be held on March 2 for positions in the Philippine Service as follows: Bacteriologist and pathologist, salary $2,000-$2,500; medical inspector and surgeon, salary $3,000; specialist in mental and nervous diseases, salary $3,500. The examinations are open to all male graduates of a reputable medical school who are citizens of the United States and who meet the special requirements as regards experience, etc., in each case. Persons

wishing to take any of these examinations should at once apply for Forms B. I. A. 2 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.; the secretary of the United States Civil Service Board, postoffice, Boston, Mass., Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Cal.; custom house, New York, N. Y., New Orleans, La., Honolulu, Hawaii; old custom house, St. Louis, Mo.; or to the chairman of the Porto Rican Civil Service Commission, San Juan, P. R. No application will be accepted unless properly executed, including the medical certificate, and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 2, 1915.

The New York State Civil Service Commission announces an examination in February 27 for physicians, Richmond County Sheriff's office, salary $750. Candidates must be legally licensed medical practitioners and residents of Richmond county for the past three months. Any one wishing to take this examination should write for application blank to the State Civil Service Commission, Albany, N. Y.

Mayo Research Foundation of the University of Minnesota.—A plan of Drs. William J. and Charles H. Mayo of Rochester, Minn., to establish a $1,000,000 foundation for medical research in connection with the University of Minnesota under certain restrictions has been approved by the faculty of the medical department and it now is under consideration by the University Medical College Advisory Board. The interest of the fund will be used in research work at Rochester by graduates of the university medical department.

Typhoid Fever in a Hospital.—Twenty of the doctors, nurses, and employees of the Sloane Maternity Hospital in this city have suffered from typhoid fever since the beginning of the year. None of the patients has been attacked and the origin of the outbreak has not been ascertained; no typhoid carrier has been discovered among the kitchen and dining-room staffs.

Damages for Injury to the Hand.—A Chicago physician who was thrown out of his berth in a sleeping car on an Indiana train has received $32,500 for injuries to his hand, which he claimed would interfere with his work as a surgeon. Of the total amount $15,000 was paid by accident insurance companies, the balance by the railway company.

More Cigarette Legislation.—A bill has been introduced into the Wisconsin legislature providing that no educational institution of any kind which is supported in whole or in part by public money shall employ a teacher who smokes cigarettes, and that no such institution shall grant a diploma or certificate of education to any one who smokes cigarettes.

War on Jersey Mosquitos.—The Bergen County Board of Freeholders has appropriated $14,000 to aid in mosquito extermination. Representatives from the New Jersey State Commission appealed to the board, asserting that the neighboring counties of Hudson, Essex, and Union were complaining because of Bergen's seeming indifference. Last year the board appropriated only $800.

Torpedoing a Hospital Ship.—The officers of the British hospital ship *Asturias* report that on February 1 when the vessel was approaching Havre and was fifteen miles out, with a staff of doctors and nurses aboard, a German submarine was sighted, whereupon the vessel hastened for port without waiting for a pilot. It was full daylight, the men say, and the submarine could not possibly have mistaken the character of the hospital ship, which is painted white and carries a green stripe and red crosses, as provided by The Hague Convention. A torpedo was seen rushing toward the vessel. The navigating officer promptly swung the ship around. His action alone saved the *Asturias*, according to those aboard, the torpedo dashing past, a few yards astern.

Post Graduate Instruction in Contagious Disease.—The Department of Health has under consideration the inauguration of a series of clinics in contagious diseases, to be held in the hospitals of the Department of Health, and to be open to graduates in medicine practising in the City of New York. In arranging for the course it will be helpful to know to what extent physicians will interest themselves in it, and physicians who desire to take advantage of this opportunity are therefore requested to communicate promptly with the Commissioner of Health.

Public Health Exhibit.—The Department of Public Health of the American Museum of Natural History is at present engaged in the preparation of a special exhibit of military hygiene and sanitation, dealing with the health of armies, the hygiene of the individual soldier, and the general problems of camp sanitation. A number of new exhibits illustrative of insect-borne diseases were added to the department's display during 1914, the most important single exhibit being a model of the flea (carrier of bubonic plague) 1,728,000 times natural size, prepared by Mr. Ignaz Matausch.—*Science.*

The Massachusetts Board of Health.—The Governor of Massachusetts has appointed the following members of the State Board of Health to serve under the State Health Commissioner, Dr. Allan McLaughlin: X. H. Goodnough, chief engineer, director of the division of sanitary engineering; H. W. Clark, chemist, director of the division of water and sewerage laboratories; William C. Hanson, director of the division of records and accounts; Hermann C. Lythgoe, director of the division of food and drugs; Prof. Milton J. Rosenau, pathologist; Dr. Eugene R. Kelly of Seattle, director of communicable diseases.

Medical Society Elections. — The Fayette County (Ky.) Medical Society, meeting in Lexington on December 15, elected the following officers: *President*, Dr. John C. Lewis; *Vice-President*, Dr. Porter Prather; *Secretary-Treasurer*, Dr. L. C. Redmon; *Delegate to the State Society*, Dr. C. A. Vance; *Censor*, Dr. W. O. Bullock.

The Jefferson County (Ky.) Medical Society elected the following officers at a meeting held December 21: *President*, Dr. Ap Morgan Vance; *First Vice-President*, Dr. R. Lindsey Ireland; *Second Vice-President* Dr. Jethra Hancock; *Treasurer*, Dr. Bernard J. O'Connor; *Judiciary Councillors*, Dr. E. S. Allen and Dr. Claude G. Hoffman.

The Henderson County (Ky.) Medical Society elected the following officers on December 15: *President*, Dr. Archibald Dixon; *Vice-President*, Dr. J. H. Letcher; *Secretary*, Dr. Peyton Ligon.

The Salt Lake County (Utah) Medical Society elected the following officers at a meeting held December 16: *President*, Dr. R. W. Tyndale; *Vice-President*, Dr. W. F. Beer; *Secretary*, Dr. R.

W. Ashley; *Treasurer*, Dr. George F. Roberts; *Censors*, Drs. J. N. Harrison, S. L. Richards, and R. R. Hampton.

The Pulaski County (Ark.) Medical Society, at a meeting in Little Rock on December 16, elected the following officers: *President*, Dr. J. B. Dooley; *Vice-President*, Dr. A. M. Zell; *Secretary*, Dr. S. M. Gates; *Treasurer*, Dr. W. R. Bathurst; *Member of the Board of Censors*, Dr. A. E. Harris.

The Muskogee County (Okla.) Medical Society elected the following officers at a meeting held December 14: *President*, Dr. Benjamin H. Brown; *Vice-President*, Dr. M. K. Thompson; *Secretary-Treasurer*, Dr. H. P. Ballantyne; *Censors*, Drs. J. S. Vittum and I. B. Oldham.

The Reno County (Kan.) Medical Society, at a meeting in Hutchinson on December 22, elected the following officers: *President*, Dr. Fred Forney of Hutchinson; *Vice-President*, Dr. W. C. Bondurant of Partridge; *Secretary-Treasurer*, Dr. W. F. Schoor of Hutchinson; *Delegate to the State Society*, Dr. C. L. McKittrick, *Censors*, Drs. Heylmun and Seehorn.

The Story County (Ia.) Medical Association elected the following officers at a meeting held December 18 at Ames: *President*, Dr. Hearem of Story City; *Vice-President*, Dr. B. G. Dyer of Ames; *Secretary and Treasurer*, Dr. F. S. Smith of Nevada; *Delegate to State Association*, Dr. B. G. Dyer of Ames; *Alternate*, Dr. D. M. Christ.

The Union County (Ia.) Medical Society, at the annual meeting held in Creston on December 23, elected the following officers: *President*, Dr. J. Fry; *Vice-President*, Dr. W. K. Keith; *Secretary-Treasurer*, Dr. T. V. Golden; *Censor*, Dr. O. S. Barber; *Delegate to State Society*, Dr. J. W. Reynolds; *Alternate*, Dr. W. K. Keith.

The Ashland County (Wis.) Medical Society elected the following officers at a meeting held December 21: *President*, Dr. M. S. Hosmer; *Vice-President*, Dr. J. V. Wenzel; *Secretary and Treasurer*, Dr. C. J. Smiles.

The Will County (Ill.) Medical Association, at the annual meeting held in Joliet on December 15, elected the following officers: *President*, Dr. A. L. Shreffler; *Vice-President*, Dr. W. R. Fletcher; *Secretary-Treasurer*, Dr. Marion K. Bowles; *Delegate to State Association*; Dr. W. A. Curtiss; *Alternate*, Dr. Marion K. Bowles.

The Van Wert County (Ohio) Medical Society held its annual meeting at Van Wert on December 10 and elected the following officers: *President*, Dr. M. S. Cramer; *Vice-President*, Dr. Robert C. Flemming; *Secretary and Treasurer*, Dr. C. G. Church; *Delegate to State Society*, Dr. B. L. Good.

The Medical Society of the County of Lewis (N. Y.) elected the following officers at the annual meeting held at Watertown, December 21: *President*, Dr. Paul H. von Zierolshofen of Croghan; *Vice-President*, Dr. Cyrus W. Culver, Lowville; *Treasurer*, Dr. Demton of Turin; *Secretary*, Dr. E. N. K. Mears of Lowville.

Obituary Notes.—Dr. Louis A. Rodenstein of New York, a graduate of the Department of Medicine of the University of Pennsylvania, Philadelphia, in 1859, a veteran of the Civil War, and formerly a surgeon in the New York Police Department, died at his home on January 31, aged 79 years.

Dr. Charles T. Montgomery of Saugerties, N. Y., a graduate of the Albany Medical College in 1874, and a member of the New York State and Ulster County Medical Societies, died at his home on January 15, aged 65 years.

Dr. F. Robert Boyd of St. Louis, Mo., a graduate of the Cleveland College of Physicians and Surgeons, Cleveland, O., in 1886, and a member of the American Medical Association, the Missouri State Medical Association, the St. Louis City Medical Society, and the American Electrotherapeutic Association, died at his home, after a short illness, on January 2, aged 63 years.

Dr. C. C. Donovan, Jr., of Scranton, Pa., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1913, died at his home after a long illness, on January 8, aged 24 years.

Dr. Isaac Leopold of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1886, died recently at his home, aged 50 years. Dr. Leopold was one of the organizers of the Jewish Maternity Hospital of Philadelphia and the Eaglesville Sanitarium for Consumptives, and medical director of the Seaside Home for Jewish Children, and a member of the staff of the Kensington Home for Women. He was also a member of the American Medical Association, the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society, the Philadelphia Pediatric Society, and the Philadelphia Pathological Society.

Dr. William Boddie Rogers of Memphis, Tenn., a graduate of the Bellevue Hospital Medical College, New York, in 1878, for twenty-six years dean of the Memphis Hospital Medical College and professor of the principles and practice of surgery and clinical surgery, and a member of the Tennessee State Medical Association and the Shelby County Medical Society, died in St. Joseph's Hospital, Memphis, following an operation for ulcer of the stomach, after a long illness, on January 13, aged 58 years.

Dr. Scott Fulton of Columbus, O., a graduate of the Columbus Medical College in 1892, died at his home from pneumonia after a brief illness, aged 50 years.

Dr. Harry S. Pratt of Lancaster, N. H., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1899, died at his home following an operation for appendicitis on January 6, aged 40 years.

Dr. James Albert Rowan of Wesson, Miss., a graduate of the Medical Department of the Tulane University, New Orleans, in 1873, and a member of the Mississippi State Medical Association and the Tri-County-Pike-Lincoln-Copiah Medical Society, died at his home after a long illness, on January 9, aged 62 years.

Dr. George Allen Nash of Maryville, Mo., a graduate of the St. Joseph Hospital Medical College in 1879, and a member of the American Medical Association, the Missouri State Medical Association, and the Nodaway County Medical Society, died in St. Francis Hospital, Maryville, on January 8, aged 62 years.

Dr. Henry Walton Wood of Fairhaven, Mass., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1902, and a member of the American Medical Association, and the Massachusetts and Bristol District Medical Societies, died at the Jefferson Hospital, Philadelphia, after a long illness on January 12, aged 40 years.

Dr. Edward Maxwell Wiley of Lexington, Ky., a graduate of the Medical College of Indiana, Indianapolis, in 1876, formerly superintendent of the Eastern Kentucky Asylum for the Insane, Lexing-

ton, and a member of the American Medical Association, the Kentucky State Medical Association, and the Fayette County Medical Society, died at St. Joseph's Hospital, Lexington, following an operation, on January 11, aged 64 years.

Dr. THOMAS W. TAYLOR of Henderson, Ky., a graduate of the University of Louisville Medical Department in 1845, died at his home from pneumonia after a short illness, aged 91 years.

Dr. GEORGE D. ROWE of Boone, Ia., a graduate of the Medical School of Maine, Portland, in 1868, and a member of the Iowa State and Boone County Medical Societies, died at Hot Springs, Ark., on January 13, aged 69 years.

Dr. CHARLES BOWMAN of New Albany, Ind., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1849, died at his home after a long illness on January 12, aged 89 years.

Dr. WALTER B. HILL of San Jose, Cal., a graduate of the Jefferson Medical College, Philadelphia in 1864, died at his home on January 9, aged 75 years.

Dr. DAVIS BRUCE RICHARDS died at Philadelphia on January 22 of nephritis at the age of 47 years. He was graduated from Jefferson Medical College in the class of 1894. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. WILLIAM W. KNOWLTON died at Camden, N. J., on January 23, at the age of 44 years, as a result of arteriorenal disease. He was graduated from Hahnemann and Medical College Hospital in the class of 1893. He was a member of the Camden Board of Health.

Dr. JAMES BOONE LINCOLN died of cerebral hemorrhage at Lancaster, Pa., on January 18 at the age of 57 years. He was graduated from Jefferson Medical College in the class of 1883 and he was for twenty-three years connected with medical relief department of the Pennsylvania Railroad.

Dr. ADAM M. KALBACH died at Lancaster, Pa., on January 19 at the age of 69 years. He was graduated from the Long Island College Hospital in the class of 1867 and from the Bellevue Hospital Medical College in the class of 1868.

Dr. JAMES REA CRAWFORD died suddenly of heart disease in the Polyclinic Hospital on January 15 at the age of 41 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1899.

Dr. JAMES HENRY PARKER, former president of the Cotton Exchange, New York, died at the Roosevelt Hospital on January 27, after several weeks illness from blood poisoning following an operation made necessary by an accident to his knee. Dr. Parker, who was 72 years old, was graduated in medicine soon after the close of the Civil War, during which he had served in the Confederate Army, and for a time practised in North Carolina, finally, however, entering business life. He had long been prominent in Southern circles in New York.

Dr. DUDLEY RAGLAND BOSTON of Crofton, Va., a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1854, died at his home from pneumonia, after a short illness, on January 15, aged 82 years.

Dr. GEORGE W. BROWN of Rockford, Ill., a graduate of the Eclectic Medical College of Pennsylvania, Philadelphia in 1868, died at his home on February 5, aged 95 years.

Correspondence.

DR. LYDSTON MISQUOTED.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In connection with a sensational report of an operation under the so-called "twilight sleep," there has appeared in various newspapers a statement purporting to be by myself which would imply not only that I was present at the operation but that I unequivocally endorsed the method. The following appeared in the New York *World*, January 28, 1915: "'After this demonstration,' Dr. G. Frank Lydston said, 'twilight sleep for men will become common. The use of this anesthetic will no longer be limited to childbirth cases, but women as well as men will benefit by it generally. This operation was important, and I am glad to express my professional opinion that it was completely successful.'"

I desire to state: (1) That I was not present at the aforesaid operation; (2) I never have been interviewed upon the subject nor, up to the present moment, have I expressed for publication any opinion of the so-called "twilight sleep"; (3) my present attitude toward the revival and sensational nomenclature of the employment of scopolamine-morphine hardly would comport with the sentiments expressed in the statement falsely attributed to me.

G. FRANK LYDSTON, M.D.

CHICAGO, February 4, 1915.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CHADWICK LECTURE—WAR AND DISEASE—NAVAL AND MILITARY HYGIENE—MOTOR AMBULANCES—MOTOR OPERATING THEATER—PRIZES OFFERED.

LONDON, January 22, 1915.

SIR WILLIAM COLLINS, presiding at the opening of a course of Chadwick Lectures on "War and Disease" by Professor F. M. Sandwith, remarked that for five months we had been living under the shadow of a world-wide war, so the Chadwick trustees had endeavored to adopt their program at this time. Under the powers of the trust they had now offered for the first time prizes of fifty guineas and the Chadwick gold medal for medical officers of the army and navy who most distinguished themselves in promoting the health of the soldiers and sailors. This proceeding was cordially approved by the chiefs of the medical departments and he hoped the names of the prize winners might be announced at one of the lectures of the course. In the present war, he added, we had been able to welcome the beneficial work at the front of the motor ambulances which have greatly shortened the time between the reception of a wound and its surgical treatment.

Professor Sandwith began his course by remarking that the morale of the men and the success of an army must largely depend on physical causes, such as the forethought given during peace to the feeding, hygiene, and equipment of the troops. In early campaigns hygiene received no consideration. As late as the Crimean War the backward state of both military and civil hygiene was most disastrous. Florence Nightingale, Sidney Herbert, Edwin Chadwick, Dr. Parkes worked zealously to introduce sanitary science into the life of the soldier, his barracks and his hospitals. They showed that the death rate in the British Army in India and even in the English barracks was far too high. By the

efforts of determined reformers the medical service of the army was put on a new foundation. The Royal Army Medical Corps had brought about a state of health of the British soldier to which his present endurance of trying physical conditions was to no slight extent due. Famous marches were quoted; the disastrous effects of unsuitable uniforms or of medical errors were cited. The modern uniform, the boots, the food, the drink of the soldier were compared with those of his predecessors fifty and one hundred years ago, and it was seen how attention to details had enabled him to bear with courage and cheerfulness exposure, lack of sleep, and the strain of incessant watchfulness.

The next point dwelt upon by the lecturer was the great extent to which the loss of life in war has been reduced by the precautions insisted on in recent times against the outbreak and prevalence of preventable diseases—precautions laid down and urged by the Army Medical Department.

The lecture was illustrated by lantern slides showing the uniforms of the army in bygone periods, copies of old wood cuts of military surgery, and portraits of some of the pioneers of military hygiene.

An automobile ambulance to serve as a surgical unit when operations can be performed near the front as well as in the base hospitals or in homes has been at work in the field, and some account of it has been given to the French surgical society by Dr. Hallopeau. This motor hospital, as we may call it, he described as consisting of three wagons and a traction chassis. The chassis supplies an unlimited quantity of steam and heats the operating theater, keeping the temperature constant at 75° Fahrenheit, even when outside it is only 10° Fahrenheit. The wagons carry materials for 120 beds, tanks for hospital, surgery, and kitchen. The whole hospital can be put together in a few hours. Connected with the ambulance there are six motor cars, each carrying four beds; they keep the hospital and neighboring first-aid stations in communication. On one occasion the surgeons were operating continuously for ten hours on cases thus brought quickly from the front. Only severe cases are forwarded—one day there were six of perforated intestine operated on, three of which recovered.

The proposal to utilize the motor for ambulance or hospital work is not new. Among those who have given it consideration is Mr. G. H. Colt, assistant surgeon of the Royal Aberdeen Infirmary, who designed in 1910 a portable operating theater to scale, the plan of which he published in the *Journal of Surgery* in 1913. It was not intended for, or designed in reference to, war, which was not then occupying attention, nevertheless the proposal was submitted to the war office and acknowledged. The object in view was to obtain the smallest theater in which an operation could be performed in comfort, to arrange for the contents to be as light as possible, and to mount the body on a chassis of the light car type. Sterilized dressings, towels, gowns, etc., were to be sent on before starting, otherwise the theater was complete. This plan, carried out on a somewhat heavier scale with some slight changes, can be adapted to the war theater and can be taken along the same roads as motor omnibuses or other vehicles. The light or original peace plan is also likely to be of great value at the front where numbers may well be called for.

Prizes of £1,000, £500 and other sums are being offered for the best designs for a motor ambulance body or for improvements in motor field ambulances. The committee or commission for judging owes its origin to Mr. Welcome and consists of representatives of the naval and military medical services and the St. John's Ambulance; Lord Montague, Professor Dalby, and Mr. Robertson are also members, with Dr. Andrew Balfour as treasurer, Sir F. Treves, chairman, and Mr. O'Grady, secretary (10 Harrietta Street, Cavendish Square). The object is stated to be to produce a standard pattern body of perfect design which shall fit standard chassis. Apart from the prizes no payment will be made for designs which the commission may, if it thinks proper, publish for use in the cause of humanity.

The motor bicycle ambulance is already at work. It is a motor bicycle fitted with an ambulance as a side car. The Tyneside doctors have tested one and the Red Cross Society has approved it. It takes two patients lying down on regulation army stretchers. The driver is necessarily occupied all the time with his machine and can give no attention to the traveler. It is, therefore, only available for those wounded who do not require any attention.

London's long-promised service of motor ambulances, we are now told, will not be delayed much longer; managements being nearly complete for starting half a dozen stations under the Act of 1909. The County Council has evidently taken its time, so we may hope that when established its service will lack nothing.

Newcastle-on-Tyne was last week endowed with a perfectly equipped motor ambulance by its medical residents; it was formally presented to the Northern Hospital, the commandant of which in accepting it said it would assuredly prove most beneficial to the patients who were constantly being brought to the hospital.

MEDICAL WAR NOTES.

ELECTRICAL STERILIZATION—THE COOLIDGE X-RAY TUBE—A BULLET LOCALIZER—BREAKDOWNS FROM TRENCH FIGHTING.

LONDON, January 15, 1915.

THE use of electricity in medicine and surgery has rapidly increased during the war, and the busy brains of inventors everywhere have devised means of utilizing methods that were in their infancy not many months ago. One of the most useful applications of a well known electro-chemical procedure described by the writer and by Drs. Beard and Rockwell in the early seventies is ionization, especially of wounds. It consists in the forcing of a metallic salt into the wound-track by means of an electric current so that there shall be an even and efficient coating of an antiseptic. A 1 per cent. solution of zinc chloride is ordinarily used, one electrode being placed upon the chest or in some remote place, and the other in the solution in which the wounded part is submerged. The resistance of the injured tissues involved is much less than the unbroken skin and the consequence is that the path of the bullet is treated to a complete application of the substance. "In ten minutes," says our observer, "a degree of sterilization of the wound may be obtained greater than that produced by continuous days of soaking in ordinary antiseptic baths." This is but a new adaptation of the method that has for some time been in use in England for the treatment of chronic sinuses and other intractable conditions.

The new form of *x*-ray tube invented by Dr. Wm.

D. Coolidge in which the anti-cathode is constructed of tungsten is in use in the military hospitals here. Its superiority to the old tubes is due to the higher melting point, lower vapor pressure, and greater heat conductivity, and there is a marked increase in the intensity of the *x*-rays produced. It has great penetration and the operator may do all his work with a single tube. It is said that a tube has been run for fifty minutes without any adjustment, while the ordinary tube cannot be used for more than a few seconds without showing some material change in penetration. It adapts itself to all kinds of Röntgenographic work, and is taking the place of radium as a therapeutic measure. Mr. Luke Hope, M. R. C. S., who is radiographer at Sir Henry Norman's hospital at Wimereux, has invented a "localizer" which enables him to say that a bullet is at a definite point—so many centimeters below a mark made on the skin—and all the surgeon has to do is to cut down to the indicated depth. It supersedes stereoptic pictures, stretched cords, or elaborate calculations.

Stories of nervous breakdown at the front are familiar, and absolutely used up men are coming back daily to be invalided or retired. These examples include young men some of whom went to the front two months ago in fine physical condition fresh from the football field, but to-day are prematurely old men. This is all due to trench fighting.

ALLAN MCLANE HAMILTON.

Progress of Medical Science.

Boston Medical and Surgical Journal.

January 28, 1915.

1. Scholarship in Medicine. Theobald Smith.
2. A Study of Normal Looking Brains in Psychopathic Subjects. E. E. Southard and M. M. Canavan.
3. The Emergencies of Extrauterine Pregnancy at the Boston City Hospital. An Analysis of Sixty-Two Cases. E. B. Young.
4. Lymphatic Leucemia in Acute Infection, after Removal of the Spleen. J. M. Jackson and W. D. Smith.
5. Submucous Resection as a Means of Obliterating Superficial Blood-Vessels. J. Frenn.

1. Scholarship in Medicine.—Theobald Smith states that to sit still in a room, to study, and to think, are the necessary antecedents of the scholar. There is one function of the scholar which should be cherished above all others, namely, to discover and tell the truth. His rewards will always be small. The scholar in medicine must be more than fundamentally serviceable as a part of a great machine. He must be in touch with all its parts.

2. Normal-Looking Brains in Psychopathic Subjects.—E. E. Southard and M. M. Canavan present the results of a study of 153 brains removed at autopsy at the Boston State Hospital. Among these there were twenty brains of a normal appearance. Some of the lesions in the abnormal brains may have had little or nothing to do with the mental disease which their bearers showed. The search for functional psychosis which shall be above all neuropathological reproach is an exceedingly elusive task and possibly never to be rewarded.

3. Emergencies of Extrauterine Pregnancy.—E. B. Young has made a study of 215 cases diagnosed as extrauterine pregnancy, but deals only with sixty-two real emergencies which presented the symptoms accompanying ruptured ectopic gestation with severe hemorrhage. These sixty-two emergencies comprise thirty-one with a previous history, and symptoms typical of ectopic gestation; and yet in many of these the microscope revealed no sign of pregnancy in the tissues examined. As they presented, however, such objective symptoms as shock, tubar rupture, and severe intra-abdominal hemorrhage, there can be little doubt as to causation. Under any circumstances, the indications as to treatment were identical, and hence they have been included. Among these sixty-two emergencies were two coincident extrauterine and intrauterine pregnancies, two repeated extrauterine pregnancies, and one twin pregnancy in a single tube. Exactly 50 per cent. of the patients gave positive evidence of pregnancy. About one-half of the series presented evidences of previous infection of the genital tract.

4. Lymphatic Leucemia Following Splenectomy.—J. M. Jackson and W. D. Smith report the case of a man, aged twenty-one years, who a few weeks after removal of the spleen in 1909 showed an essentially normal blood picture. In 1913 he developed what seemed clinically an acute tonsillar infection; this was quickly followed by marked enlargement of the glands of the neck and moderate general glandular enlargement involving the axillary, inguinal, and epitrochlear glands. This situation was accompanied by a blood picture so typically that of lymphatic leucemia that no other diagnosis seemed possible. After a week of sore-throat, general malaise and moderate elevation of temperature the symptoms abated and a normal convalescence as from an acute infection ensued. Blood examinations done from time to time showed a gradual diminution in the white count and a change in the blood picture from that of a typical lymphatic leucemia on June 3, 1913, to an approximately normal picture on August 23, 1913, and a normal picture on April 15, 1914.

New York Medical Journal.

January 30, 1915.

1. Modern Bone and Joint Surgery. A. P. C. Ashhurst.
2. Intercostal Thoracotomy in Empyema. H. Lilienthal.
3. Endothelioma of the Soft Palate. R. H. Ivy.
4. The "Auscultoplectrum." L. Kolipinski.
5. Rectal Clinics in London. J. F. Saphir.
6. Balantidium Coli. A. J. Hinkelmann.
7. Ether Insufflation Anesthesia. J. H. Evans.
8. The History of Medical Ethics. G. W. Cook.
9. Syncope and Fatal Asphyxia under Nitrous Oxide-Oxygen. H. C. Luke.

2. Intercostal Thoracotomy in Empyema. — Howard Lilienthal describes an original method of treating empyema as follows: With the patient under nitrous-oxide and oxygen anesthesia a long intercostal incision is made, beginning at a point just outside the costal angle and continuing for the length of the bony rib. A part of the latissimus dorsi and serratus magnus must be divided. This incision throughout its entire length should enter the pleural cavity. With blunt retractors the ribs are now separated until the blades of a rib spreader can be inserted. In working upon the left side the forced retraction must be carried out cautiously, while the operator observes by sight and touch the region of the pericardium. It is conceivable that this membrane, covered by thick plastic exudate, may be ruptured by too violent stretching. When wide retraction has been accomplished and the chest emptied of fluid, systematic inspection of the lung should be made with a view to determine, if possible, the site and character of the focus of infection. A minute point of gangrene, a small bronchiectatic abscess, a sign of traumatism perhaps inflicted by the aspirating needle, or the presence of a broken-down tumor should be dealt with as occasion seems to demand. The entire hand being introduced into the adult thoracic cavity, adhesions may be broken down and lymph coagula removed. With the retraction in the adult of, say, from four to seven inches, perfect visual exploration is now possible. In children the opening, though smaller, will be found ample for exact manipulation. When satisfactory expansion has

been secured and the intrathoracic work has been finished, the rib spreader may be removed and the chest permitted to assume its normal shape. It will be found that the ribs come together nicely, but that on account of the division of such a large part of the intercostal muscles the bones are not as firmly drawn together as when the incision is shorter. Two or three short drainage tubes, carefully secured so that they cannot slip within the chest, are now put in, and it will be found that they are not obstructed by rib pressure. A few interrupted sutures through the skin will close the long wound sufficiently, one or two additional sutures helping to approximate the divided latissimus dorsi. A thick dry dressing is now applied and the patient sent back to bed. Breathing exercises and especially blowing exercises are to be commenced almost immediately. If one is dealing with a simple pneumococcus case uncomplicated by unresolved pneumonia, one may hope for a complete closure of the wound in two weeks. At no time should irrigation be practised. In the complicated cases and especially in the metastatic empyemas, revision may be required. If so, it is merely necessary to reopen the wound and again separate the ribs with the spreader far enough to permit exploration of the suppurating cavity.

4. **The "Auscultoplectrum."** — L. Kolipinski applies this term to an instrument which he has devised to take the place of the ordinary stethoscope, and when combined with a percussion hammer to serve the purpose of a double instrument for both ausculation and percussion. It resembles a monaural stethoscope and consists of the following parts: A funnel end consisting of an Otis urethroscope, size 25 or 26 French scale, with the obturator removed, heavily gold plated; forty-one inches or 104 centimeters of red or black rubber tubing, five millimeters in diameter; an ear piece, and a small, acorn-shaped piece of hard rubber, such as is used in a phonendoscope or binaural stethoscope. The length of the whole instrument is forty-five inches.

9. **Syncope and Fatal Asphyxia under Nitrous-Oxide-Oxygen.**—H. C. Luke reports two cases each illustrating one of these accidents. The fatal asphyxia occurred in a man aged seventy-one years who was operated upon for gangrene resulting from arteriosclerosis. The patient was started on a bag of pure gas with a small supply of oxygen introduced after the first two or three breaths. A moderate cyanosis developed after one minute, becoming more intense and accompanied with a somewhat labored and slowed respiratory effort. More oxygen was then supplied and the gas was shut off, but after a few convulsive efforts respirations ceased and the pupils dilated. In spite of the use of the pulmotor and other methods of respiratory stimulations, death occurred about seven minutes after the beginning of anesthesia. This case tends to confirm the opinion that cyanosis is the cardinal symptom of danger. The second case was that of a woman aged thirty-three years undergoing a radical operation for carcinoma of the breast. During the course of anesthesia a marked pallor rapidly made its appearance, immediately followed by a slight cyanosis, the latter not readily yielding to the extra oxygen supply furnished to correct it. The pupils became moderately dilated, having a sluggish reflex. Respirations were shallow, but not labored. Pulse remained rapid and intermittent. The nitrous oxide was turned off, a large amount of oxygen supplied, and a fairly strong vapor of ether run into the mask with the object of obtaining a quick stimulation of the respiratory center and heart. After a few moments the respirations became much more efficient, with a coincident improvement in the color; the pulse dropped to 104, while the intermittency had practically disappeared and the tension was much improved. The clinical picture here was quite different from the first case reported, there being but slight cyanosis with acute and marked pallor, which was apparently symptomatic of temporary heart failure, together with shallow respiratory effort from the general prostration; on the other hand, in the fatal case, cyanosis and labored breathing were the predominant symptoms, with complete heart failure supervening as a secondary result.

Journal of the American Medical Association.

January 30, 1915.

1. Social Insurance and the Medical Profession. I. M. Rubinow.
2. A Method of Obtaining Dental Service in Hospitals by the Appointment of Internes. H. L. Wheeler.
3. Ankylosis. An Experimental Study. N. Allison and B. Brooks.
4. The Blood Pressure During Pregnancy, Based on Observations on 450 Cases from the Records of the Committee in Charge of the Prenatal Work Carried on by the Women's Municipal League of Boston. F. S. Newell.
5. Hypopituitarism in Chronic Hydrocephalus. L. J. Pollock.
6. Hibbs' Osteoplastic Operation for Pott's Disease. A Report of Clinical Observations with Results in One Hundred and Fifty-Eight Cases, and Interpretation of Experimental Studies in Animals. B. P. Farrell.
7. Observations on Bone Transplantation (Albee Method) for the Cure of Tuberculous Spine Disease. C. M. Jacobs.
8. The Symptomatology and Treatment of Seborrheic Keratoses. R. L. Sutton.
9. Transplantation of the Anterior Temporal Artery. J. S. Horsley.
10. The Pylorus After Gastro-Enterostomy for Congenital Pyloric Stenosis. A Report on Its Condition Two Hundred and Fifty-Six Days Following the Operation. D Lewis and C. G. Grulee.
11. The Serum Treatment of Hyperthyroidism. S. B. Beebe.
12. Endamebic Pyorrhea and Its Complications. A Preliminary Note. J. S. Evans and W. S. Middleton.
13. Sodium Citrate in the Transfusion of Blood. R. Weil.
14. Repair of Defects in Blood Vessels by Free Grafts of Fatty Tissue. L. Eloesser.
15. The Need for Detailed Sputum Reports. Supplementary Report. A. T. Laird.
16. Strangulated Epigastric Hernia. W. C. Danforth.
17. Progressive Lenticular Degeneration. Report of a Case with Necropsy. W. B. Cadwalader.
18. Syphilitic Ulcer of the Stomach. Report of a Case Examined Histologically. H. L. McNeil.
19. Breakage and Removal of Eustachian Applicator. G. W. Stimson.
20. Prostatic Abscess Opened Through the Cysto-Urethroscope with the High-Frequency Spark. A. Nelken.

3. **Ankylosis.**—N. Allison and B. Brooks conclude from their experiments that any inflammatory process within a joint which is of sufficient severity to result in the formation of granulation tissue will destroy the joint cartilages. The cartilage is absorbed at its margin by granulation tissue arising from the synovial membrance and at its base by granulation tissue from the bone marrow. By the experiments in which the cartilage was removed by operation, or the point partially excised the authors have shown that ankylosis by bone is a slowly developing process which consists of the following stages: (1) There is union by granulation tissue: (2) there is union by dense fibrous tissue, and (3) there is a metaplasia of fibrous tissue into cartilage and a direct transformation into bone. The shortest period of time in which complete bony ankylosis was observed experimentally was 180 days. In man the duration of the process is equally prolonged. The long duration of the process of osseous ankylosis explains the following: After arthroplasty a joint may allow motion for some weeks and subsequently become stiff. Fractures of the epiphysis unite by bone slowly. It also suggests that the conclusion reached by certain investigators that the interposition of soft parts prevents bony ankylosis is misleading in that many of their experiments were of insufficient duration. The long duration of the fibrous stage of ankylosis also shows conclusively that any method of arthroplasty should have as its object the prevention of fibrous ankylosis rather than bony ankylosis, also that the insertion of an irritative substance into a joint should be avoided.

4. **The Blood Pressure During Pregnancy.**—F. S. Newell points out that a considerable number of patients

have a temporary rise in blood pressure during pregnancy without the development of other symptoms, as is found in patients under other conditions. The significance of this rise in blood pressure can be ascertained only by a frequent study of the blood pressure in a large number of cases. In other cases studied by the author the rise in blood pressure was followed by the appearance of albumin, a combination which has been shown to be a definite indication of the development of toxemia. In only one case, however, did convulsions develop, the other cases yielding to treatment. Thirty-nine cases showed slight traces of albumin in the urine, but no changes in the blood-pressure. As the urine was not obtained by catheter, the source of the albumin is unknown, but in the majority of the cases it was probably due to contamination of the urine by leucorrheal discharge. To judge from these cases, the presence of a slight amount of albumin, if not accompanied by a rise in blood pressure, is negligible. Eleven patients showed albumin with a high blood pressure, all of these being presumably more or less toxemic. Five patients showed a blood pressure of 140 or over throughout the period during which they were under observation. Only one of these patients developed albumin at any time during the pregnancy, and all passed through labor normally, which would tend to prove that persistent high blood pressure, in the absence of other signs, is not necessarily a dangerous symptom, although it should always arouse suspicion and call for increased watchfulness, whereas, as was shown in other cases in this series, a rise in blood pressure from a low point is not infrequently followed by the appearance of albumin and the development of symptoms of toxemia, and is more significant than a high pressure throughout.

5. **Hypopituitarism in Chronic Hydrocephalus.**—L. J. Pollock calls attention to the frequency of the association of hypopituitarism with hydrocephalus. The similarity of serous meningitis to tumor cerebri is well known, and the inclusion of pituitary symptoms may lead to a diagnosis of tumor of the hypophysis wrongly. The involvement of the pineal gland in the mechanical injury resulting from a cystic third ventricle deserves further study in its relation to cerebral adiposity.

7. **Bone Transplantation in Potts' Disease.**—C. M. Jacobs finds that: (1) surgical measures for tuberculous spine disease are a great advance over conservative treatment but should be restricted to selected cases; they shorten the period of disability. (2) Not only may existing deformity be prevented from becoming exaggerated, but also deformity itself may be prevented by surgical measures. (3) Too early reliance cannot be placed on the strength of the bone graft; it takes time for the splint to become securely fixed by permanent callus. (4) External support must not be disregarded for many months following the operation; otherwise deformity may ultimately occur. (5) Even with postoperative protective treatment for a period of six or more months, the duration of treatment is much shorter than the average duration under nonoperative methods. (6) The success of bone transplantation for the cure of tuberculous spine disease depends on the proper implantation of the bone splint into the diseased and normal contiguous vertebræ. Essential to the success is the careful protective after-treatment for a period of months.

The Lancet.

January 23, 1915.

1. "Against His Own Body." D'Arcy Power.
2. The Black (Pigmented) Appendix. W. H. Battle.
3. The Theory of Salicylate Therapy in Rheumatic Infection. R. Miller.
4. Dry Cupping in Laryngeal Affections. W. Stuart-Low.
5. Some Uses of Static Electricity in Medicine and Surgery. J. J. Grace.
6. Congenital Lymphangioma Situated over the Sternum. J. A. C. Macewen.

2. **The Pigmented Appendix.**—W. H. Battle reports two cases of marked pigmentation of the appendix met with in women. He has already reported four similar cases. In every instance after removal of the appendix for disease, examination of this structure revealed that it was the seat of an extensive brownish-black pigmentation evidently not limited to the appendix but spreading an unknown distance into the large bowel. The patients were all of the female sex, and in each there was a history of constipation of long standing, which amounted to intestinal stasis in more than one of them according to their medical attendants. It would appear as if in some the difficulty with the bowels had led to a secondary inflammatory affection of the appendix. Operation in each was for the relief of pain caused by this. The pigmentation was found on examination of the removed appendix, and in only one was there any appearance of darkening of the bowel as examined from the operation incision. Microscopical examination showed the deposit to be both in and between the cells of the mucous membrane. Chemical analysis of the first three specimens showed that the pigmentation was produced by a deposit of iron, the exact combination not being defined owing to the small quantity of material available. The author believes that the source of the iron is wheat flour which contains a small quantity of iron derived from the iron rollers used in the modern process of milling.

3. **The Salicylates in Rheumatic Infection.**—R. Miller states that the theory that salicylates have the power of diminishing the activity of the rheumatic infecting agent may be taken as the working basis of salicylate therapy in rheumatism, and the drugs should be administered with the sole view of controlling the bacterial activity. Of this the temperature chart is as accurate an index in rheumatic as in other infections (*e.g.* tuberculosis). Care must be taken to discriminate between symptoms directly due to active rheumatic inflammatory processes and those dependent upon toxic parenchymatous changes which may remain long after all bacterial activity is at an end. Used solely with a view to controlling bacterial activity, the effective range of dosage for child or adult is usually from 60 to 120 grains per diem. Less than 1 dram daily is rarely sufficient; more than 2 drams need seldom be given. Much larger doses than these have been shown to be safe if properly administered, and if necessary to gain control may be used, but for the most part "massive" doses have been administered in cases of chorea in which there was no evidence of bacterial activity remaining. Any dose greater than 100 grains daily should be given subdivided into 10 doses in the 24 hours. Large infrequent doses should never be given, particularly in children. Constipation must be avoided. The sodium salicylate should be combined with an equal dose of sodium bicarbonate. Vomiting in cases of severe cardiac dilatation may be difficult or impossible to prevent, but in other cases may be avoided for the most part. The more serious symptoms of salicylate poisoning (acid intoxication) should nowadays never be allowed to arise.

4. **Dry-Cupping in Laryngeal Affections.**—W. Stuart-Low extols the use of this procedure for which a special suction apparatus may be employed. He has had cups made of various sizes and shapes for adaptation to the front and sides of the larynx, and has found it best to have the edges of the cups covered with rubber so that any inconvenience the patient might feel when the suction is strongest may be minimized. Some of these cups are half-moon shaped, others horseshoe shaped. Suction can be applied effectively to one or both sides of the larynx simultaneously. There is an

adjusting mechanism on the instrument by which the suction force can be varied from five to one hundred pounds air pressure. The vascularity of the larynx is favorable to the process of dry cupping as the vessels enter and pass out at definite sites. For the most effective relief of vascular and edematous congestion of the interior of the larynx the cups should be applied over the posterior half of the thyrohyoid membrane and over the cricothyroid membrane both laterally and in front. The author cites cases of subglottic laryngitis, laryngeal tuberculosis, and acute laryngitis, in which this measure was promptly effective. He suggests that the treatment may be useful in cases of laryngismus stridulus.

5. **Static Electricity in Medicine and Surgery.**—J. J. Grace summarizes the effects of static electricity as being chiefly mechanical just as those of the constant current are chiefly due to the carriage of ions by the current and those of high frequency are chiefly due to its heating effects. The static current is useful in lumbago, sciatica, and brachial neuritis; in reducing the size of an enlarged prostate; in the treatment of subinvolution of the uterus and dysmenorrhea; in the relief of spasm in muscles connected with inflamed nerves and joints; and in the stimulation of degenerated nerves.

British Medical Journal.

January 23, 1915.

1. Surgical Notes from a Temporary Clearing Hospital at the Front. A. A. Martin.
2. Acidosis and the Nitrogen Partition in Pregnancy. A. Leith Murray.
3. Cases of Inoperable Cancer Treated with Goat Serum. A. Wilson.
4. A Case of Tetanus: Recovery. J. H. Evart.

1. **Notes from a Clearing Hospital.**—A. A. Martin presents a vivid description of some of the methods of modern warfare. It has been said that to-day wounds of eighteenth century character are being treated with twentieth century technique. The eighteenth century battle wounds were inflicted at close range, so are many of the wounds inflicted to-day. At Cressy and Agincourt both sides used arrows; aviators to-day carry sharp arrows, which they spin down on the enemy below. Bombards were used at Cressy, and bombards are used in the trenches to-day. Hand grenades were employed in the Peninsular war, and are employed to-day in the War of the Nations. Men attack the enemy with bayonets, as in the days of the Crimea and the Peninsula. Riflemen pick off the enemy by long distance fire, and also fire at close range into solid masses of them. The hardships of the Crimean trenches—cold and frost-bite—are repeated on the Yser. Gangrene was rampant at one time in the Peninsula amongst the French and British wounded, and it has startlingly reappeared to-day.

2. **Acidosis and the Nitrogen Partition in Pregnancy.**—H. Leith Murray credits Whitredge Williams with the institution of a scientific method of examining the urine in pregnancy. The author describes a number of tests which are easily applicable in the clinical laboratory. As regards the total nitrogen this should be used merely as the total from which to calculate the ammonia percentage. It can have no other reliable value unless the nitrogen values of the food and feces are simultaneously examined. The normal ammonia nitrogen coefficient in the non-pregnant state is 3 to 5 per cent., *i.e.* this percentage of the nitrogen in the urine is eliminated as ammonia. In pregnancy, even in clinically normal pregnancy, these limits may be greatly exceeded. There is a widespread and absolutely unjustifiable belief that this increase of ammonia must necessarily represent and measure an acidosis; but, there is every reason to assign a part of the ammonia (and that perhaps a large one) to the histological changes occurring in the liver. It is certain that primary liver disease—primary disturbance of the protein metabolism—is associated with an increase. In toxic pregnancy increased ammonia is most in evidence in hyperemesis, in which the lesion is essentially a degenerative one, while in eclampsia the predominating lesion is often a massive focal necrosis. Whitredge Williams regards a low ammonia value as a good sign in toxemia vomiting and a bad sign in eclampsia. What, then, the author asks, is the best test that the body is suffering from the condition ordinarily called "acidosis"—that is, a depletion of the fixed bases? It would appear very reasonable to believe that the best test is one of tolerance to alkali. Expressed differently, if the body is in no need of fixed bases, any alkali introduced will be eliminated, and the urine will become alkaline. On the other hand, if there be a need for fixed bases, when alkali is introduced, it will remain in the body, and the recation of the urine will remain unchanged.

3. **Inoperable Cancer Treated with Goat Serum.**—A. Wilson states that J. H. Shaw-Mackenzie has shown that while normal serum in health contains a substance which has the property of activating or accelerating the fat-splitting action of pancreatic juice and pancreatic extracts, in certain cases of cancer this property is considerably increased. In progressive and advanced cases this power of the serum is decreased compared with the action of normal serum examined at the same time as a control, while the normal antitryptic action of the serum is increased in accordance with the original observations of Marcus, Brieger, and Trebing. When these two reactions are present they aid in the diagnosis of cancer, and when they are absent they exclude cancer. During quiescence or improvement or after apparent recovery the accelerating fat-splitting action of the serum is high, while the antitryptic action falls to normal or is subnormal. This accelerating fat-splitting property of the serum is greater in the lower animals than in human serum, while the antitryptic action of the serum is not greater than with normal human serum. Inoculation of animals with normal tissues or with cancer tissue is followed by a similar increase in this property of the blood; while in mice which had been inoculated with mouse tumor and did not "take," and also in mice which had recovered spontaneously from large growths, the accelerating fat-splitting action of the serum is high. In view of such facts Shaw-Mackenzie has suggested that "the fat-splitting acceleration is a possible and natural factor in resistance to disease in carcinoma and in other conditions," and "if so, serum and substances which increase this action or protective mechanism are indicated in treatment." The treatment of inoperable cancer by means of normal goat serum is not empirical, for one is introducing an actuator of the fat-splitting protective action in the tissues. The author reports six cases of inoperable cancer in which either the disease was apparently cured, as in one instance, or life was prolonged, or pain was relieved.

Berliner klinische Wochenschrift.

December 28, 1914.

Injury from Indirect Projectiles.—Melchior, who has already reported a case of injury due to impact of a projectile on a wrist watch furnishes a second example. A Russian grenadier who carried a watch on his left wrist was struck by an ordinary small arm bullet which drove the debris of the watch into the wrist joint. The resulting wound was large and ragged and bled freely. During the fight he was taken prisoner and because of

the severity of the general reaction was transported at once to Breslau. When admitted to Professor Kuttner's clinic he was evidently septic. The left hand and forearm were much swollen, and the wrist joint exposed. The large ill-looking wound had an offensive secretion. The gangrenous thumb with its metacarpal hung loose in the palm. The *x*-ray showed that the bases of the first three metacarpals were comminuted, along with all but two of the carpal bones, and the head of the radius to the right. Metallic splinters could also be seen and a coarser object which proved to be the suspension ring of the watch. All the badly damaged tissues were ablated and broad incisions were made in the forearm in which a gas phlegmon was in evidence. After the intervention the general sepsis disappeared. The limb is of course worthless.

Case of Intoxication Following the Exhibition of Tetanus Serum.—Boenheim reports a case which he does not classify as an anaphylaxis. A patient who had received a prophylactic injection showed a local reaction suggesting primary serum disease. The chief symptom was an intense pruritus at the site of the injection and later over the chest, which prevented sleep. The condition progressed, but seemed much improved after defecation, although at the same time the patient collapsed and showed weakness for a short time. To the pruritus was then added a general urticaria. The suffering could not be alleviated permanently. Fever now set in. On the following day the cutaneous manifestations had disappeared, but violent pains in the muscles, joints, and bones replaced them. The nerves seemed intact. There was also great weakness. Nothing brought relief. The condition gradually wore off. There was nothing about these symptoms to suggest the activity of the antitoxin which has never been known to attack the locomotive system. The most likely explanation is that some heterologous albumin had found its way into the serum as an impurity. Other patients who received the same serum developed slight local itching.

Sepsis with Blood Picture of Aplastic Anemia Following Gonorrhea.—Buschke and Hirschfeld report a case which they sum up as follows: A man aged 25 developed gonorrhea and gonorrheal rheumatism for which he received intensive treatment but showed not the slightest improvement. His general condition became wretched and when interned in a hospital he presented anterior and posterior urethritis and bilateral arthritis of the knee. While under treatment he developed fever, and acute hemorrhagic diathesis and soon succumbed. A high degree of anemia coexisted. The staphylococcus was present in the blood and knee-joints. The autopsy showed further acute nephritis, severest anemia, abscess in the right lung, and a flabby heart. Staphylococci were cultivated from the bone marrow. The starting point of the sepsis was probably a periurethral abscess which contained staphylo- and streptococci.

Münchener medizinische Wochenschrift.

December 22, 1914.

Experience with Vaginal Operations under Parametrian Conduction Anesthesia.—Ruge gives his experience with his first 22 cases of this form of anesthesia, which have already been made the subject of a dissertation by Baltzer. The nearest approach to the author's method consists of injections into the portio or cervix for minor interventions. The author goes much further in search of an anesthesia for hysterectomies, myomectomies (vaginal), fixations, etc. The parametrian anesthesia is effected simply by injecting a sufficient quantity of 1 to 2 per cent. novocain-suprarenin solution with a long needle into each half of the parametrium. The highest point of the fornix is selected, the needle pointing away from the uterus. This instrument should follow the course of the broad ligament, save in the case of a retroflexion or similar displacement. In intact parametrium there is no danger of wounding the veins provided the needle is introduced slowly, but if chronic parametritis is present the author refuses to inject. Simple needle puncture should precede the injection, but following escape of blood does not contraindicate injection; on the contrary the direction of the needle is slightly altered. The uterus and vagina become anesthetized in from 20 to 25 minutes and lasts about 1¼ hours. Of the 22 operations performed 10 were for cancer of the cervix, and the balance was distributed among genital prolapse, metrorrhagia, myoma uteri, old perforation of uterus, carcinoma corporis, vesicofixation and vaginofixation. The anesthesia, Ruge says, was eminently successful in all but one of the cases.

Etiology of Endocarditis Verrucosa.—Reye, speaking of the benign form, states that it may develop in connection with the most varied infections and cachectic affections. A problem for solution is the nature of the lesion—how far bacterial and how far toxic. No one microorganism has ever been brought into etiological relationship with all these affections; but the great number of species found in the lesions is very suggestive. As far as Poynton and Paine are concerned, they have gone on record in the belief that a unique cause is responsible for rheumatic infections in the narrower sense. These causes are microorganisms partaking respectively of the qualities of the strepto- and diplococci. This diplococcus is found alone in the more malignant cases. The author has been at work on this problem since 1913. His results will be summarized in the next number of the *Wochenschrift*. An extensive discussion is also published.

Tuberculosis and Warfare.—Liebe states that the outbreak of the war has raised several questions in connection with the warfare against tuberculosis which can be readily surmised. In the first place the campaign against the disease could readily be disturbed. Again workmen thrown out of employment may be conceived of as using this forced idleness for the treatment of threatened tuberculosis. Still again the war is bound to arouse much latent tuberculosis, and this also applies to war prisoners. The general result is a stampede toward the sanatoria which cannot begin to accommodate the war material. The latter should have temporary shelters. There should be experts in tuberculosis at the front to isolate victims of the disease. At the beginning of the war various sanatoria were commandeered for military hospitals, and these, Liebe says, could certainly be utilized for the care of tuberculous soldiers.

Status Lymphaticus.—Hugo Pribram has studied a large number of cases of this condition and has found that none of the large number of physical changes attributed to it is by itself characteristic. The distance between the extremities of the outstretched arms exceeds the body length in 95 per cent. of the cases. Instead of the blood pressure being constantly diminished, as is alleged, it was normal in one-half of the cases. On the other hand considerable importance must be attached to the hypertrophy of the papillæ at the base of the tongue and to the infantile or omega conformation of the epiglottis. Lymphocytosis is frequently present; and sometimes, particularly in cases of genital hypoplasia, eosinophilia and basophilia are present.—*Zeitschrift für klinische Medizin.*

Insurance Medicine.

Medical Section of the American Life Convention.—At the fifth mid-year meeting of this society, to be held at French Lick, Ind., on March 3-5, the following program will be presented: "From the Outside Looking In," by Hon. Charles A. Bookwalter, Indianapolis; "Goiter and Life Expectancy," by Dr. Charles H. Mayo, Rochester, Minn.; "Life Insurance and the Kidneys," by Dr. J. S. Lankford, San Antonio, Texas; "The Five Senses in Life Insurance," by Dr. W. A. Peterson, Chicago; "Medical Frauds," by Dr. Albert Seaton, Indianapolis; "The Appointment and Management of Local Examiners," by Dr. J. H. Florence, Houston, Texas; "The Business Organization of the Medical Department," by Dr. Henry Wiseman Cook, Minneapolis; "The Scope and Function of the Medical Department," by Mr. Charles F. Coffin, Indianapolis; "Hypertension as an Impairment," by Dr. M. L. Turner, Des Moines, Iowa; "One Method of Life Conservation," by Dr. H. R. Allen, Indianapolis; "Policy Holders as a Medium for Increasing Longevity," by Dr. W. K. Blackford, Louisville, Ky.; "The Medical Referee," by Dr. D. W. Layman, New York; "Operations on the Gall-Bladder in Relation to Life Expectancy," by Dr. W. S. Harpole, Chicago; "Post-Operative Risks," by Dr. H. N. Mayo, Salt Lake City; "Pellagra and Hookworm Disease in Relation to Life Insurance," by Dr. N. J. White, U. S. Public Health Service. The officers of the section are: Dr. Whitfield Harral, chairman; Dr. F. W. Foxworthy, vice-chairman; Dr. F. L. B. Jenney, secretary.

The Medical Directors of Texas Life Insurance Companies held their annual meeting in Waco on January 12, at the same time as the Central Texas Medical Society, under the presidency of Dr. W. A. King of San Antonio. Dr. William M. Brumby of Waco was elected president and Dr. M. M. Smith of Dallas, secretary-treasurer.

Some Danger Signals in Life Insurance Examinations.—Not long ago a prominent insurance company was called upon to pay a very large amount of money on the policies of two men who had been recently insured. The papers seemed to be correct, yet there was evidence that in some way the medical examiner had failed to recognize the character of the risks, and to forecast the early and almost certain death of the policyholders. The applicant often presents no general symptoms from which to anticipate other than the average life and longevity, yet a little closer acquaintance and study brings out some facts that are certain to materialize and change the future. Dr. T. D. Crothers says that the examiner is really a high-class detective in insurance work, for it is his province to determine the facts and their meaning, then give the scientific significance of the conditions relating to longevity and the danger of mortality. Alcohol, used either in moderation or excess, as an active agent in disease favoring mortality, exceeds any other known agent. These facts have grown out of statistical studies, and are not dependent on personal opinions or theories. The reports of three British life insurance companies covering a period of nearly twenty years shows that those who were insured as moderate or occasional drinkers had 50 per cent. higher death rates than those insured as total abstainers. In one of the companies two sections were made, one of total abstainers which showed 39 per cent. greater mortality than in the one composed of occasional or moderate drinkers. Another company reported 10,000 deaths of total abstainers and 14,000 deaths among the occasional drinkers, covering a period of twenty-five years. These figures show that one of the greatest perils to life companies is losses due to spirits and drug taking. It is the medical examiner who must be able to read and interpret the danger signals which point to early mortality, irrespective of any physical signs of the present. The neurotic history, habits of work and living, and mental health and integrity of the applicant are influential factors from which to determine his future. Between the muscle and the brain worker, the former is a better risk than the latter, conceding that they both live irregular and unhygienic lives. The exact condition of the heart, digestion, kidneys, and other organs is of minor importance compared with the efforts to conserve and repair the exhausted energies. A very active business man carrying great responsibilities, who is negligent and careless of the ordinary rules of hygienic living, who may be an abstainer as far as spirits are concerned, but consumes irregular quantities of food, drinks coffee and tea excessively, and uses tobacco freely, is a bad risk no matter how negative all the other symptoms may be. Business men whose diet is irregular and who fail to exercise properly and neglect to rest are wearing out rapidly. They are continually drawing on the vital resources with no time for restoration and repair. There are many persons, in both professional and business life, between the ages of thirty and fifty, who are active, successful men with constantly increasing responsibilities, whose futures and prospects are continually brightening. The ordinary physical examination would be called practically negative. The family history is usually good. They may use wine, beer, or spirits, most often do; eat heavily and irregularly; show no care of their bodies, and may be careless in hygienic matters. There are two mental conditions prominent among these active brain workers that should always be regarded with significance. One is extreme optimism and egoism with extraordinary confidence in one's own strength and ability. This should always excite attention, and suggest toxic poisonings, central nerve changes, especially when associated with an irritable heart and high-tensioned arteries. It makes the forecast for the future ominous. The other is that of pessimism, despair, suspicion, and doubt. Often these conditions are the only signs of ill health and low vitality. These are danger signals that the examiner should report. Longevity and disease are very largely influenced by diet and correct habits of living. The meat eater, who believes that only meat will give strength, and the vegetarian, should both be studied, particularly if they are actively engaged in the affairs of life. Every applicant for large policies should submit to frequent examinations and counsel concerning his mode of living and conduct. The examiner should be really a health officer, not only to protect the company, but to lengthen out the life of the individual by diminishing the possibility of disease. Every applicant should be considered from both the psychic and the physical aspect, in order that many of the danger signals, now unread and unheeded, may be used as sign-posts of protection to both the individual and the company.—*Medical Review of Reviews*, October, 1914.

Book Reviews.

A Text-Book of Pathology. With a final Section on Postmortem Examinations and the Methods of Preserving and Examining Dead Tissues. By Francis Delafield, M.D., LL.D., Emeritus Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. Mitchell Prudden, M.D., LL.D., Emeritius Professor of Pathology, College of Physicians and Surgeons, Columbia University, New York. Tenth edition. Revised with the coöperation of Francis Carter Wood, M.D., Director of Cancer Research, Columbia University, New York. With fourteen full-page plates and six hundred and ninety-four illustrations in the text, in black and colors. Price, $6.00 net. New York: William Wood and Company, 1914.

This new edition of Delafield and Prudden—the tenth—retains all of those admirable features which have made the work the most popular text-book on pathology in English. Despite the fact that the size of the volume has been but slightly increased, many changes and additions are to be found, and these, with the insertion of a number of new cuts, greatly increase the value of the work. The reviewer notes especially additions in the section on tumors, necessitated by the experimental studies of the last few years, a revision of the section on the transplantation of tumors and acquired immunity to these growths, a new section on the transplantation and *in vitro* growth of tissues, changes in the classification of parasites, a good summing up of the recent advances in our knowledge of the widespread occurrence of the fungus of the genus Sporotrichum and its pathogenic rôle in the production of chronic granulomatous lesions, and a new section on pellagra, an earnest of the importance which this protean disease has reached in the United States. The tissue changes following the action of *x*-rays and radium are reviewed, and an entirely new section on exophthalmic goiter, with an extremely useful plate of photomicrographs showing the various lesions found in the thyroid in this disease, has been added. The recent investigations on poliomyelitis are included and a considerable number of changes have been made in the chapter on technique. Throughout the volume the references have been amplified, that portion of the bibliography which has become somewhat antiquated being omitted and more recent articles, especially those which contain comprehensive reviews, being inserted. The authors have again wisely avoided any attempt to make the volume a mere disjointed encyclopedia of separate chapters, and it still retains the great advantages which appertain to a work composed by one person, in the correlation of the subject matter, and the lack of repetition so often painfully obvious in compilations in which each chapter is taken by a different writer. The title page shows that Prof. F. C. Wood has been added as an active collaborator in the revision of this valuable text-book, which has for so long been a standard work in pathology.

Infection and Resistance. An Exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body from Infectious Disease. By Hans Zinsser, M.D., Professor of Bacteriology at the College of Physicians and Surgeons, Columbia University, New York. Formerly Professor of Bacteriology and Immunity at Stanford University, California. With a chapter on Colloids and Colloidal Reactions by Professor Stewart W. Young, Department of Chemistry, Stanford University. Price, $3.50. New York: The Macmillan Company, 1914.

The need of a book covering all the phases of the recent discoveries in immunity and infection has been felt for some time. Metchnikoff's classic work is now completely out of date, and some of the recent summaries have been ill-digested and imperfect, while the volumes of studies of the Ehrlich school and those of Bordet are merely series of isolated research articles bound together by a very thin thread of relationship. For these reasons the volume under consideration is most welcome, and the more as it fulfills all requirements in a fashion which can be described only as admirable. The author's experience as a practical teacher of the phenomena of immunity leads him to appreciate the difficulties with which the student meets in studying the original papers of those who have done so much to develop our knowledge of this subject in the past twenty years. To such a student this book will prove an illuminating guide, though perhaps not the easy reading that he may hope for; the complexity of the subject forbids that. The writer's training gives a value and point to the illustrative examples which are refreshing. The fact, also, that he has been an investigator in many of the phases of the work of which he writes lends an authoritative quality to every statement. The volume opens with a brief but admirable survey of infection and the problem of virulence. Then follow chapters on natural and acquired immunity, while subsequently the phenomena following immunization are considered. There is an excellent résumé of the Ehrlich hypothesis—that theoretical scaffolding which has been so useful because of its simplicity in stimulating further work, though so dangerous because of Ehrlich's fatal capacity of giving attractive names to substances and processes of which we know but little and thereby creating an impression of finality which does not exist. It is evident, however, that the writer has many sympathies with the views of the French students of immunity, and he wisely points out where the diversity of opinion has been a wholesome restraint on cocksure statements. The criticisms by Arrhenius and Madsen of the Ehrlich hypothesis are also given their due weight. In that most complex and difficult of subjects, anaphylaxis, the writer is especially at home for much of his own research has been along this line. The time is apparently not yet ready for a final explanation and evaluation of the anaphylactic phenomena. So many seemingly contradictory observations have been published in this field that it is difficult to reconcile them in a consistent summary, and yet, as far as possible, this has been done. It is interesting to note that the writer doubts that any non-protein substance may act in the production of anaphylaxis. A chapter which is especially to be commended is that on the clinical significance of anaphylaxis, and this and the final one on therapeutic immunization in man may be read with profit by every physician. The Abderhalden and meiostagmin reactions are reviewed in sufficient detail. Professor S. W. Young has added a final chapter on colloids. Undoubtedly future work in this complex and difficult borderland will cast much light on the obscure reactions which we see in immunity; and inasmuch as a large part of the work can be done with inorganic substances and in quantitative fashion the advances may be more rapid here than by the direct study of immune phenomena. In conclusion, it must be said that the volume is written in an admirably free and clear style, that the author does not hesitate to state when our knowledge is contradictory, and that all the important observations have been included in the text. It will render superfluous many of the older works on immunity, and it is difficult to see how a better and more instructive volume can be produced in the near future. The publisher's part of the work is good, the paper is light with a good surface, the size of the page and type is excellent, and the illustrations while extremely diagrammatic are perfectly satisfactory. A very complete bibliography has been added, and the only real criticism which can be offered is that in it, as a rule, only the year and volume references are given, seldom the number of the page. In a future edition the references should be made complete, so as to avoid the necessity of searching through a volume, and so that in case a misprint occurs much vain hunting for a paper can be saved. The index, so far as it is possible to verify it, is good, and but few misprints have been noted. The writer is to be congratulated on the production of an admirable book which should be a classic for many years to come.

The Clinics of John B. Murphy, M.D. Vol. III, No. 4. Octavo of 254 pages, with 65 illustrations. Published bi-monthly. Price per year, paper, $8.00; cloth, $12.00. Philadelphia and London: W. B. Saunders Company, 1914.

The opening article in this issue is a discussion of ileus, in which Murphy brings out the point that ileus is not a pathological entity, but a syndrome. Other subjects in which diagnostic points are particularly dwelt upon are a discussion of the relations of uterine tumors to menstrual flow, malignant papillomatous cyst of the breast, and cerebellar tumor, this latter with discussion of neurological symptoms by Dr. Mix A large part of the balance of the volume is taken up with the almost inevitable bone and joint cases, including arthroplasties, nailing of old ununited Colles' fracture after open reduction, sarcoma of the humerus, luxations of the patella and arthrodesis for a flail joint.

Society Reports.

CLINICAL CONGRESS FOR THE STUDY OF LOCAL, SPINAL, AND SCOPOLAMINE MORPHINE ANESTHESIA.

This Congress Was Held Under the Auspices of the Chicago Medical Society, January 26, 27, and 28, 1915.

DR. BERTHA VAN HOOSEN, IN THE CHAIR.

Spinal Anesthesia in General Surgery. — Dr. W. WAYNE BABCOCK of Philadelphia, had done one craniotomy successfully upon a child under local anesthesia, resecting the scalp, and the child sat up to have the bandage applied. He had also done the following operations under this form of anesthesia: 2 rhinoplasties, several mastoid operations, several operations upon the upper extremities, 14 operations upon the breast, 25 operations upon the ribs, such as thoracotomies, and one anterior mediastinotomy. In one patient on whom he attempted to resect the lower jaw and succeeded, there was sudden collapse, requiring twenty minutes to resuscitate the patient. Two patients in whom he resected the ribs for empyema, with pulmonary involvement of the other side suddenly collapsed, but as soon as the fluid was withdrawn the heart action was restored in both instances. He had limited spinal anesthesia to operations below the diaphragm. In the upper abdomen he had done 152 operations involving the stomach; 2 of these were complete gastrectomies, 29 were partial gastrectomies, 33 gastroenterostomies, and 30 were done for perforative ulcers. In three of these it was necessary to resect a part of the pancreas on account of involvement from carcinoma. In two additional patients with advanced cancer he found they were in such bad shape as to make it unsafe to do resection of the stomach. There were no deaths in this series. Spinal anesthesia should be limited to patients in fair condition. In debilitated patients with advanced cancer of the stomach his present plan was to use local anesthesia, and in this class with thin walls one could often do a resection of the stomach with a fair degree of facility rather than use spinal anesthesia. On the biliary system he had performed 261 operations, 95 cholecystotomies, and 104 cholecystectomies. In patients exceedingly toxic and greatly weakened it was safer to use local anesthesia because usually only drainage of the gall-bladder was required with the possible removal of stones. In patients with high peritonitis, who had weak hearts, spinal anesthesia constituted a distinct danger. He had performed seven splenectomies. In these there was no trouble. In one patient the spleen weighed 13½ pounds. For kidney and ureteral surgery spinal anesthesia was exceedingly useful. Upon the bladder, ureter and external genitals he had performed 219 operations under spinal anesthesia with satisfactory results. Upon the intestines he had done 114 operations, 31 of which consisted of complete resection of from a few inches up to 16½ feet. Upon the abdominal wall he had performed 84 operations, of which 36 were lipectomies. There had been 746 herniotomies done; between 80 and 90 of these were done for strangulation in various parts of the abdominal wall. Of amputations he had had 78; he had had 159 operations upon bones and joints, 87 upon veins, 21 upon nerves, and 9 upon the spine. After ether 50 per cent. of the patients complained of headache; after spinal analgesia 21 per cent. The headaches from ether were more intense than those from spinal anesthesia. Spinal analgesia insured physical quietude on part of the patient before and after operation. Under spinal anesthesia there was complete muscular relaxation. This meant much to the operator.

Spinal Anesthesia in Gynecology.—Dr. HERMAN J. BOLDT of New York City, stated that spinal anesthesia had many adherents, but more opponents. Of 1,000 cases in which novocaine was used he had failed to find a single reported fatality that could be attributed directly or indirectly to the drug, and for this reason he began to use spinal anesthesia. He had had one complete failure, and two partial failures, making the use of a small quantity of ether necessary. Nausea and vomiting were disagreeable in abdominal operations, but these seldom occurred under spinal anesthesia. He would not care to subject any patient to spinal anesthesia without preliminary narcosis, so that the patient would be utterly oblivious of his or her surroundings. Lastly, he would sooner give up the use of the scalpel in doing surgery than to give up spinal and local anesthesia in connection with preliminary narcosis by morphine and scopolamine.

Sacral Anesthesia (Extradural Injection of Cocaine) as Used in the Freiburg Frauen Clinic.—Dr. KURT E. SCHLOESSINGK of Freiburg, Germany, stated that up to the year 1912 the record of the Freiburg Clinic was 2542 cases of spinal anesthesia without a single death or a single case of paralysis of respiration. He did not think the choice of the anesthetic itself was of such great importance. Stovaine and novocaine were equally effective. The most important things for the success of the anesthesia were the amount, the specific gravity of the solution, the freezing point of the solution, the temperature of the solution at the moment of injection, and the position of the patient during and immediately after the injection. High extradural anesthesia should not be used in cases of pregnancy and abdominal tumors. Sacral anesthesia should not be used on obese women because of the difficulty of finding entrance for the injection. The most pleasant feature of sacral anesthesia was the absence of after effects. Postoperative vomiting rarely occurred, and this was important in operations upon the stomach and intestines. Technique of these methods of anesthesia demanded a number of trained assistants.

Spinal Anesthesia as Used in South America.—Professor DEBAYE of the University of Nicaragua had used spinal anesthesia in hundreds of cases of various operations, and thus far had not had a death. He had observed headache and vomiting in a few cases, and in two instances suboccipital pain which lasted for six or seven days. We should avoid the use of irritant drugs. Concentrated solutions should be used and strict asepsis observed. We should never choose an interspace above the eleventh dorsal for the injection, and the injection should be made with care. The heavier solution should be used when the patient is in a sitting posture, and with the use of the light solution the patient should be made to lie down after the injection. He had done several suprapubic sections for the removal of tumors, vaginal hysterectomies, abdominal hysterectomies, nephrotomies, etc., under spinal anesthesia with satisfactory results.

Dr. DAVID C. STRAUS of Chicago said he had used sacral anesthesia in fifteen or twenty cases of hemorrhoids, and when the solution was fresh he was able to secure perfect anesthesia. Muscular relaxation was complete. Cardiac cases were not suitable for sacral anesthesia. In pulmonary and renal cases sacral anesthesia was highly contraindicated.

Cesarean Section under Local Anesthesia.—Dr. J. CLARENCE WEBSTER stated that about ten years ago he began to use Schleich solution No. 2 for cesarean section in the Presbyterian Hospital, using it only for vaginal cesarean section, the cases being those in which that operation was considered advisable, namely, those of rigid cervix or of hypertrophic elongation, with eclamptic phenomena. He was pleased with the results and operated over twenty times vaginally with a local anesthetic. Then he extended the use of Schleich solution to other operative procedures. For years he had employed it in abdominal and vaginal operations of all kinds. The longest operation he had ever performed was one in which he removed a fibroid tumor that weighed eighty-seven pounds, the woman weighing only eighty-five pounds after the tumor was removed. She was in desperate condition and made up her mind after ten years of waiting to have this large mass removed. He operated on her under the use of Schleich solution No. 2, taking two hours and three-quarters to remove the tumor, and only in the latter half hour was it necessary to give her a whiff of ether or chloroform when there was some very painful or sensitive area to work on. The patient recovered. In 1909 he first used local anesthesia for abdominal cesarean section. On January 27 he completed his sixteenth case. These operations had been done under local anesthesia for deformed pelvis, for tumors, and in several cases of placenta previa. The anesthetic employed was Schleich solution No. 2. Within the last two years he had been using novocaine. Some of these sixteen patients were in bad condition, having kidney or lung lesions which rendered them unfit for the safe administration of a general anesthetic. It must be evident to all who did major surgical work of any kind that a procedure which would enable a patient to go through an operation with comparative ease was very valuable and was superior to one that entailed long anesthesia with ether or chloroform. He

could recommend the use of local anesthesia, especially novocaine, for major surgical work only in cases where it would be inadvisable, as in kidney or lung disease, etc., to put the patient under the influence of ether or chloroform.

Scopolamine-Morphine in Abdominal Obstetrics.—Dr. JOHN OSBORN POLAK of Brooklyn, N. Y., said that experience had shown that it was possible to produce satisfactory dämmerschlaf in from 85 to 90 per cent. of the women subjected to this treatment. The satisfactory effect was produced by individualizing the patients, using minimum doses, and under the proper surroundings and environments. The type of woman had much to do with the success or failure of twilight sleep. Intelligent, highly strung, nervous women were the best subjects. It should be distinctly understood that the conduct of labor under scopolamine-morphine anesthesia demanded a fundamental knowledge of obstetrics and the obstetric art. This method of anesthesia insured a better preparation of the soft parts, with diminished trauma, and less liability to intervention and less sepsis. Injuries to the soft parts were minimized, and the greater care and watchfulness given these women during confinement actually made labor safer. The induction of twilight sleep was distinctly a first-stage procedure and should not be begun if the labor was too far advanced. The fetal mortality was lessened by the employment of this form of anesthesia. Its employment had distinct limitation in abnormal cases. Apprehension, restlessness, and physical pain were ameliorated by the use of scopolamine. The contraindications to its use were emergency conditions which arose, such as placenta previa, accidental hemorrhage, eclampsia, prolapse of the cord, primary inertia, and dead fetus. On the other hand it might be used as a first-stage procedure to secure dilation in malposition when such malposition had been recognized. From personal experience in over 175 cases he was led to conclude that scopolamine-morphine anesthesia could be used without detriment to either the mothers or the children in properly selected cases. They were able to diminish the number of operative deliveries and so lessen the amount of obstetric trauma. It was a method for the expert in a maternity hospital, and its greatest usefulness was as a first-stage procedure.

Scopolamine-Narcophine Anesthesia as Used in Freiburg Frauen Clinic.—Dr. KURT E. SCHLOESSINGK of Freiburg, Germany, stated that scopolamine-narcophine anesthesia not only produced amnesia but in most cases analgesia was obtained. Hyoscine, considered by many practitioners to be identical in its action with scopolamine, did not have the same effect as scopolamine. This form of anesthesia was best produced in a half-dark room, as these patients were susceptible to sunlight or noise. The pulse of the mother should be examined, and the fetal heart determined before the first injection was given. This examination should be repeated before each subsequent injection, so that any irregularities in the fetus might be determined. The injections were given intramuscularly. Cases were carefully selected for its use. The number of cases in which forceps was usually required was lessened by this method of anesthesia. There was no shock after delivery. The method was not dangerous to the mother and child.

Scopolamine Amnesia in Labor. — Dr. W. FRANCIS WAKEFIELD of San Francisco had delivered forty women under twilight sleep with the assistance of a carefully chosen and well-trained staff. Each case was carefully selected, and the greatest possible attention was paid to the observance of minute details, without which the highest degree of success was impossible. He had not had a single failure in any of the cases treated. In 80 per cent. of the cases he was able to secure perfect amnesia throughout labor; in 20 per cent. there were occasional breaks in amnesia, so that the patients had slight memory of things, but nothing unpleasant. Efficiently employed this method offered to woman a wonderful panacea. The convalescence of the mother was speedy, and the child had an efficient milk supply.

Dr. JOSEPH B. DE LEE of Chicago was distinctly opposed to the methods by which both the daily press and magazines had made the propaganda for this method of anesthesia. It was bound to produce a renewal of the infantile and maternal mortalities and morbidities the profession went through in 1902 and 1907. Already, by personal communications, he was receiving proof of this fact. The cases for its use must be carefully individualized. He was opposed to broadening the use of this method for general practice. He studied this method of anesthesia in Freiburg while Drs. Kronig and Gauss were in Chicago, and while he might be considered a Jonah the ten cases he saw and studied under Siegel resulted so disastrously that he received a bad impression of spinal anesthesia because he witnessed a death in the clinic at the same time. However, he became convinced there was something in scopolamine analgesia, and since his return from Freiburg he had been using it. The drugs used in producing twilight sleep carried inherent dangers, and the general reemployment of the method advocated ten years ago would result in a repetion of the sad experiences of those days. When the method was practised by specially trained obstetricians in well-equipped hospitals, with trained assistants and nurses, the dangers to mother and child might be reduced.

Dr. HENRY F. LEWIS of Chicago stated that if twilight sleep was a good thing the profession ought to use it. If it was not, it should be discarded on scientific grounds alone, based on experience and a knowledge of obstetrics. If it was going to diminish the use of forceps and curtail the activities of the meddlesome midwife, it was going to do immense good.

Dr. CHARLES S. BACON of Chicago spoke of the medicolegal aspects of twilight sleep, and said to avoid malpractice suits it would be well for practitioners to carry out the reliable technique advised by Kronig and Gauss. While twilight sleep was one thing, the alleviation of pain during labor was not new. Women during labor had been relieved of pain by morphine and atropine, chloral hydrate, alcohol, and other drugs. In difficult and prolonged labors, every one who understood how to handle a case of obstetrics ought to know that a woman could not go through a long stage of thirty or forty hours of dilatation without help. The anesthetic for the second stage of labor was ether, and when twilight sleep was compared with this method of giving relief at the proper time, we should not hestitate to select a simple method in preference to the rather complicated and dangerous method of dämmerschlaf.

Dr. CHARLES E. PADDOCK of Chicago did not think the profession was ready for the general use of the scopolamine-morphine treatment in obstetric cases. No one had presented the indications for its use. When and in what class of cases we were going to give it were questions of great importance. In his obstetric practice he had had only two patients who had asked him to try this method.

Dr. LESTER E. FRANKENTHAL and Dr. JOSEPH L. BAER related their experience with the method in 39 cases at the Michael Reese Hospital, and from the standpoint of interpretation as given by Kronig and Gauss there was no success in 4 primiparæ and 9 multiparæ; very little success in 4 multiparæ, and 1 multipara; partial success in 4 primiparæ, and 3 multiparæ; fair success in 4 primiparæ and no multiparæ; good success in 5 primiparæ and 2 multiparæ; and complete success in 1 primipara and 2 multiparæ.

Local Anesthesia in Thyroid Surgery.—Dr. ARTHUR E. HERTZLER of Kansas City said there were two chief advantages in the use of local anesthesia in goiter work, one of which was the relatively bloodless field that it secured, and the other, that it did away with the cone or mask used for general anesthesia. To secure this bloodless field novocaine and epinephrin were the drugs used. He used this combination for anesthetizing the deeper structures in large goiters or goiters that had undergone inflammation or decalcification, or for unusually difficult cases. He used quinine for the superficial structures. In using this combination he never went beyond 5 grains of novocaine, although many operators used 15 grains or more. Doubtless some of the early manifestations of nervousness produced by novocaine were due to its toxic influences, and until he was quite sure about this he preferred to use as little of the drug as he could. He omitted the preliminary dose of morphine as he thought patients who underwent these operations were better off without a preliminary dose of morphine. This was particularly true of patients with exophthalmic goiter. Nervous patients could be controlled by the use of sedatives.

Local Anesthesia (Nerve Blocking) in General Surgery.—Dr. M. L. HARRIS stated that occasionally there might be slight nausea and vomiting following local anesthesia or nerve blocking, but these were never severe. He had never seen headaches follow nerve blocking which were so common after intraspinal anesthesia. The local solution produced no harmful effects. He had performed 380 operations under nerve blocking, 130 of those being laparotomies. As to the safety

of the method, of the 380 operations, there were nine deaths, but none of them could be attributed to the method of anesthesia. Postoperative pneumonia occurred but once in the 380 cases. After abdominal operations there might be gas pains present, but these were never severe. The range of applicability of the method was constantly increasing with experience. Nerve blocking was not difficult and anyone could use the method successfully who would learn to ligate nerve trunks, study the best way to reach them, and pay proper attention to the technique. The list of 380 operations comprised appendectomies, colostomy, carbuncle of the neck, removal of cervical ribs, cirrhosis of the liver, colectomy, cystotomy, prostatectomy, partial resection of the bladder, cyst of the ovary, epithelioma of the lip, extrauterine pregnancy, fracture cases, gastrostomy, gastroenterostomies, goiters, hysterectomies, etc. The basis of the solution used for anesthesia was novocaine. He had found by experiment that the effect of novocaine was greatly intensified and prolonged by the addition of calcium chloride. The next drug used was magnesium chloride, which accelerated the action of the novocaine.

Dr. Paul F. Morf thought there were some cases well adapted to local anesthesia while others were not. He did not think the most enthusiastic exponent of local anesthesia or nerve blocking would recommend it in all cases of children. Children, no matter whether they were suffering or not during the operation, would naturally be more or less nervous or restless, and for them surgeons would often be compelled to use a certain amount of ether or gas when operating on areas likely to cause much pain. Few patients suffered to any extent from fear of operation. However, this was a variable factor in patients. As to the toxicity of the solutions used, he knew of no case of poisoning on record from the use of proper doses of novocaine. A patient who had great fear of operation would suffer from psychic shock regardless of the fact that no pain might be felt. In patients of this kind an initial dose of morphine, 1/6 grain, and scopolamine, 1/150 grain, from half an hour to an hour before the operation would be a great help.

Dr. J. Rawson Pennington began to block the anorectal region for operations upon the rectum about ten years ago. At that time he found he could inject the anesthetic agent into Alcock's canal and carry some of the solution into the region of the perineum and coccyx posteriorly, but that was not necessary. By injecting the solution into the region of the sphincter muscles and anesthetizing the skin we could dilate the rectum and do many operations upon it. Ninety per cent. of the cases of hemorrhoids could be operated upon in that way. He used cocaine for its immediate effect and quinine and urea for prolonged anesthesia. He had used novocaine but it did not seem to be quite as satisfactory in his hands as cocaine.

Scopolamine-Morphine Anesthesia in Abdominal Surgery.—Dr. Emil Ries stated that scopolamine-morphine anesthesia was valuable as a preliminary adjuvant to other methods of anesthesia. He had used it in combination with spinal, sacral, and local anesthesia, and he had no reason to regret it. The value of the method was not determined by injecting a certain amount of scopolamine and morphine. If one should try to handle the scopolamine-morphine anesthesia in the same way in which he handled a case of ether or choloroform anesthesia he would be disappointed almost every time. Scopolamine-morphine anesthesia would not produce a total loss of consciousness, such as chloroform or ether would produce, unless those drugs were given in such large doses as to make them highly dangerous. With doses of scopolamine and morphine within the limits of safety there was brought about a condition between waking and sleeping, which varied according to the amount of drugs given and the condition of the patient. He could not see why these drugs should be taken out of the hands of the general practitioner any more than ether or chloroform.

Dr. Clifford U. Collins of Peoria, Ill., had used scopolamine-morphine as a preliminary in more than 3,000 cases up to the present time. The preliminary injection of these drugs was not so dangerous as some writers thought. A smaller arount of the general anesthetic was required when scopolamine-morphine was used as a preliminary. There was less postoperative vomiting when scopolamine-morphine was used as a preliminary, followed by ether. The apprehension of impending danger was abolished by this preliminary anesthesia.

Dr. Thomas J. Sullivan could endorse everything that had been said by both Dr. Ries and Dr. Collins as to the use of scopolamine-morphine as a preliminary to ether or chloroform anesthesia. He began the use of scopolamine-morphine as a preliminary in the Post-Graduate Hospital in 1904, and had continued its use ever since with gratifying results.

Philadelphia Neurological Society.

At a stated meeting held January 22, Dr. Frederick H. Leavitt exhibited "A Negro with Saint Vitus' Dance" and he pointed out the apparent rarity of the condition in the colored race.

Dr. Charles W. Burr exhibited "A Case of Hysterical Ataxia" and also "A Case of Senile Paraplegia."

Dr. J. W. McConnell exhibited "A Patient Presenting an Unusual Distribution of Muscular Dystrophy." There was wasting with weakness in the distal portion of the left lower extremity and of the proximal portion of the right upper extremity, together with enlargement and weakness of the right lower extremity and the left upper extremity. The reflexes were diminished and the response to faradic electricity diminished in the affected parts. The condition was looked upon as one of combined myopathy (muscular dystrophy) and myelopathy (chronic anterior poliomyelitis).

Dr. Wm. G. Spiller reported "A Family Form of Nervous Disease Resembling Paralysis Agitans." The disease occurred in three of four brothers and in the one sister. It usually set in in middle life, in the neighborhood of forty years of age. Two of the subjects were alcoholic. The patients exhibited a spastic gait, with exaggerated knee-jerks, at times festination, an immobility of countenance, tremor apart from voluntary muscular action, and a characteristic attitude of the hands. The disorder was considered to be related on the one hand to so-called pseudosclerosis and on the other hand to degenerative disease of the lenticular nucleus.

Drs. Charles K. Mills and Frank presented "A Report on a Case of Ependymoma of the Cervical Spinal Cord, with Wrist-Clonus" and they exhibited the specimen. The patient complained of weakness in the extremities with burning pain in the upper extremities and exaggerated knee-jerks in the lower extremities. A new growth being suspected in the upper cervical region the cord beneath the third, fourth, and fifth cervical spines was exposed, but no tumor or other abnormality was visible. The patient died a short time afterward, and the autopsy, confined to the cord, disclosed noteworthy swelling of the cord corresponding to the cervical enlargement. Section disclosed the presence of a new growth, which histological examination proved to be an ependymoma.

Dr. Charles K. Mills presented a communication entitled "Perseveration and Jacksonian Epilepsy and Motor Aphasia in a Case of Probable Midfrontal Lesion." The patient was a marine in the United States Navy, who, while at the Isthmus of Panama and suffering from pyelonephritis, had an apoplectic seizure, with right-sided paralysis and aphasia. Subsequently, from time to time, he had convulsive seizures, beginning in the right upper extremity and characterized by tonic spasm of the hand persisting in spite of efforts to overcome it. The Wassermann reaction was negative and there were no ocular changes.

Dr. James Hendrie Lloyd exhibited a specimen of "Brain-tumor Involving the Hypophysis Secondarily." The patient had been a man presenting paralysis of the first, sixth, ninth, and twelfth cranial nerves, at first without ocular manifestations, but later developing papilledema, with marked exophthalmos and a copious purulent discharge from the eyes and finally the appearance of papillomata in the nares. An *x*-ray picture had shown destruction of the posterior clinoid processes. A diagnosis had been variously made of poliencephalitis, tuberculoma at the base of the brain and a newgrowth of the pituitary body. Upon post-mortem examination there was found, in addition to the growths in the nares, a neoplasm involving the hypophysis. It was suggested that the tumor had originated from the dura mater and had extended thence to the hypophysis and the nose through the ethmoid sinus.

The following officers were elected for the ensuing year: *President*, Dr. S. D. W. Ludlum; *Vice-Presidents*, Drs. Owen Copp and Samuel Leopold; *Secretary*, Dr. Williams B. Cadwalader; *Treasurer*, Dr. N. S. Yawger; *Councillors*, Drs. Charles K. Mills, M. H. Bochroch, and Charles S. Potts.

Philadelphia County Medical Society.

At a stated meeting held January 27 Dr. William C. Gorgas, Surgeon-General of the United States Army, delivered an address entitled "Sanitation in Panama," illustrated by lantern slides. Dr. Gorgas pointed out that, while the aboriginal Indians of the American tropics and the invading Spaniard were vigorous, both mentally and physically, the striking feature of the latter-day inhabitants of these parts, although a mixture of the two races, is that they are distinctly inferior in both of the respects mentioned. The explanation for this deterioration is to be found not in climatic conditions directly or in changes in the mode of life, but specifically in the influence of the prevalent infectious diseases, and more particularly malarial and yellow fevers. In the four hundred years that the Isthmus of Panama has been known and used as an artery of travel it has been recognized as one of the most dangerous places in the world from the hygienic point of view. By reason of this fact and of the failure of the French in their endeavors to construct a canal between the two oceans at the boundary between North and South America, the results obtained by the American Government in its undertaking are all the more striking and illuminating. After the success that had been attained in Cuba in the eradication of yellow fever, following the demonstration of the part played by the mosquito in the transmission of this disease, similar measures were employed at Panama. Houses were carefully screened, drainage was provided for, shallow collections of water were covered with crude oil, reservoirs for the storage of rain-water to be used for drinking purposes were screened against mosquitos, distilled water was used for this purpose when necessary, and quinine was administered prophylactically. As a result of these measures the morbidity from the two diseases so frightfully prevalent before was greatly reduced and the death-rate from all causes among 6,500 American employees and 3,500 mmbers of their families was kept down to 2.50 per 1,000, a good deal lower than that observed in large cities of the country and as low as the death-rate in the Army, comprising a carefully selected group of men. For a while some of the men lived in barracks, but the outbreak of an epidemic of septic pneumonia led to an investigation, which disclosed that there was too much congestion, and thereafter the men were permitted, when they elected, to build themselves huts and houses and send for their families, with the happiest results. In the pictures were shown, among other things, an ambulance car in which patients were transported to the central hospital, some of the buildings comprising the hospitals at Ancon and at Colon, the screened type of dwelling for employees, shacks erected by negroes, ditch and trench excavations, concreted when intended for permanent use, and the spraying with oil of surfaces of water.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

New York State Board of Medical Examiners.

May, 1914.

(*Concluded from page* 210.)

BACTERIOLOGY.

Candidates must answer questions 1, 2, and 3.

1. How would you determine the presence or absence of tubercle bacilli in sputum?

2. How would you estimate the number of bacteria in a sample of cow's milk? What value have such estimations in determining the safety of the given milk for feeding a child?

3. What is (*a*) active immunity, (*b*) passive immunity? Give an example of each.

Candidates must answer two of the following questions, but no more.

4. What is tuberculin (old tuberculin) and how is it obtained?

5. Given a specimen of fluid withdrawn by lumbar puncture from a case of meningitis, how would you determine by bacteriological methods whether the meningitis is due to tubercle bacillus, to meningococcus, or to other pyogenic cocci?

6. What kind of wound is likely to be infected with tetanus bacilli and to favor their growth?

DIAGNOSIS.

Answer a total of 10 of the questions on this paper but no more.

Candidates must answer each of the first six questions.

1. Describe the microscopic differences between sarcoma and carcinoma.

2. What are the signs of glaucoma?

3. Name and describe some of the more common syndromes found in syphilis of the nervous system.

4. What symptoms indicate a fracture of the base of the skull?

5. What are the physical signs of lobar pneumonia?

6. Give the points in the differential diagnosis between primary cancer of the stomach and ulcer of the stomach.

7. Describe the symptoms of acute postoperative gastroenteric paresis (acute dilatation of the stomach) and tell how they differ from those of ordinary post-anesthetic vomiting.

8. What are the signs of intussusception in the child?

9. What are the symptoms of calculus descending the ureter?

10. What are the most common symptoms of obstructive hypertrophy of the prostate?

11. What disability is produced by anterior dislocation of the head of the humerus?

12. Describe the early symptoms of Pott's disease (tuberculosis) of the spine.

ANSWERS.

BACTERIOLOGY.

1. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

2. *Method of estimating the number of bacteria in milk:* "In estimating the number of bacteria in milk, colony counting in a jar or gelatin plates is resorted to. Great care must be exercised in obtaining the specimens. If taken from a can the contents of the can should be thoroughly mixed, since the cream usually contains many more bacteria than the rest of the milk. The specimen is then taken into a sterile test-tube or flask. If the milk is supplied in an ordinary milk bottle, this should be thoroughly shaken before being opened, and the specimen for examination taken out with a sterile pipette. Dilutions of the specimen can be made in sterile broth or salt solution. If an initial dilution of 1:100 is made, quantities ranging from 1 c.c. to 0.1 c.c. of this will furnish 0.01 to 0.001 c.c. of the milk, respectively. Inoculation of properly cooled tubes of melted neutral agar and gelatin, with varying quantities of these dilutions are then made and plates poured. After twenty-four to forty-eight hours at room temperature or in the incubator, colony counting is done in the usual manner with a Wölffhügel counting plate. In samples in which few bacteria are expected, direct transference of 1/20 or 1/40 of a c.c. of the whole milk into the agar may be made. This saves time, but is less accurate than the method given above." (Hiss and Zinsser's *Bacteriology.*) The safety of the milk depends on the kind of bacteria as well as the number; but Park and Holt conclude that milk containing over one million bacteria to the cubic centimeter is certainly harmful to the average infant.

3. "*Immunity* is called *active* when the animal protects itself through its own activities, *passive* when its protection depends upon defensive substances prepared by some other animal and forced upon it. Thus, if a frog be injected with anthrax bacilli, the leucocytes devour the bacteria, destroy them, and so protect the frog from infection, the immunity is *active* because it depends upon the activity of the frog's phagocytes. But

if a guinea-pig previously given antitetanic serum be injected with tetanus toxin, and so recovers from the toxin, the resisting power, conferred by the antitoxin previously injected, does not depend upon any activity of the animal infected, which remains entirely passive."—(McFarland's *Text-book on Pathogenic Bacteria.*)

4. *Tuberculin (old tuberculin)* is a preparation made from cultures of tubercle bacilli. These cultures, grown in 5 per cent. glycerin bouillon, are filtered, and the filtrate is then evaporated to 1/10 of its original volume.

5. "Examination of the fluid obtained by lumbar puncture is of value in diagnosis of certain forms of meningitis. *Tubercle bacilli* can be found in the majority of cases of tuberculous meningitis. The sediment, obtained by thorough centrifugalization or by coagulation and treatment with antiformin, is spread upon slides and stained by one of the well known methods. A considerable number of smears should be examined. In doubtful cases inoculation of guinea-pigs must be resorted to. The *diplococcus intracellularis meningitidis* is recognized as the cause of epidemic cerebrospinal fever, and can be detected in the cerebrospinal fluid of most cases, especially those which run an acute course. Cover-glass smears from the sediment should be stained by the method used for the gonococcus. The meningococcus is an intracellular diplococcus which often cannot be distinguished from the gonococcus in stained smears. It, also, is decolorized by Gram's method. The presence of such a diplococcus in meningeal exudates is, however, sufficient for its identification. Various organisms have been found in other forms of meningitis—the *pneumonococcus* most frequently. In some cases no micro-organisms can be detected even by culture methods." (Todd's *Clinical Diagnosis.*)

6. The kind of wound likely to be infected with the tetanus bacilli is a punctured wound, or one made by an instrument contaminated with soil.

DIAGNOSIS.

1.—

SARCOMA.	CARCINOMA.
Origin; entirely mesoblastic (Connective-tissue type).	Epiblastic and hypoblastic (Epithelial-tissue type).
Stroma; intercellular. Rarely forms alveoli.	Vascular connective tissue, which surrounds and forms the walls of the alveoli; these communicate with one another, and contain masses of epithelial cells.
Cells; granulation tissue or embryonic connective-tissue cells; shape and size vary.	Epithelial cells contained within alveoli; shape and size vary.
Intercellular substance; may be present.	Absent, or merely fluid.
Vessels; embryonic in character. They are in direct contact with, or may be formed by, the special cells, slightly modified, of which the tumor is composed.	Well developed; entirely contained within the connective tissue stroma, and supported by the walls of the alveoli. Seldom in contact with the cells.

—(Coplin's *Pathology.*)

2. *Signs of glaucoma*: Increased ocular tension, hazy cornea, pupil sluggish and widely dilated, cupping of optic disc, and visible pulsation in the retinal arteries.

3. "Syphilis of the brain in its most common form shows itself by a gradual development of severe and persistent headache. This is usually associated with vertigo, sometimes with nausea and vomiting. After the headache has developed and has lasted for a time, or even without much delay, there comes on sometimes an attack of hemiplegia, there are paralyses of the cranial nerves, more especially of the nerves of the eye. Optic neuritis is somewhat frequent. There may be, before any paralyses develop, attacks of epileptic convulsions, either general or partial. Without any paralyses or with simply cranial-nerve paralyses, there may develop attacks of somnolence and coma. Even if such attacks do not appear, the patient often shows a mental irritability and weakness, a slowness of the reasoning process, and incapacity to fix the attention such as is observed in connection with brain tumors, only with nerve syphilis these symptoms are not usually so marked. Polyuria and polydipsia are symptoms which are occasionally met with." (Dana's *Nervous Diseases.*)

4. *Symptoms of fracture of base of skull*: Hemorrhage (from nose, into orbit, from ear, or into tissues), escape of cerebrospinal fluid from nose or ear; concussion or laceration of brain, with coma; various nerve lesions (blindness, ocular paralysis, facial paralysis, deafness).

5. *Physical signs of lobar pneumonia*: "*Inspection* reveals during the first stage deficient movement of the affected side, due to pain. The apex-beat is normal in situation, and the interspaces do not bulge. In the second stage the healthy side rises normally, the affected side lagging behind. If both lower lobes are impervious to air, the diaphragm cannot descend and the epigastrium does not project during inspiration, the breathing being conducted by the upper part of the chest (superior costal respiration). *Palpation* during the first stage shows the vocal fremitus to be more distinct than normal, especially over the diseased portions. In the second stage, the vocal fremitus is markedly exaggerated, except in those rare instances of occlusion of the bronchi by secretion. The cardiac impulse is felt in the normal position. *Percussion*—In the first stage, the percussion note is slightly impaired at times, having a hollow or tympanitic quality. In the second stage there is dullness over the affected parts, with an increased sense of resistance. Over unaffected adjoining areas the resonance is increased (Skoda's resonance). *Auscultation.*—In the first stage there is heard over the affected part a feeble vesicular murmur, associated with the true vesicular or crepitant (crackling) râle, heard at the end of inspiration only. In the second stage there is harsh, high-pitched, bronchial respiration, at times resembling a to-and-fro metallic sound, except in those rare instances in which the bronchi are more or less filled with secretion. Bronchophony, or distinctly transmitted voice, is present and at times pectoriloquy, or distinct transmission of articulated sounds, may be heard. In the third stage, the breathing changes from bronchial to bronchovesicular and the crepitant râle (crepitatio redux) returns. As resolution proceeds, the breath sounds are associated with large and small moist and bubbling râles."—(Hughes' *Practice of Medicine.*)

6.—

CANCER.	ULCER OF STOMACH.
Is rare under forty years of age.	Usually in young adults, especially women.
Epigastric pain is more or less continuous, and not much relieved by vomiting.	The pain is rendered worse by food, and vomiting gives much relief. The pain is also more localized and xiphi-vertebral in character.
Anorexia is marked.	Appetite is good, but the patient is afraid to eat.
Vomiting is not frequent, but is copious; and in the vomited matter the Oppler-Boas bacillus may be found. Cancerous fragments are rare. Free HCl is diminished or absent, and lactic acid is often present.	Vomiting is frequent, and the vomited matter contains free HCl often in excess.
Hemorrhage is seldom copious, but may be frequent ("coffee-ground" vomiting); most common in the later stages.	Hemorrhage is not so frequent, but is copious at times. May be the first symptom.
Loss of flesh; the development of cachexia is rapid.	When the gastric symptoms are severe and prolonged, a cachectic appearance may develop, but never to the same extent as in cancer.
Epigastric tumor is usually easily detected.	No epigastric tumor, though there may be some rigidity of the rectus.

—(Wheeler and Jack's *Handbook of Medicine.*)

7. *Acute postoperative gastroenteric paresis (acute dilatation of the stomach)*: "The earliest and most common symptom is nausea and vomiting. This may begin soon after recovery from the anesthesia, increasing

in severity in proportion to the degree of dilatation. In other cases it may not begin until the second or third day following the operation. The vomiting can be distinguished from the ordinary postoperative vomiting by the gradual increase in the quantity of fluid. Enormous quantities of thin brownish sour fluid are vomited. The emesis is accompanied by symptoms of collapse. The upper half of the abdomen is at the same time much distended and tympanitic on percussion. The temperature is either normal or subnormal, the pulse increased in frequency, and the urine either greatly diminished or there is complete suppression. The heart is displaced upward by the greatly dilated stomach. Percussion over the precordium and left side of the chest shows a marked tympanitic note. The displacement of the heart and left lung is the cause of the rapid, weak pulse, the cyanosis, and dyspnea so characteristic of these cases. Through the stomach-tube an enormous quantity of brownish fluid escapes, great improvement occurring after gastric lavage. The change in contour of the upper half of the abdomen, and the decreased area of tympany after every expulsion of vomitus, show that this fluid is not free in the peritoneal cavity. Many of the milder cases recover spontaneously, although the majority end fatally unless speedy relief, by gastric lavage, etc., is given. . . . If the vomiting is due to the anesthetic, it should begin to diminish in frequency during the second twelve hours after the operation. In addition, the vomitus consists simply of mucus with a small amount of bile. There is no abdominal distention, and when the high rectal tube is inserted or an enema is given, the patient is able to expel flatus."—(Eisendrath's *Surgical Diagnosis.*)

8. INTUSSUSCEPTION IN CHILDREN. *Symptoms:* "These come on very suddenly in the midst of health, with a sharp cry or scream. The child turns pale and vomits; it kicks and tumbles about as if suffering from colic. The bowels are relieved at once of whatever is below the seat of obstruction, and some are deceived by this circumstance; this is followed by straining, which brings away nothing but mucus and blood. Palpation will generally detect a round lump or sausage-shaped and painful swelling in the region of the ascending colon or in the left iliac fossa. A marked depression in the right iliac fossa may be present, owing to the absence of the cecum, which is dragged over to the left. A careful rectal examination should now be made, and the presence of a rounded tumor, which closely resembles the os uteri in outline, would confirm the diagnosis. In severe and urgent cases the tumor may protrude at the anus, but this is a rare event. The temperature is normal or subnormal in the absence of peritonitis. Vomiting and straining continue, and soon the pinched look and sunken eyes proclaim the seriousness of the case. Unless prompt relief is at hand death quickly ends the child's sufferings."—(McCaw's *Discases of Children.*)

9. The *symptoms of calculus descending the ureter* are severe colic in the ureter, tenderness over the same region, hematuria; the urine may also contain pus; *x*-ray may show presence and location of the calculus; there may be an abdominal tumor over affected area.

10. *Symptoms of obstructive hypertrophy of the prostate:* Increased frequency of desire to urinate, particularly at night or in early morning, with difficulty in starting the stream; there is much residual urine, as may be demonstrated by catheterizing the patient just after urination; urine may dribble away; if the obstruction is complete, the patient cannot urinate; rectal examination will disclose the hypertrophy, but not the extent of the obstruction; the prostatic urethra is larger than usual, and catheterization may be difficult.

11. In anterior dislocation of the head of the humerus, the patient cannot place the hand of the injured side on the opposite shoulder, and voluntary movements of the dislocated joint are impossible.

12. *Pott's disease of spine:* "There are three typical signs: pain, rigidity, and deformity; and there may be abscess and paraplegia. Rigidity is the most important of these signs. 1. *Pain.*—In the early stages it may be only of an aching character. Local pain is that felt in the situation of the diseased bones, and tenderness may be elicited by percussion over the spinous processes. Referred pain is produced by pressure on the roots of nerves in the intervetebral foramina, and is felt at their cutaneous terminations. If in the lumbar region pain may be felt in the legs; if in the dorsal region, pain may be felt in the abdomen, chest, or arms; if in the upper cervical region, pain may be felt over the upper part of the chest or back of the head. 2. *Rigidity* is invariably present. In the early stages it is due to muscular contractions to steady the painful part. In an adult it can be demonstrated by getting him to go through various movements while a hand is kept over the suspected area. The limitation of movement is better felt than seen. In a child, it is better to lay it on its face and test the flexibility by grasping the ankles, and so raising the legs and pelvis. If rigidity is present, the whole body is raised instead of the back being curved. In the later stages, when repair has taken place, the rigidity is due to bony ankylosis. Secondary curvatures restore the upright position of the body. 3. *Deformity* is due to falling forward of the upper part of the spine as the vertebral bodies become destroyed, so that cases cured in the early stages present none. Where only two are involved the deformity is angular; where a large number are affected the deformity is a curvature. When the curvature is in the dorsal region, the sternum becomes convex anteriorly, and the intercostal spaces are diminished or obliterated."—(*Aids to Surgery.*)

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION.†
Alabama*	W. H. Sanders, Montgomery	Montgomery...July 13
Arizona*	J. W. Thomas, Phoenix	Phoenix...April 6
Arkansas	W. S. Stewart, Pine Bluff	Little Rock...May 11
California	C. B. Pinkham, Sacramento	Los Angeles...
Colorado	David A. Strickler, Empire Building, Denver	Denver...April 6
Connecticut*	Chas. A. Tuttle, New Haven	New Haven...Mch. 9
Delaware	J. H. Wilson, Dover	Dover...June 15
Dist. of Col'ba	Geo. C. Ober, Washington	Washington...April 13
Florida*	E. W. Warren, Palatka	Jacksonville...June 15
Georgia	C. T. Nolan, Marietta	Atlanta...June 2
Idaho*	J. F. Schmershall, Jerome	Lewiston...April 6
Illinois	C. S. Drake, Springfield	Chicago...
Indiana	W. T. Gott, Crawfordsville	Indianapolis...July 13
Iowa	G. H. Sumner, Des Moines	Des Moines...
Kansas	H. A. Dykes, Lebanon	Topeka...June 8
Kentucky	J. N. McCormack, Bowling Green	Louisville...
Louisiana	E. L. Leckert, New Orleans	New Orleans...June 3
Maine	F. W. Searle, Portland	Portland...Mch. 9
Maryland	J. McP. Scott, Hagerstown	Baltimore...June 15
Massachusetts*	W. P. Bowers, State House, Boston	Boston...Mch. 9
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor...June 8
Minnesota	T. McDavitt, St. Paul	Minneapolis...April 6
Mississippi	S. H. McLean, Jackson	Jackson...May 11
Missouri	J. A. B. Adcock, Jefferson City	St. Louis...Mch. 22
Montana*	Wm. C. Riddell, Helena	Helena...April 6
Nebraska	H. B. Cummins, Seward	Lincoln...May
Nevada	S. L. Lee, Carson City	Carson City...May 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord...July 6
New Jersey	H. G. Norton, Trenton	Trenton...June 22
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe...
New York	H. H. Horner, Univ. of State of New York, Albany	New York... / Albany... / Syracuse... / Buffalo... — May 25
N. Carolina	B. K. Hays, Oxford	Raleigh...
N. Dakota	G. M. Williamson, Grand Forks	Grand Forks...July 6
Ohio	Geo. H. Matson, Columbus	Columbus...June
Oklahoma	J. W. Duke, Guthrie	Oklahoma City...
Oregon	B. E. Miller, Portland	Portland...July 6
Pennsylvania	N.C. Schaeffer, Harrisburgh	Philadelphia... / Pittsburgh... / Harrisburgh... — June
Rhode Island	G. T. Swarts, Providence	Providence...April 6
S. Carolina	H. E. Boozer, Columbia	Columbia...June 8
S. Dakota	P. B. Jenkins, Waubay	Pierre...July 13
Tennessee	A. B. DeLoach, Memphis	Memphis... / Nashville... / Knoxville... — May
Texas	W. L. Crosthwaite, Waco	Austin...June
Utah	R. W. Fisher, Salt Lake City	Salt Lake City...
Vermont	W. Scott Nay, Underhill	Burlington...July 13
Virginia	J. N. Barney, Fredericksburg	Richmond...June 22
Washington*	C. N. Suttner, Walla Walla	Seattle...July 6
W. Virginia	S. L. Jepson, Wheeling	Charleston...April
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee...June 29
Wyoming	H. E. McCollum, Laramie	

*No reciprocity recognized by these States.

†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Gonococcus Septicemia Following Scarlet Fever.—M. Nicoll, Jr., reports three cases of arthritis occurring in children during convalescence from scarlet fever in the Willard Parker Hospital. The presence of an eruption not usually seen in cases of scarlatinal arthritis suggested the taking of blood cultures, the existence of a gonococcus septicemia. In two of these cases gonococcus vaccines were used, and in one in addition gonococcus serum was employed. In the third case the treatment was purely symptomatic. All of the patients recovered. The point is emphasized that gonococcus infection of the blood in childhood is less serious than in adult life and the tendency to destructive heart lesions in the former is less pronounced.—*Archives of Pediatrics.*

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

LEHRBUCH DER MASSAGE. By Dr. A. MÜLLER. Paper; illustrated; published by A. Marcus & E. Webers; Verlag; 675 pages; price, M. 18.00.

TRANSACTIONS OF THE AMERICAN SURGICAL ASSOCIATION. By Dr. ARCHIBALD MCLAREN.. Cloth; illustrated. Vol. 32; published by Wm. J. Dornan; 713 pages.

SURGICAL OPERATIONS. By Drs. F. KRAUSE, E. HEYMANN, and A. EHRENFRIED. Cloth; illustrated; Vol. 1; published by Rebman Co.; 267 pages.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS. Paper; illustrated; published by Frederick H. Hitchcock; 180 pages.

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE U. S. A. Paper; for the year 1913; 518 pages.

PRAKTIKUM DER CHIRURGIE. By Dr. I. NORDMANN. Paper; Part 1; published by Urban & Schwarzenberg; illustrated; 216 pages; price, M. 5.

A NURSING MANUAL FOR NURSES AND NURSING ORDERLIES. By Dr. DUNCAN C. L. FITZWILLIAMS. Cloth; illustrated; published by the Oxford Univ. Press; price, $2.00; 466 pages.

DER STARRKRAMPF. By Dr. FERDINAND BLUMENTHAL. Paper; published by Urban & Schwarzenberg; 79 pages; price, M. 1.20.

AUGENVERLETZUNG IN KRIEGE. By Dr. C. ADAM. Cloth; illustrated; 96 pages; published by Urban & Schwarzenberg; price, M. 2.50.

SEUCHENENTSTEHUNG UND SEUCHENBEKAMPFUNG. By Dr. F. NEUFELD. Paper; published by Urban & Schwarzenberg; price, M. 4.50; 204 pages.

HANDBOOK OF FEVERS. By J. CAMPBELL MCCLURE. Cloth; price, $3.50 net; published by Paul B. Hoeber; 470 pages.

LA DERIVACION DE ORINA. By Dr. PEDRO CIFUENTES. Paper; published by Lib. Medica Casa Vidal; 104 pages.

CORNELL UNIVERSITY MEDICAL BULLETIN. Paper; Vol. IV, No. 2; published by the University; illustrated.

PSYCHIATRISCHE DIAGNOSTIK. By Dr. JULIUS RAECKE. Cloth; published by August Hirschwald; price, M. 3; 194 pages.

A BIOGRAPHIC MEMORIAL OF GEORGE MCNAUGHTON, M.D. Cloth; illustrated; 78 pages.

THE CENTURY OF COLUMBUS. By JAMES J. WALSH, M. D. Cloth; illustrated; price, $3.50; published by The Catholic Summer School Press; 577 pages.

MEDICAL DIAGNOSIS. By Dr. ARTHUR LATHAM, and Dr. JAMES TORRENS. Cloth; illustrated; published by the MacMillan Co.; 641 pages.

GLAUCOMA, A SYMPOSIUM. Edited by WILLIS O. NANCE, M.D., and WESLEY HAMILTON PECK, M.D. Cloth; price, $1.50; published by the Chicago Medical Book Company, 1914.

THE PROPHYLAXIS OF MALARIA, with Special Reference to the Military Service. By CHARLES F. CRAIG, Captain Medical Corps, U. S. Army. Published by the Government Printing Office, 1914.

INFECTION, IMMUNITY AND SPECIFIC THERAPY. By Dr. J. A. KOLMER. Cloth; illustrated; published by W. B. Saunders Co. Price, $6.00 net; 809 pages.

MODERN MEDICINE. By SIR WM. OSLER, M.D., and THOS. MCCRAE, M.D. Cloth; Vol. IV; illustrated; published by Lea & Febiger. Price, $5.00; 1075 pages.

TEXT-BOOK OF EMBRYOLOGY. By CHAS. W. PRENTISS, M.D. Cloth; illustrated; published by W. B. Saunders Co. Price, $3.75; 400 pages.

THE ANATOMY OF THE DOMESTIC ANIMALS. By Dr. S. SISSON. Cloth; 2nd edition; illustrated; published by W. B. Saunders Company. Price, $7.00 net; 930 pages.

INFANT FEEDING. By Dr. F. L. WACHENHEIM. Cloth; published by Lea & Febiger. Price, $2.00; 340 pages.

OBSTETRICAL NURSING. By Dr. C. S. BACON. Cloth; illustrated; Lea & Febiger. Price, $2.00; 355 pages.

HANDBUCH DER SPECIELLEN CHIRURGIE DES OHRES UND DER OBEREN LUFTWEGE. By Dr. L. KATZ. Paper; illustrated; published by Curt Kabitzsch. Price, M. 7; 152 pages.

Miscellany.

One Memorable Field Day.—The medical man of an unattached reserve company which was present at the battle of Lorraine describes in detail (*Berliner klinische Wochenschrift*, November 2) the experiences of August 25th, after a 5-hour march in weather of the hottest kind. The company had bivouacked for three hours and were again on the move at daybreak. After coffee had been served they soon reached the battlefield. Here they lay for hours under cover, for they were among the reserve troops, until they received the order to advance. It was now high noon, and they halted at a high brush fence. Here many wounded without any medical aid were seen tottering to the rear. Thirst was universally present, with no water in prospect. Then the severely wounded began to appear, supported or even carried by their comrades.

There was a reservist shot through the chest, with the air whistling through the wound at each breath. The author, who was giving first aid to all, his status being that of a free lance, as he was answerable to no superior medical officer, bound up the man's chest, gave him morphine, and passed him along. Some wounds of the abdomen were fortunately tangential, sparing the peritoneum. But there were arms defleshed, legs shot through—many wounds contained shrapnel bullets, some of which could be felt under the skin. All these wounds were promptly dressed and with no pretence at asepsis—there was not even water available. Thirty wounded were thus attended to and directed to a Red Cross wagon which had been visible in the distance, but had later been forced by the shell fire to move back. At this juncture the word came to the reserve company to advance and the doctor was therefore obliged to discontinue his self-imposed labors.

Odd Aspects of Tetanus.—As a rule the numerous cases of tetanus among warring troops in Europe have fallen readily into certain types. Little has been said of anomalous types such as cryptogenic and rheumatic tetanus; nor has horse tetanus been mentioned, so far as we know. In one of the Military Medical Evenings held at Namur in November (*Deutsche medizinische Wochenschrift*, December 17), Heuss spoke of an equine epidemic, in a certain riding school for officers, which was stamped out by prophylactic injections of antitoxin. Several similar episodes are recorded; also an epidemic in a cavalry regiment in which the disease continued to spread in the absence of efforts at immunization.

Of especial interest were two cases of tetanus without visible wounds. In one patient out of 27, no wound could be found. The man had bad teeth and many carious roots. Of the entire series but four recovered. Whether the cryptogenic case was included in this series is not stated. In another case in the practice of another surgeon no wound was found although the disease was of severe type. For ten days the diagnosis was chronic rheumatism. The patient slowly recovered under intensive treatment. A slight wound in the margin of the gum was found, and thought to be the port of entry. It is possible that in these cryptogenous cases harmless tetanus bacilli in the circulating blood may have been activated by small suppurative lesions of the gums. Such possibilities have recently been demonstrated experimentally.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 8.
Whole No. 2311.

NEW YORK, FEBRUARY 20, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

A METHOD OF FEEDING INFANTS WITH PRECISION.

BY ALBERT E. MUCKLOW, M.D.,

BROOKLYN, N. Y.

IMPRESSED with the fallacies of the many and varied infant feeding doctrines and prompted by the ease with which fermented milk was assimilated in typhoid and other febrile states, I began in 1907 to employ such milk in the feeding of infants. While the results from the first have been remarkable, it has only been possible to establish a precise method by acquiring a knowledge of the following: (1) The percentages of fat, proteins, and sugar found in rich human milk. (2) The variation in the composition of cow's milk. (3) The reaction of human milk to rennet. (4) The reaction of cow's milk, fermented and unfermented, to rennet. (5) The kind of culture best suited for fermenting the milk. (6) The means of insuring a viable culture. (7) The temperature and time required for the fermentation. (8) The means of obtaining and maintaining cow's milk with a low bacterial count. (9) The composition of the various layers in cow's milk of different degrees of richness. (10) The means of determining in practice the richness of cow's milk.

The stereotyped statement that human milk contains 4 per cent. fat may be correct for average human milk but does not apply to the best. The latter should be our standard. The teaching that cow's milk contains fat 4 per cent., proteins 4 per cent., and sugar 4 per cent. may be easily memorized, but is erroneous.

Milk personally withdrawn from five young, healthy mothers nursing infants of unusual robustness, two to five months of age, care being taken to empty the full breasts thereby obtaining both the fore milk and strippings, showed, upon analysis by Dr. Moak, that rich breast milk, exclusive of colostrum, contains,—

HUMAN MILK

Fat	5.50 per cent.
Proteins	1.50 per cent.
Sugar (lactose)	6.50 per cent.

The findings in a series of analyses of certified cow's milk were as follows:

COW'S MILK

Fat	4.00 to 5.60 per cent.
Proteins	2.98 to 3.65 per cent.
Sugar (lactose)	4.62 to 4.90 per cent.

Cow's milk after standing contains in its upper layers a larger percentage of fat and smaller percentages of proteins and sugar than in the lower strata. The composition of human milk can be approximated by diluting these top layers with water and making up, with whole milk and sugar, any deficiency of proteins and sugar caused by the dilution.

Upon contact with rennet the casein of human milk precipitates as a soft, flocculent curd, while that of cow's milk coagulates into a firm clot which shrinks into a leathery, stringy mass. This difference has been the *bête noire* of artificial infant feeding. Adding cereal decoctions to cow's milk to mechanically separate the coagula, thereby making many small tough curds in the infant's stomach instead of a few large ones, does not solve the problem. Diminishing the amount of proteins in the mixture below that which is required and making up the calories with an excess of carbohydrates, is likewise not meeting, but running away from the issue.

If a culture of Bulgarian bacilli is added to cow's milk the bacilli will proliferate. During their propagation they will convert part of the lactose into lactic acid. This nascent lactic acid will combine with the casein and precipitate it in the form of a soft, flocculent curd upon which rennet has no effect.

Tests made in the laboratory of Fairchild Brothers and Foster demonstrated that when milk containing the culture is kept in a temperature of 98° to 100° F. for forty-eight hours, the splitting up of the lactose into lactic acid continues until at the end of this period 2.60 per cent. of lactic acid is produced. This amount arrests the growth of the Bulgarian bacilli. If, on the other hand, the milk with its contained culture is kept in a temperature of 80° to 100° F. for twenty-four hours, the casein is precipitated into the same flocculent curd as in the former instance, but there is formed only 0.69 per cent. of lactic acid. It was also observed that this small amount could be decreased to 0.55 per cent. by adding one grain of bicarbonate of soda to each ounce of the fermented milk. The undesirable effect of neutralizing all the acidity and thereby redissolving the coagulated casein does not result from the addition of this amount of bicarbonate of soda. It does, however, reduce the acidity sufficiently to make the milk very palatable. The 0.69 per cent. of lactic acid is formed, as stated above, by the splitting up of some of the lactose. Therefore the sugar content of the milk will be lessened by just that amount.

The Bulgarian Bacilli Culture.—This is the *sine qua non* of the entire method and deserves more than passing mention. Cultures of this bacillus are obtainable in liquid and tablet form. The liquid cultures when added to milk and placed in the proper temperature immediately begin to proliferate and ferment the milk. The results from their use are uniform. The tablets contain a desiccated culture, the bacilli being in a state of suspended animation. When these are added to milk a varying period of time elapses before they respond and

exhibit evidences of growth and action. The results from their use are uncertain and disappointing. Unless the vials containing the liquid cultures are kept in a low temperature, the contained bacilli will proliferate and, consuming the limited amount of pabulum present, soon perish. A dozen vials should be purchased as often as required direct from the laboratory of the manufacturer, immediately placed on ice, and there kept until used. This will insure a viable culture. The contents of a vial holding between 6 and 7 c.c., each c.c. containing an average of three hundred and eighty million Bulgarian bacilli, is the correct amount to add to each pint of milk or fraction thereof to be fermented. The culture in the vials is employed only every fourth day. On the other days to each pint of milk or fraction thereof to be fermented is added one-half teaspoonful of a previously fermented milk. Each vial should be agitated just before pouring out its contents lest some of the bacilli which form a copious sediment may remain in the vial.

The milk while fermenting should be undisturbed and kept constantly in a temperature of 80° to 100° (best 90°) F. for twenty-four hours. To maintain a uniform temperature I have devised a semi-circular, sheet-iron compartment to hold the jars containing the milk. Its widest transverse measurement is 18 inches; its outside height 15 inches, and its inside height 10 inches. It is enclosed, excepting a semi-circular opening in front. This opening tapers from a 7-inch width below to a 4½-inch width above. The floor upon which the jars of milk rest is 5 inches above the base and its edge is protected at the front opening by a ⅜-inch lip. Inside the compartment hangs a thermometer. In front stands either a Simplex Plain Portable Electric Stove No. 1731, or a Dietz's No. 2 Climax Square Station Lamp fount fitted with a size B burner (not the burner depicted in the illustration, as this was discarded on account of it giving off too much heat) and a Macbeth pearl top chimney No. 504. An equipment, exclusive of the electric stove, is made by Mr. Charles Emmet, of 763½ Gates Avenue, Brooklyn, N. Y., consisting of the semi-circular metal compartment, lamp, thermometer, Chapin cream dipper, fine meshed strainer, four one-quart preserve jars, a two and a half quart agate pitcher, and two one-pint glass tumblers. A vertical section of the fermenter and a full armamentarium, excepting the agate pitcher and pint tumblers, which have been added since the photograph was taken, are shown herewith.

The milk should have a low bacterial count at the time of milking. This should be maintained by bottling immediately after milking and then keeping it in a temperature of 40° to 50° F. The latter can be accomplished by the bottles being covered with cracked ice from the time of bottling until delivered; by the consumer immediately placing them in the ice chamber of a refrigerator either next to the ice or, better, in a pail full of cracked ice, and there keeping them until the required amount has been dipped off. The amount removed should be implanted immediately with a culture of Bulgarian bacilli, poured into a preserve jar and sealed. The Bulgarian bacilli, if placed in a temperature of 80° to 100° F., will rapidly multiply and inhibit the few other bacteria present in this originally low bacterial count milk. After the milk has fermented for the desired length of time and the other ingredients have been added, the completed mixture should be placed, in sealed jars, either next to the ice or in cracked ice and there kept until used. The diluent should be cold water that has either been distilled, or boiled for 5 minutes. All utensils should be sterilized.

Fig. 1.—Apparatus for fermenting the milk.

Certified Milk should be employed. This has a low bacterial count; is milked and immediately bot-

tled under the best sanitary conditions; the milkers and dairy employees are typhoid immunes, and the cows are tuberculin tested. However, it varies considerably in composition due to differences in the character of the herds of the several certified farms.

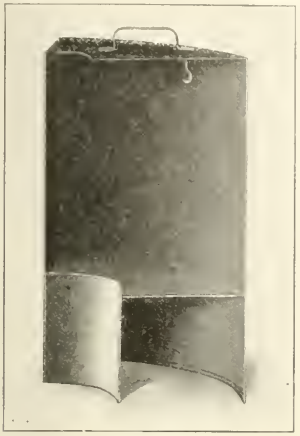


Fig. 2.—Vertical section of fermenter.

Records of the weekly examinations for fat content by the Milk Commission of the Medical Society of the County of Kings show that this ranges from 4.00 to 5.60 per cent. To determine the composition of the various layers in milks of the above different degrees of richness, a series of analyses were made for me by Dr. Harris Moak, bacteriologist and chemist of the aforesaid Commission. The consummation of the above undertaking was made possible through the courtesy of Borden's Condensed Milk Company, who, from purely scientific motives, placed at our disposal one hundred and ten cows on their farm at Wallkill, N. Y., and their well-equipped laboratory in New York City.

Dr. Moak, after spending considerable time and effort and after many fruitless attempts, finally succeeded in assembling five herds of cows in such a manner that the mixed milk from each herd contained, respectively, 4.00 per cent., 4.40 per cent., 4.80 per cent., 5.20 per cent., and 5.60 per cent. of fat. These he termed groups A, B, C, D, and E.

That the findings might be of practical value, the milk was mixed and bottled immediately after milking and shipped to the city in the regular manner of handling Certified Milk. The amount required from each bottle for analysis was dipped off thirty-six hours after milking, which approximates the interval that elapses between the milking and delivering of Certified Milk to the consumer. The milk was removed from the bottles in the ordinary domestic manner; namely, by means of a Chapin cream dipper (holds one fluid ounce) excepting the first dipperful from each, this being taken off with a teaspoon. The depth of the cream layer in each bottle was noted so that the richness of a given bottle full of milk might be known by the number of dipperfuls of cream it contained.

The findings in the first table on page 298 represent in each instance the average of two to six analyses.

The maximum bacterial count of the milk before, during, and at the end of the analyses was two thousand per c.c. Hence, bacterial action had practically no effect upon the findings.

The methods employed in determining the fat, proteins, and sugar, respectively, were Leffman and Beam's modified Babcock, the standard Kjeldahl, and the Fehling's gravimetric. The total solids were determined by drying and weighing.

It was observed while making the examinations that the contents of a bottle full of milk could invariably be made of uniform composition by pouring it into a pitcher, then back into the bottle, and repeating this procedure once; namely, four pourings in all.

The bottles full of	4.00%	Fat Milk contained a trifle less	than	5	dipperfuls of cream.
" " " "	4.40%	" " "	"	5½	" " "
" " " "	4.80%	" " "	a trifle more than	6	" " "
" " " "	5.20%	" " "	"	6½	" " "
" " " "	5.60%	" " "	a trifle more than	7	" " "

Smaller measurements than half dipperfuls are impractical in estimating the depth of the cream layers. Hence, the deductions which may be made for every day use are:

4.00% Fat Milk	4.40 to 4.80% Fat Milk	5.20 to 5.60% Fat Milk
Cream layer, less than 5½ dipperfuls	Cream layer, 5½ to 6 dipperfuls	Cream layer, more than 6 dipperfuls

The depths of cream given above and the composition of the various layers in the first table on page 298

GROUP A 4.00% Fat Milk		GROUP B 4.40% Fat Milk		GROUP C 4.80% Fat Milk		GROUP D 5.20% Fat Milk		GROUP E 5.60% Fat Milk	
Breed	Lbs. of Milk	Breed	Lbs. of Milk	Breed	Lbs. of Milk	Breed	Lbs. of Milk	Breed	Lbs. of Milk
Holstein	10½	Holstein	15	Holstein	19½	Holstein	12	Ayrshire	12
"	14	"	25	Jersey	11	Ayrshire	11	Jersey	9
"	12	"	17	"	12½	"	12	"	8
"	17	"	19	Guernsey	13	Jersey	10	"	10
"	10	"	17	"	10	"	9	"	9
"	14	"	11½	"	16½	"	9	"	10
"	15½	"	14	"	9	"	15	"	11
"	23	"	17	"	15	"	6	"	10
"	8	"	20½	"	10	Guernsey	5½	Guernsey	14
Ayrshire	16	Ayrshire	22	"	10	"	11	"	13
		"	11			"	14		
10 cows	140 lbs.	"	20	10 cows	126½ lbs.	"	9½	10 cows	106 lbs.
48 qt. bottles full were reserved for examination.		Jersey	23	36 qt. bottles full were reserved for examination.		"	15	36 qt. bottles full were reserved for examination.	
		13 cows	232 lbs.			"	20½		
		72 qt. bottles full were reserved for examination.				"	16½		
						"	17		
						16 cows	193 lbs.		
						72 qt. bottles full were reserved for examination.			

Top Ounces	4.00% Fat Milk					4.40% Fat Milk					4.80% Fat Milk					5.20% Fat Milk					5.60% Fat Milk				
	% Fat	% Proteins	% Sugar	% Ash	% Total Solids	% Fat	% Proteins	% Sugar	% Ash	% Total Solids	% Fat	% Proteins	% Sugar	% Ash	% Total Solids	% Fat	% Proteins	% Sugar	% Ash	% Total Solids	% Fat	% Proteins	% Sugar	% Ash	% Total Solids
Top oz	28 75	2.45	3.68	0.51	34.90	30.50	2.64	3.61	0.50	37.19	30.75	2.65	3.78	0.46	37.25	31.00	2.72	3.71	0.50	38.42	31.62	2.82	3.73	0.55	38 75
" 2	27.25	2.46	3.69	0.56	34 19	28.50	.....	.....	.....	34 97	.....	.....	.....	.....	.....	29.50	.....	.....	.....	36.16	.....	.....	.....	.....	.....
" 3	26.50	...	3.81	0.53	33.30	27.66	....	3.83	0.57	34.67	28.50	2.66	3.86	0.50	34 90	28.66	2.94	.....	0.56	35.63	28.87	3.11	3.89	0.57	35 86
" 4	25.00	2.48	3.85	0.54	31.58	26.33	.....	.....	.....	32.39	.....	.....	.....	.....	.....	27.08	.....	.....	.....	34.01	.....	.....	.....	.....	.....
" 5	21.50	2.50	3.94	0.50	28.84	23.30	2.71	4.08	.....	30.58	24.50	2.72	4.08	.....	31.09	25.50	.....	.....	.....	32.65	26.50	.....	3.91	.....	33.34
" 6	18 00	2.72	4.19	0.49	25.17	21.00	2.72	4.24	0.58	28.15	23.50	2.75	4.15	0.56	29 06	23.60	3.10	4.07	0.58	30.59	24.37	3.16	3.94	0.57	31.38
" 7	16.00	.....	4.28	0.53	23.65	18.66	.....	.....	.....	25.74	.....	.....	.....	.....	.....	21.08	.....	.....	.....	28.60	.....	.....	.....	.....	.....
" 8	14 00	2.79	4.47	0.57	21.89	16.50	.....	4.31	.....	23 66	17 37	2.92	4.46	.....	25.09	19.00	.....	4.26	.....	26.77	20.25	3.25	4.20	.....	27 87
" 9	12.00	2.80	4.54	0.62	20.61	15 00	.....	.....	.....	22.11	.....	.....	.....	.....	.....	17 00	.....	.....	.....	24 91	.....	.....	.....	.....	.....
" 10	11.25	2.82	...	0.59	19 60	13.12	3.06	.....	0.63	20.90	14 00	3.14	4.50	0.60	21.86	15.12	3.26	.....	0.62	23 36	16 00	3.35	4.40	0.58	23 81
" 11	10.50	2.87	...	0.52	18 47	12.00	.....	.....	.....	19 80	.....	.....	.....	.....	.....	14 00	.....	.....	.....	22 22	.....	.....	.....	.....	.....
" 12	9.80	2.91	...	0.59	17.77	11.00	.....	4.53	.....	18.88	12.00	3.15	4.69	.....	20.00	13.00	.....	4.35	.....	21.16	14 00	3.48	4.49	.....	22 00
" 13	.....	.....	...	.....	.....	10.25	.....	.....	.....	18 34	.....	.....	.....	.....	.....	11.50	.....	.....	.....	20.44	.....	.....	.....	.....	.....
" 14	8.50	...	...	...	16.26	9 80	.....	.....	0.68	17.59	10.00	3.18	4.79	.....	18.40	11 00	.....	4.66	0.69	19.42	11.75	3.59	4.56	.....	20 00
" 15	.....	...	...	...	.....	9 20	.....	.....	.....	17 09	.....	.....	.....	.....	.....	10 55	3.37	.....	.....	19.02	.....	.....	.....	.....	.....
" 16	7.50	...	...	...	15 68	8 50	.....	.....	0.70	16.65	8 70	3.20	4.89	0.60	17.24	10 05	.....	.....	0.70	18 30	10 50	3.65	4.62	0.57	18 87
" 17	.....	...	...	...	.....	8 20	.....	.....	.....	17.16	.....	.....	.....	.....	.....	9.20	.....	.....	.....	17 40	.....	.....	.....	.....	.....
" 18	6 70	...	...	...	14 95	7 60	.....	.....	.....	15.91	8 00	.....	4.90	.....	16 56	8 60	.....	.....	.....	17 25	9.10	.....	4.73	.....	17.77
" 19	.....	...	...	...	.....	7 20	.....	.....	.....	15.36	.....	.....	.....	.....	.....	8 20	.....	.....	.....	16.98	.....	.....	.....	.....	.....
" 20	6.00	...	...	...	14 38	7 00	.....	.....	.....	15 20	7 30	.....	.....	0.62	15 86	7 80	.....	.....	.....	16.65	8 20	.....	.....	0.63	17 07
" 22	5.50	...	...	...	13 97	6 45	.....	.....	.....	14 55	.....	.....	.....	.....	.....	7 60	.....	.....	.....	16 20	.....	.....	.....	.....	.....
" 24	5 10	...	...	...	13 57	5 85	.....	.....	.....	14 14	6 20	.....	.....	.....	14 92	6 80	.....	.....	.....	15 47	7.00	.....	.....	.....	16.53
" 26	4 70	...	...	...	13 21	5 60	.....	.....	.....	13 88	.....	.....	.....	.....	.....	6 20	.....	.....	.....	15.19	.....	.....	.....	.....	.....
" 28	4 45	...	...	...	13 09	5 10	.....	.....	.....	13 63	5 30	.....	.....	.....	14 03	5 80	.....	.....	.....	14 77	6.30	.....	.....	.....	15 73
" 30	4 20	...	...	...	12 96	4 80	.....	.....	.....	13 31	.....	.....	.....	.....	.....	5 60	.....	.....	.....	14 39	.....	.....	.....	.....	.....
Whole milk	4 00	2.98	4.62	0.64	12 83	4 49	3.17	4.59	0.71	13 00	4 89	3.24	5.01	0.69	13 66	5 20	3.59	4 81	0.72	14 29	5 60	1.65	4.90	0.72	14 57

apply only to milk that has been bottled immediately after milking and undisturbed after bottling. Dr. Moak allowed milk to stand for two hours after milking and then mixed and bottled it. The cream layer of this milk, even thirty-six hours after bottling, was deeper but rarer, containing smaller percentages of fat, proteins, and sugar than the cream layer of the same kind of milk bottled immediately after milking. Thus even a partly risen cream, if disturbed, will not subseqently rise to the same density as it would have done if undisturbed. Hence, the richness of a bottle full of milk that has been disturbed cannot be judged by the depth of its cream layer.

As seen above, rich breast milk has been taken as our standard. Infants during the first few weeks do not need the proteins found in such rich milk; the age at which they do, varies. A series of formulas are therefore necessary to enable us to increase the proteins, according to requirements, from a small percentage during the first few weeks to the amount found in the richest breast milk and finally to the quantity occurring in undiluted cow's milk.

The majority of healthy infants will require the several formulas at the ages given below. However, we must individualize. A child progressing favorably with a given formula may continue upon it a few weeks longer than indicated in the schedule. Conversely, a failure to steadily gain in weight should prompt us to advance to a stronger formula earlier than directed. During the first six months a weekly gain of eight ounces together with normal stools is desired. An infant marantic from previous faulty feeding should, on account of the low ebb of its assimilative functions, be given for a time a mixture weaker than that indicated by its age, the subsequent use of richer ones being permitted with the return of full absorptive powers as shown by the continuance of normal stools under such advance.

Malt sugar is better tolerated than commercial lactose or cane sugar; hence, in raising the sugar content of the mixture to 6.50 per cent. we may with impunity add a non-alcoholic malt extract, such as Kepler or Loeflund's. The specific gravity of these is about 40 per cent. higher than that of milk. They contain, however, only 70 to 75 per cent. of combined maltose and dextrin; therefore one ounce

Age in Months	4.00% Fat Milk — Cream Layer, Less than 5½ Dipperfuls							4.40 to 4.80% Fat Milk — Cream Layer, 5½ to 6 Dipperfuls							5.20 to 5.60% Fat Milk — Cream Layer, More than 6 Dipperfuls						
	oz. Top Milk	oz. Whole Milk	Vials of Culture or Teaspoonfuls of Fermented Milk	Grains Soda Bicarb.	oz. Water	oz. Malt Ext.		oz. Top Milk	oz. Whole Milk	Vials of Culture or Teaspoonfuls of Fermented Milk	Grains Soda Bicarb.	oz. Water	oz. Malt Ext.		oz. Top Milk	oz. Whole Milk	Vials of Culture or Teaspoonfuls of Fermented Milk	Grains Soda Bicarb.	oz. Water	oz. Malt Ext.	
First	Top 4		1	½	4	13	1	Top 5		1	½	5	15½	1	Top 6		1	½	6	18	1½
1–2	" 4	2	1	½	6	12	1	" 5	2½	1	½	7½	14¾	1½	" 6	3	1	½	9	18	1½
2–4	" 4	4	1	½	8	12	1	" 5	5	1	½	10	14	1	" 6	6	1	½	12	18	1½
4–6	" 4	6	1	½	10	11	1	" 5	7½	1	½	12½	13½	1½		Same as 2–4 mont hs.					
6–8	" 4	8	1	½	12	11	1	" 5	10	1	½	15	13½	1½	" 6	9	1	½	15	18	1½
8–10	" 4	10	1	½	14	10	1	" 5	12½	2	1	17½	12¾	1½	" 6	12	2	1	18	18	1½
10–12	" 4	14	2	1	18	9	1	" 5	17½	2	1	22½	12¾	1½	" 6	15	2	1	21	17½	2
12–14	" 4	18	2	1	22	8	1	" 5	22½	2	1	27½	11	1½	" 6	21	2	1	27	17½	2

Composition of Formulas
Fat varies from 5.50 to 5.68% in each.
Proteins gradually increase from 0.55% in 1st to 2.05% in last.
Sugar 6.50% in each.

Composition of Formulas
Fat varies from 5.51 to 5.70% in each.
Proteins gradually increase from 0.63% in 1st to 2.13% in last.
Sugar 6.59% in each.

Composition of Formulas
Fat varies from 5.53 to 5.64% in each.
Proteins gradually increase from 0.73% in 1st to 2.03% in last.
Sugar 6.59% in each.

by volume represents approximately one ounce by weight of combined maltose and dextrin.

The amount of malt is estimated in dipperfuls and half dipperfuls on account of its high specific gravity making smaller measurements impractical.

In practice it will be necessary to increase by one-half or to double the amounts of most of the above formulas, the smaller quantities having been given in the tables to make the calculations easier and the descriptions more lucid.

The richness of the bottle full of milk used in preparing the first formula may be determined as follows:

Dip off the top 4 dipperfuls into a pint tumbler and the 5th dipperful into a second pint tumbler. If less than ½ dipperful of cream remains, consider the original contents of the bottle as a 4.00 per cent. fat milk. Use the 4 dipperfuls in the first tumbler as the top milk in the formula: or,

Dip off the top 4 dipperfuls into a pint tumbler and the 5th dipperful into a second pint tumbler. If only ½ to 1 dipperful of cream remains, consider the original contents of the bottle as a 4.40 to 4.80 per cent. fat milk. Mix the 4 dipperfuls in the first tumbler and the 1 dipperful in the second tumbler and use these 5 dipperfuls as the top milk in the formula: or,

Dip off the top 4 dipperfuls into a pint tumbler, the 5th dipperful into a second pint tumbler, and retain the 6th dipperful in the dipper. If some cream still remains, consider the original contents of the bottle as a 5.20 to 5.60 per cent. fat milk. Mix the 4 dipperfuls in the first tumbler, the 1 dipperful in the second tumbler, and the 1 retained in the dipper and use these 6 dipperfuls as the top milk in the formula.

In preparing the subsequent formulas, it will be more convenient to adopt the following procedure:

Dip off the cream from the bottle from which the whole milk is to be taken. Note the number of these dipperfuls in order to determine the richness of the milk. Mix the cream thus dipped off with the rest of the contents of the bottle from which it was removed.

The calculations by which the formulas are obtained are shown below.

Age: 2 to 4 Months	4.40 to 4.80% Fat Milk							
	% Fat	% Prot.	% Sug.	Parts	% Fat	% Prot.	% Sug.
Top 5 oz. containing after fermentiag.	23 90	2.71	3.39	= 1	23 90	2.71	3.39
Whole Milk 5 " " " "	4 60	3.20	4.11	= 1	4 60	3.20	4.11
Water 15 " "				= 3			
				5)	28 50	5.91	7.50
The above 25 oz. will thus contain					5 70	1.18	1.50
6.50% − 1.50% = 5.00% = percentage of additional sugar needed.							
25 oz. × 5.00% = approximately 1 oz. = amt. of sugar required by weight.							
1 oz. by volume of the malt ext. = approximately 1 oz. by weight of combined maltose and dextrin. Therefore, replacing 1 oz. of the water with 1 dipperful (1 oz. by volume) of the malt ext. adds approximately 5.00% of combined maltose and dextrio.							5.00
Composition of complete mixture					5.70	1.18	6.50

The practical application of the above principles can be best shown by the following instructions for the guidance of the mother or nurse.

Age: 2 to 4 Months	4.40 to 4.80% Fat Milk

Dip off into a pitcher the cream from a quart bottle full of milk that has not been disturbed. Note the number of these dipperfuls in order to determine the richness of the milk. Pour the rest of the contents of the bottle into the same pitcher. Pour the entire amount back into the bottle. Again pour the contents of the bottle into the pitcher and back into the bottle; that is, four pourings in all.

Dip off into the empty pitcher 5 dipperfuls of this mixed milk.

Skim off the top 5 dipperfuls from another quart bottle full of milk that has not been disturbed and add these to the above milk in the pitcher.

Add either the contents of a vial of the Bulgarian bacillus culture (add this every fourth day) or ½ teaspoonful of the preceding day's fermented milk.

Pour into a quart preserve jar. Seal it and stand without disturbing in 80° to 100° (best 90°) F. for 24 hours.

Rub through a fine meshed strainer to make the flocculi small enough to pass readily through the hole in the nipple. Be sure to leave none on the strainer.

Excepting every fourth day take ½ teaspoonful of this and add it to the next milk to be fermented.

Add to the above fermented and strained milk a 10 grain powder of bicarbonate of soda, accurately weighed.

Add 14 dipperfuls of cold water that has either been distilled, or boiled for 5 minutes.

Add 1 dipperful of malt extract.

Pour the completed mixture into two quart preserve jars. Seal them, immediately place in the ice chamber of a refrigerator either next to the ice or, better, in a pail full of cracked ice, and there keep them until needed. At feeding time shake well, pour out the required amount, then immediately reseal the jar, and replace it on ice. The amount poured out should, without delay, be warmed and fed.

The method by which the amount of the above mixture may be doubled is obvious. It may be increased by one-half as follows:

Dip off into a pitcher 7½ dipperfuls from a bottle full of mixed milk.

Skim off into a pint tumbler the top 5 dipperfuls from each of a second and a third quart bottle full of milk that has not been disturbed. Pour these 10 dipperfuls into another pint tumbler, then back into the first tumbler, and repeat this procedure once; that is, four pourings in all. Add only 7½ dipperfuls of these to the above milk in the pitcher. Add 1½ times the above amounts of the other ingredients.

Note: All utensils should be placed in a large kettle full of water and boiled for 5 minutes just before using them.

The first dipperful from a bottle full of milk should be removed with a teaspoon to avoid spilling.

The infant should be satiated, the average requiring:

1st	week	1	-1½ oz. every	2	hours by day and twice at night.
2nd	"	1½-2	" "	2	" " " " " " "
3rd	"	2	-2½ " "	2	" " " " " " "
4th	"	2½-3	" "	2	" " " " " " "
1- 2	mos.	3	-3½ " "	2	" " " " " " "
2- 4	"	3½-5	" "	2½	" " " " once " "
4- 6	"	5	-6	2½-3	" " " " " " "
6- 8	"	6	-7	3	" " " only.
8-10	"	7	-8	3	" " " "
10-12	"	8	-9	3½	" " " "
12-14	"	9	-10	3½	" " " "

Feedings should be warmed by standing nursing bottle containing same in water not hotter than hand can bear, as too great a heat will toughen the curd.

Use a medium sized nipple with a single opening. Make opening the proper size by running through it the red hot point of a No. 7 sewing needle, the eye end of the needle being inserted into a cork to protect the fingers. After each nursing turn the nipple inside out, scrub clean and place in borax water (one heaping teaspoonful of borax to a cupful of cold, boiled water).

Use of the above method for the last seven years in over two hundred cases in private practice, has demonstrated the fact that by strictly observing the aforecited details, infants can be artificially fed with precision as shown by normal stools, perfect dentition, and a development and robustness both immediate and subsequent that are phenomenal.

300 Sumner Avenue.

A PROGRAM OF PSYCHIATRIC PROGRESS.

By A. J. ROSANOFF, M.D.,

KINGS PARK, N. Y.

KINGS PARK STATE HOSPITAL.

In the domain of psychiatry progress has always lagged behind that of other domains in medicine. When medical science and practice had already begun to show the influence of the Renaissance and even in the early part of the seventeenth century, when the new era had been heralded by the publication of William Harvey's discovery of the circulation, the treatment of the insane was still in the hands of the clergy and consisted of exorcisms and disciplinary measures. Later, when the care of the insane had passed largely into the hands of laymen, as a problem of public protection and of charity,

their treatment, carried out mostly in almshouses, still consisted of hardly any measures other than custody and restraint. Gradually, first here and there, later more generally, the care of the insane came to be recognized as a medical problem and from this origin may be traced the growth of psychiatry as a branch of medicine and the introduction of more rational, and therefore more humane, methods of treatment.

Thus, as insanity came to be regarded as a group of diseases to be cured, the course of psychiatry became dominated by the traditional spirit of medicine, and in this country it manifested itself mainly in a movement from county care, *i.e.* almshouse care, to State care, *i.e.* hospital care. One of the most important documents in the history of psychiatry in this country, a report under date of March 29, 1834, made to the New York State Legislature by a special committee, shows in a most striking way how much that movement owes to medical influence; in it we read: "It is now satisfactorily established that diseases of the mind yield even more readily to medical treatment than those of the body, and that in at least nine-tenths of the cases of insanity the patient may be restored to the full enjoyment of his mental faculties by the early application of judicious medical treatment." At that time, however, general medicine was again leaving psychiatry far behind, having already begun to feel the influence of a new ideal, the ideal of prevention. To-day if one were asked the question, What is the most significant advance made by medicine in the past twenty-five or thirty years? his answer would surely have to be, The advance in the knowledge of prevention of disease.

To take a concrete instance, that of typhoid fever, no one will question the fact that the suffering and average mortality of that disease have been very materially reduced by the modern dietetic treatment, hydrotherapy, skillful nursing, and perfection of surgical technique in dealing with such complications as hemorrhage and perforation. But no well informed person would measure our greatest progress in the struggle against that disease by the improvements that have been made in its treatment, but rather by the statistical estimates of the thousands of cases which have been entirely prevented, that is to say, which have not occurred but which would have occurred were it not for the modern sewage disposal plants, water filtration plants, sanitary management of dairies, and the practice of protective inoculation.

The recognition of the vast possibilities of prevention is due, it need hardly be said, to Edward Jenner, who, by his discovery of vaccination, created a new and higher aim for medicine, nowhere better expressed than in his own aphorism, "The duty of the physician is, first, to prevent disease, failing that to cure disease, failing that to prolong life and relieve suffering." To-day it may well be said that Edward Jenner "builded better than he knew," for the very direction of medical progress has changed with the recognition of prevention as the great goal of medicine.

Only in the past five or six years the ideal of prevention has begun to make itself felt in psychiatry, due mainly to an acquisition of a clearer knowledge of the nature and causes of mental disorders; and thus the old and unrealized hope of cure is being largely supplanted by the more practical hope of prevention: *the problems of psychiatry are becoming problems of public health.*

The position of psychiatry is peculiar in that the application of its scientific discoveries is, far more than applied science in other domains, dependent on legislation. The existing laws pertaining to insanity, even in the most progressive states, have not yet felt in full measure the influence of the new ideal of prevention. Although to them is due the great progress that has been made in the care of the insane heretofore, the time has come for them to be amended in important particulars, if the possibility of their becoming obstructions instead of aids to further progress is to be avoided.

The object of this paper is to present the results of a critical examination of the constitutional provisions and laws of the State of New York, a discussion of their effects on the problems of the care of the insane, and suggestions of changes and amendments which would make the laws again a power for progress and betterment. The present time is selected for making these suggestions owing to the unusual opportunity of accomplishing something, which is offered by the coming constitutional convention.

Although confined to the State of New York, this discussion cannot fail to have a bearing on the same problems in other states.

Legal Provision for the Insane.—The constitution provides for the establishment of "a state commission in lunacy which shall visit and inspect all institutions, either public or private, used for the care and treatment of the insane (not including institutions for epileptics or idiots)". (Article VIII, Section 11.) The insanity law states: "The commission is charged with the execution of the laws relating to the custody, care and treatment of the insane, as provided in this chapter, not including feeble-minded persons and epileptics as such and idiots." (Article II, Section 3). "The superintendent of a state hospital, on filing his written certificate with the commission, may discharge . . . a patient who, in his opinion, is a dotard, not insane." "A poor and indigent patient discharged by the superintendent because he is an idiot, or a dotard, not insane, or an epileptic, not insane, or because he is not a proper case for treatment within the meaning of this chapter, shall be received and cared for by the superintendent of the poor, or other authority having similar powers, in the county from which he was committed." (Article IV, Section 94.)

It is plain that those who framed these laws aimed at so limiting the term "insanity" as to exclude various mental disorders for which provision might be made in county almshouses or under the state board of charities. It was done at a time when even competent authorities held that there was an essential difference between "insanity" and other mental disorders. Eventually, however, medical men came to realize that the term "insanity" was so vague as to be incapable of definition; attempts to define it have, accordingly, been given up, but it is not so easy to give up its use altogether, and we find but too commonly, especially in criminal cases, one expert alienist diagnosing hopeless insanity where another, basing his conclusions on precisely the same data, can discern nothing but full clarity of mind.

The law, as is often apt to be the case, has been more practical. Although it has employed and still employs the term "insanity," it always clearly implies a special and limited meaning, by no means the same in all cases, but strictly relevant to the

special legal procedure for the purpose of which it is employed. Thus the law may declare a person to be insane and therefore *incompetent* to manage his own affairs; or it may declare one to be insane and therefore *irresponsible* in a criminal action; or again it may declare one to be insane and therefore of *limited testamentary capacity;* or finally it may declare one to be insane and therefore requiring *commitment* to an institution; but the law does not and cannot simply declare a person to be insane in a general way without clearly implied relevancy to a particular legal action.

In spite of the clarifying influence of the legal point of view, the mere use of the term "insanity" in legal diction has been the cause of much confusion and harm; the reason being that very few lawyers, let alone physicians and laymen, realize the lack of definition of that term, but all are apt, on the contrary, to attribute to it a special significance largely dependent on personal equation. It would seem desirable, therefore, to eliminate from the law this equivocal term and to substitute for it an expression equally convenient, as being of similar general application, yet preferable, as being less subject to inaccurate interpretation under the bias of personal equation: we have in mind some such expression as "disorder of mind" or "mental disorder."

The reader may ask, What special harm has resulted from the use of the term "insanity?" What special benefit is to be expected from substituting for it the expression "mental disorder"?

An attempt to answer fully the first question would be out of place here, as the general discussion of medicolegal problems is not within the scope of this paper; we shall therefore limit ourselves to a discussion of the prejudicial effects felt by the system which has been organized by the State for the care of the "insane".

The spirit of the great series of New York State care acts from 1836 to 1896, which were destined to become models for legislation throughout the land, that spirit, correctly interpreted, contemplated complete state care for all cases of disorder of mind, whether inherited or acquired, chronic or acute, curable or incurable, all under the control of a commission so constituted and endowed with such powers as to insure, medically the most competent, legally the most fully justified and protected, and from a lay standpoint the most economical care of all cases. Those who are familiar not only with the laws but also with the history of their enactment know very well that such "jokers" as pertain to the "feeble-minded", "dotards", and "not proper cases for treatment" have remained but as features of a compromise in the struggle for state care against formidable opposing forces representing certain special or local interests.

Owing to these "jokers" the spirit of the New York State care acts remains to-day unrealized. Every county almshouse is partly filled with cases of arteriosclerotic dementia, senile dementia, terminal stages of dementia præcox; penal institutions throughout the State are partly filled with all types of psychopaths and with cases of constitutional inferiority; for years practical necessity has caused many inmates in institutions for the feeble-minded and for the epileptic to be kept uder restraint not only without proper legal sanction but also without the control or supervision of the State Hospital Commission,—these institutions being under the State Board of Charities,—because these inmates, though most unmanageable by reason of chronic or recurrent mental disorders, are "not insane within the meaning of the statute"; and, last but not least, many thousands of cases of homeless wanderers, petty criminals, chronic drunkards, and public prostitutes, who are such by reason of manifest mental disorders, remain at large and unprovided for, a menace to the health and property of the commonwealth, an influence for the moral corruption of children, a source for the replenishment, whether legitimately or illegitimately, of the mass of neuropathic humanity; these being at large mainly because there is no room in the institutions under the State Board of Charities and because, again, they are "not insane within the meaning of the statute".

The reader may be interested to learn how this vague phraseology of the law may affect patients, not only to the extent of preventing them from being received in institutions under the State Hospital Commission, but also to the extent of forcing their discharge in spite of a perfectly valid legal commitment. An incident which occurred in the summer of 1914 and which affected hundreds of patients at this hospital alone, affords an illustration of such an effect.

In the latter part of May the hospital was notified by the commission that, owing to the failure on the part of the legislature to reappropriate, according to usual custom, the hospital board moneys, large retrenchments would have to be made in order to avoid a deficit at the end of the fiscal year. Shortly afterwards a second letter was received from the commission urging the hospital authorities to go over the cases on the various services with a view to selecting from among them such as may be discharged or paroled as being either "recovered" or "not insane within the meaning of the statute", thus facilitating the reduction of the budget for maintenance. The commission was not actuated by any suspicion that there might be cases improperly detained at the hospital, but merely by financial stringency. It is significant also that the commission called special attention to the "joker" in the law which we have already quoted and which for the reader's convenience we will here quote again: "A poor and indigent patient discharged by the superintendent because he is an idiot, or a dotard, not insane, or an epileptic, not insane, or because he is not a proper case for treatment within the meaning of this chapter, shall be received and cared for by the superintendent of the poor, or other authority having similar powers, in the county from which he was committed". (Article IV, Section 94.)

What happened following the receipt of these letters from the commission has been related in our annual report, from which we would quote the following: "251 patients were discharged as recovered, making the recovery rate, based on direct admissions, 22.37 per cent, that of the preceding year being but 19.16 per cent. A similar increase is to be noted in the total number of cases discharged as either recovered, or much improved, or improved, which amounted to 41.28 per cent as compared with 34.10 per cent of the preceding year. We are not inclined to attach much significance to this apparent increase in the recovery rate. As already hinted in our last year's report, present day statistics of recoveries are vitiated by the intrusion of the legal point of view, whereby their value from a medical point of view is im-

paired. As all know, it is the frank policy of all institutions to discharge, as 'recovered', cases of imbecility, constitutional inferiority, epilepsy, senile dementia, organic brain disease, etc., upon the subsidence of the acute psychotic manifestations which have arisen in these cases and constituted the indications for commitment. . . . The same may be said of the increase in the number of cases discharged as 'not insane', and in this connection attention may be called to the significant fact that 27 cases discharged as 'recovered' and 6 cases discharged as 'not insane' were so discharged into the custody of the Department of Public Charities in the Borough of Brooklyn, it being recognized that though legally 'recovered' or 'not insane' these cases nevertheless required continued institutional care. . . . On May 31, 1914, the number of patients on parole in the custody of relatives or friends was 165; by September 30 it had reached to 324. . . . The question may well be raised whether it is wise or even justifiable for the State to shift any part of the burden of the care of the insane upon the friends of the patients or upon the county from which they came. The distinction between sanity and insanity is not a sharp one, but rather one of gradual transition, and on the borderland there are numerous cases in which judgment as between the two is largely influenced by personal equation, and the law sometimes permits different ways of handling the one and the same case. The cases which were discharged or paroled from this hospital under the stress of unusual conditions during the last four months of the year, and which under normal conditions would have been detained, were, to be sure, selected with care and with a view to minimizing the danger to the patients themselves and to society; but it is practically self-evident that as the number of parole cases becomes larger there is a very considerable increase in danger in spite of the exercise of all ordinary care that can be given. And, while we refer here to the immediate danger from suicide, violence, homicide, incendiarism, etc., . . . the more remote, though no less certain, danger of unrestrained propagation and transmission to future generations of tendencies toward insanity . . . must be borne in mind as a matter of much greater moment. . . . The return of patients to the country as 'not insane within the meaning of the statute' is, of course, less objectionable than their discharge to the custody of friends, so long as their return to the county means a continuance of segregation from those of the community at large, but it is, nevertheless, a step backward and does not commend itself to those who are familiar with the conditions in the past which led to the movement for the abolition of county care and the development of State care."

There remains for our consideration the second question, What special benefit is to be expected from substituting for the term "insanity" in the legal phraseology the expression "mental disorder"?

To this our answer is that such a change alone would probably accomplish very little, but that such a change together with the elimination of the above discussed points pertaining to feeble-minded persons, idiots, epileptics, and dotards "not insane" would render at last possible the complete realization of the spirit of the New York State care acts by opening the doors of the State hospitals on equal terms and without discrimination to all legal residents of the State suffering from mental disorders and requiring custody, care, or treatment; the great problem of the prevention and management of mental disorders would then be entirely in the hands of the body that is most capable of coping with it, the State Hospital Commission; and there would no longer be a waiting list of patients vainly seeking admission.

Legal Provision for Public Charities.—Although our concern is only with matters which are or should be under the control of the State Hospital Commission, there is, under the existing circumstances, so much overlapping of the domain of the commission by the powers and activities of the State Board of Charities, and of the poor law authorities of the various counties and municipalities that the law pertaining to public charities will have to be at least briefly considered.

In the first place, it follows, as a corollary from what has been said above, that in order to place all cases of mental disorder of whatever kind under care of the State Hospital Commission those parts of the law must be amended which place the control of the institutions for idiots, epileptics, and the feeble-minded in the hands of the State Board of Charities.

In the second place, we find in the State charities law an inaccuracy of diction analogous to that found in the insanity law and, it seems to us, one that is equally fraught with possibilities of confusion and harm, namely, the use of the very term "charities."

It may well be questioned whether the people of the State who avail themselves of the benefits of institutions established and maintained by themselves may any more properly be regarded as objects of charity than, say, the beneficiaries of mutual insurance companies or of fraternal organizations.

It may also be questioned whether the taxpayers who support the so-called charitable institutions, directly or indirectly—which includes all residents of the State—can properly be said to be making charitable donations when the fact is that these "donations" are in the shape of taxes constituting a legally established liability and having no reference whatever to the presence or absence of any charitable inclination in the "donor."

The public provisions for the sick in hospitals, for orphans and for the aged and infirm in asylums, for the blind and deaf in special schools, for the irresponsible in State institutions, and even for those who have been impoverished through unemployment in hard times, it seems to us, are more properly to be considered as forms of social insurance organized by states, counties, or municipalities for their own benefit, just as schools, roads, and bridges are built, the police and the militia are maintained, etc. No one would assert that a person who sends his child to a public school to receive free tuition, or who walks across the Brooklyn Bridge without paying a toll, or who has occasion to call for and receives protection from the police, is an object of charity, in spite of the fact that he is the recipient of benefits provided by vast expenditures of public funds.

Schools, orphan asylums, old men's homes, hospitals, etc., may, indeed, be organized as charities, but such is, properly speaking, the case only when they are supported by the voluntary contributions of private individuals or corporations. And here it is safe to add that wherever in a democratic community a need exists for private charities for such purposes such need is due to imperfect organization

or misgovernment. And it is equally safe to add, further, that wherever a community neglects to make public provision for such needs of its citizens and depends to any considerable extent upon the charity of private individuals or corporations, these needs invariably remain improperly and inadequately provided for.

As a matter of fact, persons who, by reason of mental defect or disorder or by reason of physical disease or infirmity, are unable to support themselves, are fed, clothed, and sheltered by others, more fortunately situated, whether organized means for providing their food, clothing, and shelter exist or not; and when communities establish institutions for dependents it is not so much from motives of charity as from motives of prudence, as every one recognizes that any large problem can better be solved by means of an organized system than by the occasional sporadic efforts of individuals; or, in more pertinent language, the interests of public peace, safety, and economy, rather than impulses of charity lead states, counties, and municipalities to establish such institutions.

But here again the reader may ask, What special harm results from the use of the term "charities" in this connection, granting even that there is no reason, other than euphony, for retaining it?

In our opinion, paradoxical as it may seem, the term "charities" tends to defeat the very purpose for which it is employed, owing to the implied misrepresentation of facts and motives. When taxpayers or their representatives are asked for appropriations for "charities" the mere regard for their own interests, or those of their constituents, which is both natural and legitimate, dictates a restriction of any altrustic impulse within the limits of "moderation"; and if they do not happen to be charitably inclined they may even resent being thus approached. Indeed, as it is generally not the taxpayers themselves but their repesentatives in legislature that are thus approached, the moral right may be questioned of their yielding to an outburst of generosity in response to an appeal for charity by dipping not into their own pockets but into the people's treasury and in that manner disposing of public funds; it is but a truism of democracy that public funds can properly be used only for the welfare of the general public and not for any special class, even though that class may be the class of dependents.

Moreover, while the use of the term "charity" in this connection carries the false implication of a charitable motive, the true motive of public welfare thereby fails to be brought to the attention of the representatives of the taxpayers. It is not surprising, under these circumstances, that the institutions for the feeble-minded, epileptic, and other defectives are inadequate, that there are long waiting lists of applicants for admission living at large, a constant and growing menace to the public welfare.

Let not the reader conclude that we would eliminate charity from our lives, for nothing is further from our mind. Our contention is merely that charity is truly such when it is not strained, when it blooms of itself as a personal virtue and not when discharged as an ordinary civic duty in the shape of payment of taxes. When all that public welfare demands has been accomplished by communal action, there will still be enough left for the constant exercise of charity, more than enough, we fear, owing to its rarity.

As to the euphony of the term "charity," it may possess that quality for those who give, but for those who receive, unfortunately, it rather carries a stigma, far more often than not, without such stigma being actually deserved. Just as, to remove an unjust stigma, it was found desirable to take out of the county almshouses all the insane who were kept there as paupers, just as it was found desirable, for a similar purpose, to substitute "state hospitals" for "lunatic asylums," so it would be desirable to replace the "State Board of Charities" by say, a "State Board of Administration."

A Discussion of Some Objections.—The reader will have realized ere this that this program of psychiatric progress, if carried out, would result in a great extension of the duties and powers of the State Hospital Commission; the idiots, the feeble-minded, the epileptics, the dotards would be transferred from the state department of charities and from the county almshouses to the care of the commission; thousands of persons suffering from mental disorders who are now at large, being considered "not insane," would be received in institutions as additional cases to be cared for by the commission. In brief, the standards of care would be raised, the number cared for would be increased, the budget for construction and maintenance would be swelled enormously.

On our part, we admit that before we can expect this program to be favorably considered we must show, firstly, that public welfare would be sufficiently benefited by it to justify its adoption; secondly, that it would not be contrary to the interests of economy of public funds, and thirdly, that a feasible plan of financing could be devised and that it is not merely an Utopian scheme: the burden of proof is upon us.

The benefit that would be gained for public welfare by the sequestration of many persons who are now at large would be mainly in the shape of greater protection against vice and crime than even the best governed communities have hitherto enjoyed.

The relationship which exists between mental disorders and *prostitution* has been most carefully studied by a special commission created for that purpose by an act of the House of Representatives of the State of Massachusetts. We would quote the following from their highly interesting official report[2]: "The women examined were in three groups: young girls under sentence in the State Industrial Schools for Girls, the House of Refuge, and the Welcome House; those just arrested and awaiting trial in the Suffolk House of Detention in Boston; women serving sentence in the State Reformatory for Women, the Suffolk County Jail, and the Suffolk House of Correction.

"These three groups represent the young girls who have just begun prostitution, the women plying their trade on the streets at the present time and the women who are old offenders. The houses of prostitution, lodging houses, hotels and cafés named by these women as the places where they plied their trade are the same as those noted by the field investigators employed by the commission.

"The Binet tests were applied to 289 of the 300 women examined, and other psychological tests were used in doubtful cases.

"Of the 300 prostitutes, 154, or 51 per cent., were feeble-minded and 11, or 3 per cent., were insane. All doubtful cases were recorded as normal. The mental defect of these 154 women was so pronounced and evident as to warrant the legal com-

mitment of each one as a feeble-minded person or as a defective delinquent. At the Massachusetts School for the Feeble-Minded there are an equal number of women and girl inmates, medically and legally certified as feeble-minded, who are of equal or superior mental capacity.

"The 135 women designated as normal as a class were of distinctly inferior intelligence. More time for study of these women, more complete histories of their life in the community and opportunity for more elaborate psychological tests might verify the belief of the examiners that many of them also were feeble-minded or insane.

"Some of the women seen at the Detention House were so under the influence of drugs or alcohol as to make it impossible to study their mental condition. Others at the Detention House and in the prisons had used alcohol to excess for years, and in the time available it was impossible to differentiate between alcoholic deterioration and mental defect. These drunken, alcoholic, and drug-stupefied women were all recorded as normal.

"Of the 135 women rated as normal, only a few ever read a newspaper or book, or had any real knowledge of current events, or could converse intelligently upon any but the most trivial subjects. Not more than six of the entire number seemed to have really good minds.

"It has long been held that prostitution always has existed and always will exist, and that all remedies will be ineffective and of no avail, because it represents a variation of the most fundamental human instinct.

"Recent studies of prostitution and prostitutes in other cities, States and countries, and, in connection with this investigation, the study and analysis of 300 prostitutes individually examined for the commission, the observation of prostitutes and prostitution, and of the immoral young girls who have not entered prostitution in cities and towns all over the State, have convinced the commission that this evil is susceptible of successful attack and treatment. The fact that one-half of the women examined were actually feeble-minded clears the way for successful treatment for this portion of this class. The mental status of the prostitutes under arrest should be determined, and such of them as are found to be feeble-minded or defective delinquents should be placed under custodial treatment. Thus would these women themselves be saved from an evil fate, pimps and procurers would lose their willing prey, and a non-self-supporting class who find in prostitution their only way of earning a living would be taken out of the community.

"The recognition of feeble-minded girls at an early age in the public schools, and proper provision for their protection in the community or custodial care in an institution, would prevent much of the observed immorality among young girls and the resulting temptations to boys. Precocious sex interests and practices are well-known symptoms of feeble-mindedness."

Equally striking is the evidence of the relationship which exists between mental disorders and *crime*. As regards feeble-mindedness alone, for instance, Goddard[7] cites the following statistics of percentages of defectives found in various reformatories and institutions for delinquents by the systematic application of Binet tests: Rahway Reformatory, New Jersey, 46; Geneva, Illinois, 89; Ohio Boys' School, 70; Ohio Girls' School, 70; Virginia, three reformatories, 79.

The statistics of the United States Census pertaining to insanity and crime are also of interest in this connection.

The States of this country may be divided into two groups according to the number of inmates in insane hospitals in proportion to the general population. Since, for the present purpose, this is done to facilitate the study of the relationship which exists between crime and insanity, it would seem best to take into consideration only the male population at large and the male asylum and prison inmates: crime is not nearly so common, whether as a neuropathic manifestation or otherwise, among women as among men, the counterpart among women being sexual immorality, prostitution, illegitimacy, etc.

The first group of States, comprising Alabama, Arkansas, Colorado, Florida, Georgia, Idaho, Louisiana, Mississippi, New Mexico, North Carolina, North Dakota, Oklahoma, South Carolina, Tennessee, Texas, Utah, West Virginia, and Wyoming, has a total male population 10 years of age or over of 9,705,527; each of these States has less than 200 male asylum inmates per 100,000 of the male population 10 years of age or over, the average for the entire group being 140.9.

In this group of States the number of inmates in prisons, penitentiaries, jails, and workhouses, not including juvenile delinquents, is 31,290, *i.e.* 322.4 per 100,000 of the general population 10 years of age or over.

The second group of States, comprising Arizona, California, Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Vermont, Virginia, Washington, and Wisconsin, has a total male population 10 years of age or over of 27,190,148; each of these States has more than 200 male asylum inmates per 100,000 of the male population 10 years of age or over, the average for the entire group being 304.7.

In this group of States the number of inmates in prisons, penitentiaries, jails, and workhouses, not including juvenile delinquents, is 71,482, *i.e.* 262.9 per 100,000 of the general population 10 years of age or over.

The contrast between the two groups of States as regards the relative number of prisoners is sufficiently striking as revealed by the census statistics. But it is probable that the excess of crime in the first group of States is but partly revealed in these statistics; for it seems reasonable to assume that the facilities for the detection and prosecution of crime are in these States, like other social institutions, inferior as compared with those of the second group of States, so that a greater amount of crime remains undetected and unrepresented in the statistics of penal institutions.

However this may be, it seems certain that the inadequacy of the provisions for the care and custody of cases of mental disorder in the first group of States, regarded from its financial aspect alone, does not carry with it the advantage of economy, for what may be saved in expenditures for the maintenance of the insane is lost in increased expenditures for the maintenance of convicted criminals; it is, indeed, not unlikely that the loss is far greater than the saving.

To give the reader a more direct view of the evidence showing a relationship between crime and mental disorders we could do no better than to quote

from a report prepared by Dr. Anne Moore, in which several pages are devoted to a consideration of the crime of arson'.

"Arson is a common crime among the feeble-minded. . . . Many times thousands of dollars' worth of property are destroyed and many lives endangered before legal proof of guilt is established. On conviction these persons are often committed to penal institutions, only to be paroled and set free to repeat the crime; or they are left to serve long sentences which on their release do not act as a deterrent. The Fire Marshal of New York City tells me that a sufficient number of cases of pyromania have come to his attention to fill a special institution. Two cases have come to my knowledge in which feeble-minded children have set fire to the clothing of other children with fatal consequences.

"Between the dates of February 1, 1910 and July 12, 1910, sixteen fires occurred in the district bounded by Fifth and Lexington avenues and 108th and 119th streets, all in twenty-family, five-story tenements, and all of similar incendiary origin. These fires were traced to a feeble-minded youth who had no motive for the deed except a desire for excitement. When he visited one of the buildings to deliver goods his method was to light a bundle of papers which he had previously saturated with kerosene from a bottle which he carried with him, and leave them in the hallway, in a corner of the stairway, or in the cellar. He was caught and convicted on the sixteenth fire. He was declared insane and is now confined in the Central Islip State Hospital.

"A feeble-minded man, 25 years of age, started 45 fires within three months. The loss was estimated at a quarter of a million dollars. He usually left something burning in the airshaft or wood-bin. At his trial he was declared sane and was sent to Elmira. After 13 months he was released on parole and won his absolute release.

"A feeble-minded boy, living in Massachusetts, set fire to his grandfather's house. He saved himself by jumping from the upper window into a cherry tree. Afterwards, he set fire to a stable in Gloucester, Mass., and was sent to a reform school for two and a half years. After his release he set on fire, one by one, a row of houses owned by different clergymen, called 'holy row.' Later he burned a house belonging to the father of the district attorney, was caught, and convicted. He spent four years in Charlestown Prison. He became religious and was paroled on condition that he go to another State. He came to New York and for a time was under Mrs. Booth's care. Afterwards he set fire to a barn and to the Bayside Yacht Club. He was caught and convicted. He is now in Sing Sing.

"What this means in money may be gathered from following the evidence and proceedings in any case of arson, a common crime among mental defectives.

"(1) A building is set on fire with attendant danger to its dwellers, and loss of property to them and the owner.

"(2) The fire department is called out. Usually six companies, involving one battalion chief, 72 men, 4 engines, and 2 trucks, the police reserves, usually about 20 men, and an insurance fire patrol wagon with an officer and 10 men, respond to an alarm.

"(3) The offender is arrested by a police officer, after examination of material witnesses by a fire marshal.

"(4) After being taken to the station house the incendiary must go before the magistrate; and if brought to trial, with its attendant delays, much time of many different salaried officers is consumed as well as that of the material witnesses.

"(5) After conviction and before sentence is passed a probation officer may be asked to look into the history of the case, which will take at least a week. The sentence may be any length of time, up to 40 years.

"All this expensive machinery need not have been used in the case of feeble-minded incendiaries if they had been cared for in institutions at the proper time.

"That the segregation of defectives costs money is remembered; that it saves money is often forgotten. The initial cost of segregation would be great but the saving effected by correcting our present lax methods would be greater. As tax bills are not itemized the ordinary citizen does not realize that he is at present paying for the unrestrained presence of the feeble-minded. An added tax for their segregation would be an apparent rather than a real increase, for through segregation of defectives, the number of criminals, the number of prisoners, the cost of trials, the demand upon public and private charity would be decreased; and as control of hereditary conditions resulted in decrease in the number of defectives, and training rendered many of them self-supporting, the expenditure necessary for their maintenance would from year to year grow less. The feeble-minded at large are as dangerous, if not more dangerous, than persons suffering from contagious disease. No consideration of cost, of parental affection and responsibility, or of personal liberty, should be allowed to weigh against public safety."

We believe all will agree with us that the policy of dealing with vice and crime, which has been followed by States hitherto almost exclusively, on the principle of locking the stable after the horse is gone, can be improved upon. It will be found safer, more economical, and wiser in every way for every State to bring under control not only all actual criminals, but also, as far as possible, all potential criminals. And if anything is true in psychiatry it is that every person who has a mental disorder is a potential criminal.

But the greater protection and more efficient dealing with the problems of vice and crime are not the sole benefits to be gained for the welfare of the public by the adoption of this program of psychiatric progress. As we have already hinted in the introductory remarks, the time has come for psychiatry to join the new general trend of medicine, to be guided by the new ideal, the ideal of prevention. The most important cause of mental disorders being heredity, the most effective means for their prevention are those that would stop the transmission to future generations of the neuropathic traits of the unfit of this generation. Of the means that have been suggested to accomplish this end, legal restriction of marriage, surgical sterilization, and segregation, only the last mentioned has proved likely to be both efficient and generally acceptable to public opinion. Thus the increase in the number of State hospital inmates as contemplated in our plan becomes an act of public health, of mental hygiene. For, just as the New York State Department of Health is able to say, "Public health is purchasable: within natural limitations any community can determine its own death rate,"

so we are now in a position to say, "*Mental health is purchasable: the prevalence of mental disorders in the coming generations can be reduced with the aid of dollars and cents spent for segregation in this generation.*"

It remains for us to show that for this program a feasible plan of financing can be devised. We believe, indeed, that the entire program could be put in operation without any increase whatever of legislative appropriations.

As already stated, the benefits that hospitals and asylums afford are to be felt not only by the present generation, but also, and probably even to a greater extent, by generations to come. Large enterprises, whether of governments or of private corporations, are capitalized with the aid of public loans of long term, while capital that is otherwise available is used merely for current expenses of operation. Thus public schools, highways, canals, railroads, telegraph and telephone systems, manufacturing plants, power plants, mining equipments, etc., have been built with the aid of capital derived from issues and re-issues of long term bonds; and no one has questioned the equity of thus assuming debts to be paid by future generations. It is a curious fact that the establishment of institutions for neuropathic persons forms almost everywhere a unique exception. No State as yet possesses anything like adequate facilities for the care of its neuropathic persons. Yet every State could, without any added expenditure, easily double or treble its facilities with the aid of bond issues and thus make funds that are now expended for construction available for the maintenance of the increased number of its wards. In New York State alone the total legislative appropriations of special funds for new construction in the State hospitals and charitable institutions in the year 1912 was $3,210,304; while the appropriations desired for similar purposes at the 1913 session of the legislature were $5747,849.50.[5]

If the present generation could have the choice between having to pay for the maintenance of a large number of neuropathic persons and having merely to pay off the matured bonds issued by a preceding generation for the establishment of facilities of prevention, there would be no question as to its preference; but it has not that choice, for past generations acted against its preference. And should the present generation decline to incur a bond indebtedness to be paid off in the future and thus allow neuropathic persons to remain at large for lack of room in the institutions, its action would be similarly against the preference of future generations.

No other enterprise that the State might undertake could more fully justify the issuance of long term bonds than that of the construction of adequate facilities for the prevention, treatment, and custody of cases of mental disorder.

REFERENCES.

1. Nineteenth Annual Report of the Kings Park State Hospital, 1914.

2. Report of the Commission for the Investigation of the White Slave Traffic, So-called. February, 1914. House, No. 2281, State of Massachusetts.

3. Goddard, H. H.: "Feeblemindedness." New York, 1914.

4. The Feebleminded in New York. A report prepared for the Public Education Association of New York by Anne Moore, Ph.D. Published by the State Charities Aid Association, New York, 1911.

5. Annual report of the Comptroller of the State of New York, January 5, 1913.

TUBERCULIN THERAPY,

ITS PRESENT IMPERFECTIONS AND FUTURE IMPROVEMENTS.*

By FRANCIS M. POTTENGER, A.M., M.D., LL.D.,

MONROVIA, CAL.

MEDICAL DIRECTOR, POTTENGER SANATORIUM FOR DISEASES OF THE LUNGS AND THROAT; PROFESSOR OF DISEASES OF THE CHEST, MEDICAL DEPARTMENT OF THE UNIVERSITY OF SOUTHERN CALIFORNIA.

I DESIRE to discuss a number of different things rather than some single phase of tuberculin therapy. I am not a laboratory worker. My work has been almost exclusively clinical. What I know about laboratory work comes from study and association with those who work in the laboratory, and an attempt at the clinical application of laboratory methods and products.

Tuberculin has been in use for nearly a quarter of a century, and it seems strange that after all this time there are no definite, generally accepted ideas about it. This is partly due to a misunderstanding of the remedy and what is to be expected of it. In the first place, too much is demanded of tuberculin. We demand that it do the impossible. It may not immunize a guinea pig; it may not produce complete immunity; it may not cure experimental tuberculosis; and yet, it may be of value in the healing of human tuberculosis.

In order to understand the action of tubercle vaccines, their specific immunizing and specific stimulating properties must both be borne in mind. Tubercle vaccines are made up of many substances, such as proteins, fats, and toxins, which produce specific antibodies against themselves, and which, when administered in the proper proportions, we are led to believe, produce more or less immunity against the tubercle bacillus. Many of these substances when injected produce a specific stimulation of the foci of infection. It is to this specific focal stimulation that the healing is probably largely due. Therefore, while the various vaccines with which we have been working have failed to produce a high degree of immunity in experimental animals, except in rare instances, this must not be interpreted as meaning that the remedies have no healing properties. Clinical observation comes to our rescue at this point and prevents the wrong conclusion being drawn; for definite focal stimulation and healing has been seen to follow the administration of these same preparations which have failed to produce a high degree of experimental immunity.

Its most ardent supporters admit that tuberculin is far from a perfect remedy; but, if anyone will watch the clinical results of those who use it most successfully, he must see that sufficient unquestioned results have been obtained to show that tuberculin does have value in the healing of tuberculosis. The results which tuberculin can produce must be judged by the very best that have been obtained; whether or not it is a practical remedy and can be used generally, is a different question. If a given clinician or many clinicians obtain results with tuberculin which others cannot produce, it does not necessarily mean that tuberculin is at fault. It is more likely the physicians who are at fault. In my personal experience in the clinical use of tuberculin in tuberculous laryngitis, I have had exceptional opportunity to prove its worth; and I am

*Read before the first annual meeting of the American Society of Immunologists, Atlantic City, N. J., June, 1914.

able to say that I expect practically every case of tuberculous laryngitis in patients in whom the pulmonary disease is in an early stage, or, if advanced, not active or only slightly so, to become arrested. I have never seen such results without tuberculin. I am so positive of the clinical value of tuberculin in my own practice, that I would not feel that I was doing justice to my patient if I withheld it. On the other hand, I see many men whom I feel are doing harm in using it. It is not the remedy which is successful in one instance and failing in the other; the difference is in its administration.

I desire to refer to the often quoted fact that tuberculin fails in experimental work. There are many things to consider. There is a difference between guinea pigs and rabbits; a difference in different guinea pigs; a difference in different cultures employed; a difference resulting from differences in media, one culture producing a tuberculin differing in the various constituents from that produced from another culture. There is also a great difference in the method of administering the tuberculin to the animals.

Aside from this experimental tuberculosis, at least that which is produced in guinea pigs and rabbits, is tuberculosis on virgin soil, the animal not having developed any immunity from previous inoculation. Naturally such a tuberculosis is rapid in its course and shows little tendency to heal. Tuberculin might fail absolutely in the production of healing or in protecting these animals and still be of great value in the treatment of the chronic form of tuberculosis as we find it in human beings, particularly in adults and children after the first year or two of life, who have taken into their bodies tubercle bacilli so long that they have developed a marked resistance to the disease.

If we take these facts into consideration we see that many difficulties have operated against the production of satisfactory or even constant results. We have not only failed to understand tuberculin, we have failed in its application. Improvements in its use depend upon better observations by the clinician. We can not produce the best results in the use of any remedy by routine methods; yet, there is a tendency for clinicians to treat all tuberculosis alike. One patient reacts differently from another, and it must be understood that a dose suitable for one patient may not be suitable for another. If we give a dose of tuberculin once a week, twice a week or once a month, or twice a month, or if we give a set dose at each administration, we are administering tuberculin but not treating tuberculosis in the most intelligent way. Clinicians must study carefully the question of dosage, the intervals between doses, and the manner in which these differ according to the different pathological conditions present if they are to obtain better results and make progress. To make my meaning clear, I would not treat tuberculosis of the eye the same as I would an incipient pulmonary lesion; nor would I treat the latter as I would an advanced lesion with tendency to activity. Individualization must be carried on with regard to both the patient and the pathological lesion.

As to reaction, the same reaction is not obtained with different preparations; for example, with B.E. as T.R. or O.T. The same reaction does not occur in one patient as occurs in another. Variations must be expected. If progress is to be made in the specific treatment of tuberculosis, improvement must be made both in the laboratory productions and their clinical application. It has been accepted for the past few years that tubercle vaccines are all the same qualitatively, and that the real difference is in their administration. We now know that there are also essential differences in the constituent portions of the various preparations, that the proteins, the fats, and the toxins are present in different amounts and different degrees of availability. The reaction differs according to the varying amounts of the different constituents which the vaccine contains. We are not dealing with a certain standardized product. I believe, however, that if we can produce vaccines which approach a definite standard, that we will have more uniform and more certain results. Such work as that of Vaughan separating tubercle bacilli into different proteins, one soluble and one insoluble; that of Much in producing the various partial antigens belonging to protein, fat, and toxin groups; that of von Ruck in the isolation of several proteins; and the proof that these constituents differ and that most of them can be made to produce antibodies specific against themselves, to my mind, is pointing the way to future improvements in the production of specific tubercle vaccines. The work of such men also shows us where some of our difficulties have been. Another source of error is in our attitude toward the laboratory. We are apt to think laboratory work is absolutely accurate. When one carefully considers the facts, he will find that laboratory work may be no more accurate than clinical work. Laboratories, no matter how carefully conducted, have their errors.

The solution of the problems of the immunization against, and cure of tuberculosis in human beings, is the province of the clinician, and he must be careful not to be misled by depending wholly on the laboratory. A man who works wholly in the laboratory should not be expected to be as accurate in his clinical observations as the clinician. His clinical interpretations would be subject to much error. Neither must the clinician be expected to do the best laboratory work. The best results in tuberculosis should be obtained by a union of forces between the clinician and laboratory man, both studying and working together. A good illustration of the danger to scientific observation when made by an inexperienced clinical observer is the following: During my visit to the laboratory of one of our greatest bacteriologists a few years ago a woman came from quite a distance to be treated for tuberculosis. He gave her an injection of tuberculin, after which she had quite a fever. He said this was a negative phase caused by too big a dose. I asked him if he did not think it was probably due to her trip since she rested at home all the time, except when coming for treatment. He replied in the negative. His view was too narrow. It needed the broadening of the clinical observer.

It is generally believed that the only way to test a scientific discovery is by approaching it with an unbiased mind. This unbiased mind as a rule proves to be a hostile mind. To prove the value of preparations such as tubercle vaccines, it is just as important to be in sympathy with the remedy and to have an interest in the disease and patient as it is to assume a critical, hostile attitude. If one's observation goes contrary to the things that are reported it does not necessarily mean that he is wrong. We must bear in mind in our study of immunity that there is very little that is not changeable or cannot be questioned.

One important point which offers hope for the future in the specific treatment of tuberculosis is that we now know that vaccines contain many important substances which help to build up a complete immunity; and further, that different preparations contain these given substances in varying quantity. It is the duty of the laboratory to produce and the clinician to test these various constituents and then see if a more perfect remedy cannot be derived. The clinician should observe more carefully than he has in the past. He has been overawed and overshadowed by the laboratory, and he has failed to make the progress that he should. He should observe every change that follows his injection himself and not depend on the laboratory to tell him of it. The clinician should test the facts produced by the laboratory, and the laboratory worker should suit his work to the clinician's needs, heeding his observations, and trying to produce something of practical value instead of continuously going over and accepting certain things as proven and unchangeable, for progress is made in medicine only by doing what has hitherto seemed impossible.

SOME DESULTORY PERSONAL OBSERVATIONS ON PERINEORRHAPHY, PUERPERAL SEPTICEMIA, AND PAIN.*

By J. MILTON MABBOTT, M.D.,

NEW YORK.

CONSULTING OBSTETRICIAN, NEW YORK NURSERY AND CHILD'S HOSPITAL.

The Proper Needle for Immediate Perineorrhaphy.

By the term immediate perineorrhaphy I mean perineorrhaphy usually within thirty-six hours, not necessarily on the first day. I wish to refer to the subject on this occasion because I know that certain supply houses still put on the market catgut sutures for perineorrhaphy already threaded into half-curved or even full-curved needles. In a paper read before the Hospital Graduates' Club some years ago I exhibited charts illustrating my ideas of the mechanics of deep sutures, and I demonstrated how difficult or impossible it is to introduce deep perineal sutures properly with anything but a long straight needle but slightly curved near the point. I stated that Emmet and Goffe had both emphasized the importance of using such a needle. Further experience and the results of imperfect or unsuccessful repair of the perineum, as observed by me during many years of service in the Out-Patient Department of the New York Hospital, have confirmed my views on this subject. On October 29 of this year I saw a pretty bad example in a patient delivered under "twilight sleep" in a New York City hospital just one month before. (On November 12 there was still a granulating ulcer in the vagina.) My paper with illustrations was published in the *New York Medical Journal* for April 14, 1900. I have nothing to add to or retract from the views there expressed. They were summed up as follows: "Make the sutures include enough tissue on both sides of the wound to exert their greatest traction in the right direction and hold the wound surfaces together in their natural relations." To do this easily a proper needle is essential.

*Read at a meeting of the Hospital Graduates' Club, November 19, 1914.

Heterogenous Vaccines in Puerperal Septicemia.

We now come to the question of vaccines. On this occasion I am not citing authorities and literature, but in this audience the statement will pass unchallenged that the medical profession has been pretty thoroughly warned not to expect much good from vaccines in the treatment of septicemia except when of the autogenous variety. I desire to report a case—very imperfectly, I regret to say—in which a brilliant result followed the use of a stock vaccine. Before doing so I may be pardoned if I endeavor to influence opinion in my favor by stating that our esteemed colleague, Dr. Francis Carter Wood, in private discussion, fully endorsed my position, recommending the use of such vaccines in urgent cases; at least until autogenous vaccines can be prepared.

Mrs. A. B., 37 years old, native of Italy, has had five previous children and several miscarriages. She has had bad leucorrhea for some years. On May 14, 1913 her husband called me up on the telephone about 8 P.M. and said the waters had broken, but the patient was having no pains; he wanted me to be where he could call me if they began. Three hours later he called me again, and responding at once I found the patient in labor at full term, and remained until the birth of the baby at 3:25 A.M. May 15 (the secundines following at 3:37 A.M.,) and for more than an hour afterwards. All examinations were made with sterile glove out of lysol solution, one-half per cent., and a bichloride solution, 1:4000 was used externally. A large amount of blood, probably forty ounces, accompanied the afterbirth. The patient suffered terribly with all labor pains until relieved by chloroform and also with afterpains; for the latter, codeine and ergot were administered with fairly satisfactory results. Septic symptoms developed on the third day. I attribute the infection to the previous condition of the cervix. On May 18 the afternoon temperature was 102° F. at 5 P.M. A dose of castor oil was followed by free catharsis and the temperature on May 19 had fallen to normal, 99° F. at 2:30 P.M. But the next day there was fever of 101° at 2 P.M. and I thoroughly explored and cleaned out the uterus with two fingers, using a douche at the same time of bichloride solution (about 1:10,000) followed by a weaker solution (1:16,000). There was very little débris but considerable odor. The next afternoon, the seventh after delivery, pulse was 88, respiration 24 and temperature 103°. I gave a vaginal douche (1:6000) and an intrauterine douche (1:12,000) at 2 P.M. On the eighth day temperature was 100.4° at 3:30 P.M. and I felt greatly encouraged. But the following day, with a pulse of 108 and respiration 26, the temperature rose to 104.2° at 2:15 P.M. There were no signs of peritonitis, or local foci of infection, and liquid diet and supporting measures, including quinine, without further local treatment, were relied upon for the ensuing twenty-four hours. We had now reached the tenth day after delivery. In the middle of the day, about 2 P.M. the patient had a very severe and prolonged chill and at 2:45 P.M. her pulse rose to 144, breathing 48, and temperature 106° F. The woman had a terrific headache, was greatly excited and exceedingly frightened, believing she was certainly going to die. I gave another intrauterine douche, employing a solution of corrosive sublimate (1:8000) followed by a weaker one (1:16,000), thoroughly drained out by posture and manipulation. I then secured a reliable stock vaccine containing seven hundred million killed bacilli, composed of four hundred million staphylococci, one hundred million streptococci, and two hundred million colon bacilli. This was injected, as I remember, into the subcutaneous connective tissue of the lower part of one side of the chest. There was some delay in finding a consulting obstetrician and failing to locate several whom I knew I secured the services of Dr. G. Ippolito, consulting obstetrician to the Italian Dispensary, who examined the patient and approved the treatment with two special recommendations: first that no more douches be given as he found the uterus perfectly clean; second that no more vaccines be used as he did not believe in them. I told him I was quite willing to follow his advice in regard to the douche, as

I had followed my treatment as far as I considered desirable, and that I was fully satisfied for the present in regard to the vaccine as I had given what I believed to be a sufficient dose, especially as the patient's temperature was now receding: but I told him frankly that otherwise I would not have been governed by his advice without further consultation. The temperature at 3:45 P.M. had fallen half a degree and, when Dr. Ippolito saw her with me at 6:20 P.M., a whole degree, to 105° F. Dr. Ippolito recommended ergot, digitalis, continuing bromide and chloral, etc. At 9:45 P.M. the temperature was down another half degree and the patient was resting comfortably. On the following day the pulse, respiration and temperature respectively were: P. = 84, R. = 24, T. = 100.6°, at 10:30 A.M.; P. = 78, R. = 20, T. = 99.2°, at 4:15 P.M.; P. = 78, R. = 22, T. = 99°, at 9:40 P.M.

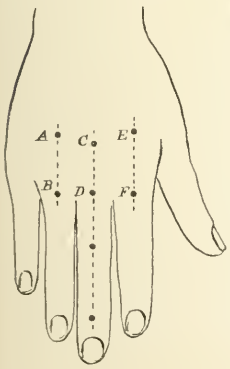
On Monday, May 26, forty-eight hours after the crisis the woman's pulse was 72, respiration 18, temperature 99° F. and thereafter the temperature ranged from 99° to 98° F. The woman made an uneventful recovery and was able to nurse her baby.

I have never lost a patient from sepsis in private practice, nor in fact under any circumstances where the patient has been under my own care exclusively. But I shall always be glad that a vaccine was available in addition to all other remedies in this spectacular case.

The Need of Better Judgment in the Infliction of Pain and Better Facilities for Its Relief in Medical, Surgical and Obstetrical Practice.

In an article on "Improved Methods of the Twentieth Century Doctor," in the New York *Tribune*, Sunday, September 24, 1905, it was observed that "patients who now fall asleep upon the operating table and awaken to find their broken bones set or ruptured organs in place cannot realize the agony of their forefathers who were conscious of every move of the surgeon's hand." Dr. James Gregory Mumford's narration of his own sufferings while undergoing an amputation was related as one of the horrors of a past age.

I wish to call attention to the fact which has been impressed upon me in various ways that a good deal of unnecessary suffering has been inflicted upon the modern surgical patient, even within the twentieth century. I am thankful to state, however, that my record of the following case bears a date in May, 1901: and perhaps the more general availability of nitrous oxide anesthesia and other advantages in recent years has closed the record of similar cases.



Yesterday afternoon, May —, 1901, about 3 P. M. I had occasion to call upon Dr. X. in one of the surgical rooms of the dispensary of a certain hospital in one of our largest American cities. Dr. X. was about to operate upon a bad case of septic cellulitis of the hand, the patient being a man apparently about forty years old. He stated that incisions had previously been made in the hand by some one out of town. Dr. X. injected subcutaneously in several places a solution of cocaine. The solution was apparently injected only very superficially, in fact into the deep layer of the skin rather than into the deeper connective tissue, at about eight points (indicated by the dots) on the dorsal surface of the hand.

Deep incisions were then made in about the situation indicated by the dotted lines . . . . . The middle incision C—D liberated a large amount of thick pus (probably at least an ounce). The incisions A—B and E—F were each probably 1½ inches in length. They were made after the incision C—D. When these three incisions had been made, Dr. X. introduced the handle of his scalpel into the incision A—B, underneath the intervening flaps and apparently close to the dorsal surface of the metacarpal bone of the second finger, bringing the said handle out of the wound E—F, thus making a free opening for thorough drainage between the incisions A—B and E—F.

During the two or three minutes in which the above procedures were being performed the patient gave evidence of great agony; he strained every muscle in an attempt to prevent outcry; he became red in the face with the supreme effort to endure the pain and cried out (as nearly as I remember, and I think I quote exactly) "My God, Doctor, are you near done?" But the worst was yet to come. Dr. X. thrust the handle of the scalpel deep into the middle wound; then withdrawing it he introduced the closed blades of a pair of rather large scissors into the same wound. The man was now thrown into a complete convulsion; he stiffened out upon the chair, or stool, upon which he was sitting; his head descended and his feet arose from the floor so that his rigid body balanced across the seat; his respiration was snorting and for a few seconds he was evidently unconscious in a convulsion. The nurse and an assistant steadied him to prevent him from falling to the floor and Dr. X. quickly turned the hand partly over and causing the end of the scissors in the dorsal wound to project toward the palm as a guide, made a counter-opening in the palm by cutting down upon the end of the scissors with a scalpel, thrust the scissor blades about an inch through the opening and stretched the opening by separating the blades three or four times. This was just completed as the man gave evidence of returning consciousness by sitting more erect, letting his feet drop to the floor, and asking (again in dread or agony) "Oh, Doctor, are you done, are you done?"

Why should not a general anesthetic have been given for this extensive operation on an infected, inflamed "pus-hand"?

About half an hour later Dr. B. and myself witnessed Dr. X. in the act of disarticulating the distal phalanx of the left index finger of another man, in which case also the patient gave evidence of great suffering. Dr. X. said he did not think he was hurting him much, but Dr. B. remarked that "we had better ask the patient."

The foregoing history was written within twenty-four hours after witnessing the occurrences.

Referring to the relief of pain, I once saw a patient suffering with dysmenorrhea who required artificial respiration for more than two hours to save her life, after two 12-grain powders of antipyrine, self-administered, followed by two hypodermic injections of morphine, each ¼ grain, two hours apart, given by physicians on account of her apparently unabated paroxysms of agony. This case illustrates the need of better judgment in the relief of pain. It is only fair to state that the physicians were misled by the statement of the patient that morphine had been administered to her in full doses on previous occasions.

Not to weary you further with the history of an obstetrical case, to complete the consideration of the three divisions of practice, medical, surgical and obstetrical, in all of which our means of relief are inadequate, I will simply remind you of my statement in an earlier part of this paper, referring to the case of puerperal septicemia, that "the patient suffered terribly with all labor pains until relieved by chloroform, and also with after-pains."

The three cases thus related were all unusual; they were all cases of extreme suffering. There are doubtless many cases of minor surgery and obstetrics, as well as painful ailments, for which present

methods of treatment are fairly or entirely satisfactory. But for severer cases of suffering, always bearing in mind the importance of "safety first" and the baneful immediate or later results of some of our remedies, we are bound to acknowledge the need of better facilities for the avoidance and relief of pain.

Crile's anoci-association method of anesthesia does not fall strictly within the scope of the discussion of this paper, since its purpose is to avoid shock rather than pain in cases where pain would be fully relieved or avoided under the measures for which the anoci-association is a substitute.

The morphine-scopolamine anesthesia of Krönig and Gauss, popularly known as "twilight sleep," in obstetrics, on the other hand, comes definitely within our field of consideration. The latter was presented before the New York Obstetrical Society in an exhaustive paper by Dr. W. H. W. Knipe, October 13, 1914 (to be published in the *American Journal of Obstetrics*). The paper was somewhat fully discussed. Dr. Cragin summed up the situation from his own standpoint and experience by saying that the method has its disadvantages as well as its advantages, and that he is not yet prepared to employ it in private practice.

The equipment of dispensaries with apparatus for the administration of nitrous oxide, or gas-oxygen anesthesia, is a very important improvement. We should demand and employ the best facilities now available. Let us cherish the hope that the future will furnish better and better facilities; for, as Milton said, "Pain is the worst of evils, and excessive, overturns all patience."

My purpose here, as you perceive, has been not to exphasize the truly wonderful accomplishments of recent years, but to demand their employment where safety permits, and to express the hope that, as we grow in knowledge and experience, better judgment and better remedies shall enable us to render better and better service to suffering humanity.

19 Fifth Avenue.

THE PSYCHOLOGY OF THE TUBERCULOUS.

By SOLOMON BAUCH, M.D.,

BEDFORD HILLS, N. Y.

PHYSICIAN TO THE BEDFORD SANITARIUM.

Whenever in the history of medicine the conditions of man create a new malady which is misunderstood or the cause of which is unknown, and its ravaging effects unconquered by the scientific intellectuals, these in turn coin words or phrases which tend to cover their ignorance. We are taught to use such words as malaise, discrasia, hysteria, etc., and we usually resort to the phrase "psychic traits" as our savior whenever we are confronted with an obscure symptom complex.

In this paper the writer wishes to discuss the question, whether the "psychic traits" complicating tuberculosis as mentioned by various writers on the subject are peculiar to the tuberculous, or whether we can detect similar psychic phenomena in patients afflicted with other infectious and organic diseases. It is also necessary to ascertain whether it is the toxicity in the blood of the tuberculous generated by the tubercle bacilli which produces in the patient such "psychic traits" as alluded to, or whether we can find other causes which are prior to the patient's contraction of the disease and which would account for such psychic peculiarities.

In a year's experience at the Bedford Sanitarium, the writer has obsesrved that it is as difficult to form a type of the tuberculous as it is hard to pronounce the people in the "melting pot" as being of one species or rank. Each individual in the sanitarium is a type, a mind, and a character unto himself. These people bring with them the stigmata of their past education and environment, and their hereditary influence, also their present knowledge, intellect, and temperament.

The circumstances surrounding a person afford sometimes a greater "vis a tergo" than his own reason. When one is a tuberculosis specialist all the complications and affections in a tuberculous subject seem to him to originate from, and usually to have a direct relation to consumption. Such a narrow view is equally held by the syphilographer, the surgeon, and the internist.

There is no greater mistake in medicine than for a specialist to dissociate his so-called specialty from the other branches of medicine. It is as great a fault to associate any complication arising during the course of a disease or one overlooked by the examiner with one's speciaity without entering in a thorough manner into the causes and effects.

Many writers who wrote on the relation of the "psychic traits" of the tuberculous patient to tuberculosis would attach invaluable significance to one sort of traits, others to another sort of psychic peculiarities. One writer thinks that extreme egotism is a predominant trait in the tuberculous, not as a complication, however, but more as a result of the effect which the toxins circulating in the blood produce.

The same writer does not fail to mention that the tuberculous patient might present other traits such as optimism, mental brilliancy, a feeling of euphoria, and a belief in euthanasia, but never letting loose from his strong hold on the theory that the toxins are the only and sole factor in creating such traits. Other writers have found that the tuberculous patient is abnormal, that some of these patients border on insanity, that other patients show manifestations either of depressive dementia, or hypochondria, of paronoia, or of extreme pessimism. The writer wishes to remark here and now that whatever seems inexplicable in the science of etiology of certain pathological conditions, these poor, misguided, phantasmagorical toxins are always blamed.

To deny the fact that "psychic traits" are found in the tuberculous is to deny the truth of the Newtonian law of gravitation or the Copernican system. To attach so much importance to the tuberculous toxins as a cause of these "psychic traits" means that the writer must deny himself the privilege of claiming to possess a mind which has the capacity to observe, reflect, reason and think.

A few examples of patients who were observed by the writer at the Bedford Sanitarium will prove to the reader the soundness and accuracy of his claims.

Mrs. K. was of a very irritable nature. She was one of those people whose exactness of purpose and action stimulated in her an extreme nervousness and a quick temper. She was always dissatisfied and discontented with her lot. She simulated more a dyspeptic than a tuberculous patient. Her anamnesis tells us that she was that way a good many years prior to her contracting consumption. In her case it is more likely that such a disposition would render a person susceptible to phthisis pulmonalis rather than that the converse of it be true. She had, though, one virtue, which overbalanced her many vices. She possessed intelligence. The patient died a few months ago. A striking exam-

ple of control this patient showed a few days or weeks before her demise, when in agonies of pain she would always control her complaints in the presence of her young daughter who would visit her frequently, and this alone overthrows the idea of tuberculous toxins producing the sense of egotism. This woman, in whom her sufferings and the severe attacks of coughing might have created a bitter feeling against all humanity, and made her apathetic to the needs of her own children, showed a heroism which cannot be surpassed. She utilized the two great factors of her intelligence —courage and love. To spare her children she would not utter a groan, and her conversation would turn to any subject other than the one most pressing, namely her malady. As soon as these beloved ones would leave the bed, just so soon could be noticed a metamorphosis in her appearance and attitude toward the bystanders. She no longer tried to conceal the evidence of excruciating pain, severe dyspnea, and extreme dysphoria.

Mr. G., a man about forty, of good character and sedentary nature. Prior to contracting tuberculosis he was a very loyal and faithful husband and father. He toiled for twenty years without a single holiday. He possessed two vices, smoking cigarettes to excess and indulging moderately in alcoholic beverages. To counteract these vices, he possessed a keen intellect and splendid acumen. No sooner did he discover that he was a victim of this plague, than he began to read about it and having found out its tendency to chronicity or fatality, he changed by virtue of his reasoning. He became the real egoist, neglecting his family and being indifferent to their needs. He became an inebriate, smoked the more, and died a speedy death. His reason for this sudden change was that he was grasping the opportunity to enjoy for once a vacation, since there was no hope that he might survive his trouble. Regarding the treatment of his family he claimed they could live long after he was gone and in time even forget that he ever existed at all.

Mr. S., a young man, a recent graduate of a college, is sagacious, ambitious, and efficient. He is very conscientious in whatever he undertakes to do, and probably as a result of this, he contracted tuberculosis and he is now doing very badly. He is in the third stage of the disease, extremely dyspneic on the slightest exertion, very cyanotic, anemic, and emaciated, but he expresses a sense of euphoria whenever the question about his health is put. He claims he is in need of activity and that nothing is seemingly too difficult for him to do when forsooth the best thing he can do now is to lie absolutely relaxed in a supine posture. What is in his mind is hard to discern. He is not a fool in matters other than that touching his trouble, but he is almost bordering on paranoia when his disease is the subject of discussion. This mental attitude could be explained only by the fact that his brain is of much sounder health than his soma. It is the struggle between the ego and the me—between the subjective personality and the objective being. It is the strife between his cellular potentiality endeavoring to assert itself and the disease combating it. He does not fight for life's prolongation, but for what life would convey to him and to his world should he be able to give it expression.

Miss K., a young woman who is of a reticent, sedate, and passive nature. Her mental as well as her physical resistance is below par. She is now in the domain of phthisis florida. Her nature plus the disease has robbed her of the "will to live" and she is consequently an extreme pessimist bordering on melancholia and probably, if her condition be prolonged, on depressive dementia.

Mr. C., a married man whose material circumstances caused his family to live on charity. He has a moderately advanced tuberculous lesion and seems to be aware of the fact. This man is of a garrulous and sprightly nature. Life to him simulates happiness. He has no past and no future, the only time worth while to him is the present. This present according to his views has to be utilized to the best of his advantage and it is not worth while being disturbed by no matter what misfortune may befall him. He is an epicure incarnate. Disease, poverty, degradation, and humiliation are not found in his vocabulary.

All the examples mentioned above are a select group of individuals who help us see the psychic traits in their full bloom and their "raison d'être." In tuberculosis, as in other diseases, each patient is an individual unto himself. The psychic traits of these individuals may stand out more prominently in the tuberculous than in any other chronic disease, but the reason is self-evident; consumption is more common, its effects are more easily felt, and its ravages more known to the laity than those of other diseases.

The fatality of the disease and the ease with which the knowledge of such sad fact is spread renders the victim more susceptible to suggestion of any sort because the "urge to live" is more or less implanted in every one of us.

Then to judge hastily and classify the tuberculous as abnormal, as one writer has done, is to brand the victim of phthisis pulmonalis with a cruel and heartless epithet. They are not abnormal but sick, and they need the help of the physician to lessen the effects of any threatening phychic trait which is undesirable and dangerous to the patient's health.

The attention paid to the tuberculous patient and the confidence exacted from him go a long way in alleviating the sufferer. We can not, therefore, put the tuberculous in a particular mental category, but it remains for us to study each one's nature and direct our therapy in accord with his nature.

CATATONIC STATES IN MANIC DEPRESSIVE INSANITY.*

By JOSEPH SMITH, M.D.,

BROOKLYN, NEW YORK.

SENIOR ASSISTANT PHYSICIAN TO THE LONG ISLAND STATE HOSPITAL.

In 1874 Kahlbaum described as a disease entity a condition which he named catatonia and which presented the following group of symptoms: stupor, mutism, negativism, stereotypy, mannerisms, impulsive actions, automatic obedience, and muscular rigidity or flaccidity. The disease occurs in the young and terminates in dementia. Later, Kraepelin, taking into consideration the final outcome of these conditions, included the cases showing a few or all of these symptoms into his great group of dementia praecox. Experience, however, has shown that catatonic symptoms may appear in cases which do not deteriorate. They may also occur in the symptomatology of senile psychosis, involution melancholia, and epileptic psychosis. Thus we were forced to the conclusion that catatonic symptoms per se do not justify diagnosis of dementia praecox. The greatest difficulty, as far as differentiation is concerned, is presented where this symptom complex appears in, or dominates the course of, a manic depressive psychosis. Hence, it is unsafe in the presence of this symptom to prognosticate. Of greater moment is the *character of the onset* of the psychosis and the *soil* on which it is engrafted. Given an individual of a generally lively disposition, an active, energetic and "open" personality, a rapid onset of the catatonic symptoms, and you may safely prognosticate a good outcome. When, on the contrary, the disease appears to develop rather slowly in a person with "shut in" tendencies, you may suspect a deterioration process. Kraepelin, who devoted a great deal of space to the differentiation between catatonic stupor and manic stupor, had to recede from his former position, inasmuch as a wider knowledge had convinced him that a good many cases he formerly classed as dementia praecox belong to the manic-depressive group. Certain

*Read at a meeting of the Brooklyn Neurological Society, December 2, 1914.

phases, however, of catatonia such as mannerisms, stereotypy, echolalia, and echopraxia are distinctly dementia praecox reactions. Now, I wish briefly to review a case in our service which will illustrate my preliminary remarks:

M. K., admitted November 19, 1910. Family history.—Mother is suffering from manic-depressive insanity. Personal History.—Patient was born in Austria in 1894. He was 16 years of age at the time of admission. He is the oldest of a family of seven children. He came to the United States four years ago, and attended public school until a year and a half ago. The patient developed normally, was bright and active. Onset of Psychosis.—Five days before admission he returned home from work feeling nervous. He stated Hospital, whither he was sent for observation, he answer questions; asked his sister to administer poison to him; thought he was followed by detectives; cried; took little nourishment; slept poorly. He said: "Let us (meaning the whole family) kill ourselves, then we won't have any more trouble." At the Kings County Hospital where he was sent for observation, he answered questions slowly, complained that people on the street and in cars looked at him in a peculiar manner, children throw stones at him; he felt sad and worried, and wanted to die. He refused food because he thought it would collect in his stomach, and it may eventually kill him. He thought the examiners were detectives. When admitted to the Long Island State Hospital his memory and orientation were intact. He expressed the idea that his sisters and his father's business partner put poison in his food. He said his heart and his head were affected. He sat about the ward taking no notice of what occurred about him. He said: "I will tell you the truth; I don't know what my name is. I told you what it was, but I was told by good people that I did not know what I was talking about." Some of his replies were silly. He was afraid that mice, cats, and cows would kill him because he did not feed those animals while in the country. He felt despondent because he did not act on his father's advice not to eat sweet potatoes, etc. He was going to be harmed here because he harmed others. In December there was some improvement noticeable, though he was retarded in his speech, and he complained of a general weakness and some difficulty in thinking. In January he became again depressed. He was very quiet, and very little information could be obtained from him. He said he worried about being in a strange place, that he was afraid. In February he became mute, negativistic; had to be put to bed and tube fed. There was no change observed in March. He was still mute, would hold saliva in his mouth, would stand for hours in the same place on the ward. At times he would refuse food entirely, on other occasions he would eat only stale bread. In April he had an attack of facial erysipelas, from which he made a good recovery, and early in May he was still catatonic but took food voluntarily. Improvement began in June. In July he became somewhat elated, mischievous, interfered with other patients. This condition, however, was of a transient nature, and he was discharged in September as fully recovered. He remained well, and was steadily employed up till April 20, 1913, when he began to complain of not feeling well, went to bed, and remained in it for nearly two days. Then he became talkative; said he would make lots of money and would support the whole family; he was restless at night, became aggressive, struck his sisters, and his commitment followed. On admission, he was loquacious and elated, gave utterance to grandiose ideas. He told the examiner he was worth $2,000, and that he could make a million dollars out of the newsstand he had. His memory and orientation were excellent. In his spontaneous utterances he exhibited flight of ideas and some distractability. He was quick to respond to direct questioning, but his answers were replete with unnecessary detail. He performed multiplication tests quickly and correctly. His attention could easily be obtained. He had a subjective feeling that he was nervous. For a few days after admission he was confined to bed, but he was restless, interfering, and voluble. Early in May he became mute; would hold saliva in his mouth; he was dull and listless. His muscles were flaccid. He offered no resistance; there was no negativism shown, but he would stand idly about in one position, or sit in a chair with his head bent for hours; refused food, and was tube fed. A few weeks after this he became talkative one morning, but when the physician approached him he again became mute. At times he would eat his meals heartily; then again he would refuse all food. He remained in bed inaccessible until late in June when he began to converse, but his answers were given in a slow manner. Since that time, however, patient has been steadily improving. He showed a surprisingly good memory for events that occurred since his admission to this institution. Interest in surroundings slowly returned, and at the time of his parole, Oct. 18, 1914, he had recovered completely. He showed good insight; explained his delusions on a rational basis. At the present time he is working at Rockaway, Long Island.

Summary.—We have here a recurrent psychosis in a young individual. The first attack was initiated by depression, the second by exaltation. In each attack the most striking features during the course of the disease were the catatonic phenomena, almost alike in both attacks. Recovery followed each attack, and there is not the slightest evidence of any deterioration in him. There cannot be any doubt as to the diagnosis of this condition—manic-depressive insanity—the recurrence of the attacks, the depressive and exalted phases, the termination in complete recovery are decisive. What I wish to emphasize here are the catatonic features which have for a time obscured the manic-depressive picture. The greater lability of mood, the rapid onset, the "open" personality, the mild manic features in the second attack, and the depressed mood in the first are the real criteria for diagnosis. The delusions of the patient play an insubordinate role in the psychosis. He who would not be accused of rash diagnosis should take cognizance of all the symptoms in a given case, and pay particular attention to those features which I have here discussed and emphasized.

SOME PECULIAR MOULD DISEASES.

By B. G. R. WILLIAMS, M.D.,

PARIS, ILL.

In the routine of diagnostic laboratory work, moulds have usually been considered extraneous and without pathological significance. While every mould found in these specimens cannot be considered worthy of note, now and then it happens that they appear in large numbers even in fresh specimens, that other parasites are absent, and that recovery or relief from symptoms follows their disappearance.

Some moulds, as those of certain skin diseases, have been classified as parasitic for man; but in the case of others biological exaltation has been overlooked, it being inferred that, if they have any significance, they are merely secondary invaders, such foothold being made possible by virtue of the presence of true pathogenic percursors. Or a more frequent explanation is that for various constitutional reasons (often assumed to exist) the body resistance has been lowered and that semiparasitic fungi are thus permitted a foothold. In either case it is usually agreed that any foothold gained by moulds (save the few distinctly pathogenic ones) is very insecure, and that if possible to reach them by proper treatment they are easily dislodged. The frequency of spores makes recurrences the rule.

Identification.—Because of the fact that non-pathogenic moulds are likely to grow in laboratory specimens, the examination of freshly secured material is imperative. Where the specimen is dry and probably contains tissue, the preparation may best be made by removing a portion of it to a glass

slide and adding a drop or so of liquor potassæ. Place a cover glass on it and allow it to stand for five minutes. Then press down the cover glass, and examine with low power, narrowing the iris diaphragm somewhat. This will demonstrate very nicely both the mycelium and the spores.

Smears may often be made where the material is not crustaceous, and may be stained by Loeffler's methylene blue. In the smearing the mycelium will usually be broken up into irregular and often branching or budding sticks. Spores take the dye easily, in fact, stain much more deeply than the body cells, and being elliptical in appearance are easily identified.

Cultures are easily obtained on all media, and especially well upon glucose agar. As a rule stained specimens are not quite satisfactory as permanent mounts because of the alterations which occur during desiccation. It is better to mount unstained preparations in glycerin and add a cover glass, making permanent by a ring of asphalt around the edge of the latter.

Bronchial and Pulmonary Moulds.—I shall pass without comment the various pathogenic skin moulds, as they are more or less familiar to the majority of clinicians, and give attention to some of those not so well understood. I have mentioned above that all specimens must be examined when fresh, and this holds especially in the case of urines and sputa. In fact, moulds may be found even in fresh sputa and be regarded as nothing more than extraneous (from oral cavity and so on). But now and then a chronic bronchial or pulmonary disease may be characterized by the finding of moulds in large numbers and by the absence of pathogenic bacteria. Moreover, when the sputum is rid of these moulds, the recovery is often prompt; there is relief even when tuberculosis is the foundation. Many mould diseases of the respiratory passages have found their way into the literature; and I have one case of simple mould disease to report, where the symptoms were those of pulmonary tuberculosis. And yet a course of iodide caused a disappearance of both moulds and symptoms.

In Pregnant Women.—I have been intensely interested in the rôle of certain of the thread fungi in the vaginal and vulval irritations of pregnancy. This has been overlooked or ignored by most of our obstetricians. Inquiry among his clientele will quickly prove to any physician that a large percentage of pregnant women are affected to a greater or lesser extent. In the severe forms, the woman complains of a "burning leucorrhea." The discharge is serous, but contains white or gray masses. The labia and inner surfaces of the thighs become scalded and often show the usual signs of simple inflammation. It is not a true eczema of the vulva, for it is easily remedied by attention to this discharge. The reaction of this is highly acid, and the masses when examined prove to be mycelia. The use of cleansing douches may give relief, but spores will be found even during these periods. The local symptoms may subside, but suddenly comes the discharge again with a recurrence of the suffering. Many of our patients suffer from this trouble to such an extent that the next pregnancy is dreaded. It is of sufficient importance to demand a more thorough study by those of us who scorn the minor things of obstetrical practice, apprehending only placenta previa, eclampsia, and contracted pelvis. The question of rational treatment here, as in thrush and all mould diseases, is one which the obstetrician must solve. Much has been said concerning the use of acid versus alkaline washes. As a matter of fact, moulds grow equally well in alkaline and in acid media, so neither can do much to inhibit their proliferation. But for the simple reason that in their growth they form acids, it is well to use alkaline washes to neutralize these. Formalin quickly destroys moulds, and may thus be used in the oral cavity. In the vagina of the pregnant woman, however, we hesitate, since we do not wish to slay the Doederlein bacilli whose mission it is to protect against the pyococci of puerperal infection. Unfortunately the good effects of iodides noted in mould disease elsewhere, cannot be obtained here. The condition is important, and demands careful study.

Stomatitis.—Thrush is usually meant when speaking of mould stomatitis, but I have seen one case where the patient was past the age of thirty and the clinical manifestations as well as the laboratory examinations were not those of thrush. The lesions were located on the soft palate and the pillars, and appeared as very large grayish-white patches or masses which, when rubbed loose, were followed by bleeding. In other words, the clinical picture, while not exactly that of diphtheria, was confusing. The microscope revealed blood, epithelial cells, spores, and mycelium. The growth was much coarser than that of the *Oidium albicans*. Recovery was prompt after the use of the formalin gargles.

Conclusions.—These cases, as well as others which have been reported, are of sufficient importance to direct the attention of the physician to the frequency of pathogenic mould diseases of the mouth, bronchi, lungs, and vagina, the diagnosis of which may be established by proper diagnostic and therapeutic tests.

109 East Court Street.

A TUBE FOR USE IN PHLEBOTOMY.

By WILLIAM SPIELBERG, M.D.,

NEW YORK.

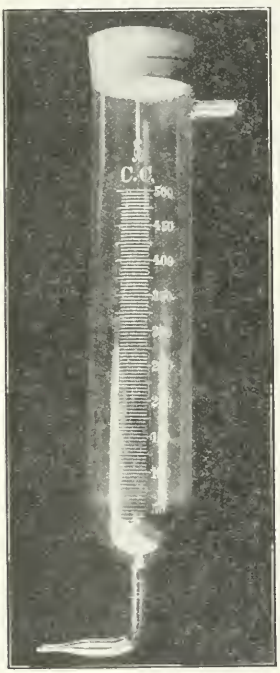
HOUSE PHYSICIAN, BETH ISRAEL HOSPITAL.

In performing venesection a number of difficulties and disadvantages are encountered. They are: (1) In accurately measuring the amount of blood removed. (2) The length of time necessary for the operation. (3) The unpleasant effect of the operatin and the bystanders, whether relatives or nurses, and on the patient, who frequently attributes immediate or subsequent symptoms that may develop to an excessive loss of blood. (4) In keeping bed clothes, assistants, etc., from getting soiled with blood. (5) The formation of blood clots either at the opening in the vein or in the cannula if latter is used. In this communication I desire to describe a new tube for performing phlebotomy which will overcome these difficulties. First, I fitted a tube used for salvarsan injections with a medicine dropper, holding the two together by a small piece of rubber tubing. This arrangement worked well, except that after obtaining about 300 c.c. of blood, the latter would often not ascend rapidly enough, due to the formation of a clot at the junction of medicine dropper, glass cylinder, and rubber connecting tubing. To overcome this defect I devised an all-glass tube shown in the illustration.

A cylindrical tube of a diameter of about 2 inches is graduated into ten cubic centimeter divisions. The capacity of the tube is 500 c.c. The lower end of the apparatus is drawn out into a tube of a diameter

of about one quarter of an inch, which is bent at right angles about one inch from the bottom of the cylinder. The end of this narrow tube is drawn out to a point about 1/16 of an inch in diameter. About one inch from the upper end of the vessel (into which fits a rubber stopper) is an outlet one inch long and ¼ inch in diameter. The purpose of this outlet is two-fold: (1) To provide for suction if necessary, to facilitate the blood flow. (2) To prevent leakage of blood when the apparatus is removed from the vein, by holding the thumb over the opening of the outlet.

With a turniquet applied to the forearm, the vein selected is usually the medium basilic, although any other vein below the bend of the eblow will serve the purpose. The incision is both transverse and vertical, although the latter through a one-inch incision is the better one, as it exposes more of the vein than



Tube for use in phlebotomy.

the transverse incision. Both can, however, be used with advantage. After exposing the vein for about one inch the proximal and distal ends are clamped with bulldog clamps, thus isolating the vein, which dilated with blood stands out prominently. A slit is made near the proximal clamp and the tip of the phlebotomy tube is inserted towards the distal clamp as far as it could go. The distal clamp is then removed and tip of tube inserted further. This is immediately followed by a rush of blood into the tube, which fills up to the 500 c.c. mark in less than 4 minutes. When a sufficient quantity of blood has been obtained the turniquet is removed and the tip of tube slowly withdrawn. It is of interest to observe in some cases with a rather low blood pressure how rapidly the column of blood rises in the cylinder in spite of the pressure it has to overcome in doing so. We found it unnecessary in any of our cases to produce a vacuum in order to obtain the desired quantity of blood. We have removed in almost every instance between 400 and 500 c.c. or more.

The following are the advantages claimed for the above method and tube:

1. Accurate measurement of quantity of blood removed.

2. Time saved in withdrawing the blood, taking 4 minutes at a maximum to withdraw 500 c.c. of blood.

3. Neatness and cleanliness of operation.

4. No assistance is required and the method is therefore applicable in private practice.

5. Its good effect on the patient, nurses and bystanders as compared with other methods used.

In looking through the literature I have failed to find a similar tube to the one I describe.

Medicolegal Notes.

Evidence as to Patient's Treatment and Condition.—There are questions requiring scientific or expert knowledge which can only be answered by those possessing the requisite skill and knowledge to give their answers probative value, and persons not so qualified are therefore not competent witnesses as to questions depending wholly on such scientific or expert knowledge. Whether the treatment of any particular injury or case was proper, or whether a surgical operation was skilfully performed, or whether a particular disease resulted from alleged negligent treatment, and like questions of science, must of necessity depend upon the testimony of physicians and surgeons learned in such matters, but such questions are not identical with the ultimate issue to be decided by the jury.

The foregoing rule does not have the effect of limiting or proscribing the testimony of non-expert witnesses as to particular facts within their knowledge which may bear upon questions depending for their ultimate solution upon scientific knowledge. In a malpractice suit, facts relating to the treatment and the condition of the patient may be stated by such witnesses, though they may be incompetent to give an opinion as to the value or effect of such facts from a medical or surgical point of view.—Longfellow v. Vernon, Indiana Appellate Court, 106 N. E. 178.

Barking Dog Held Nuisance to Practicing Physician.—A physician residing and practicing in Pittsburgh, Pa., who made a specialty of practice of the eye and ear, asked for an injunction against neighbors to restrain the keeping of a dog on their premises on the ground that it was a disturbance to the plaintiff and his family and interfered with his practice as a physician. The defendants were husband and wife, and as sub-tenants occupied a portion of a house the rear of which was located about twenty-five feet from the rear windows of the room of the plaintiff's house occupied by him as an office. For several months the defendants had kept a dog in their premises which for one or two hours nearly every day while the defendants were absent barked and yelped to such an extent as to annoy the plaintiff and his wife. and particularly when he was making a physical examination of a patient the disturbance caused by the dog was sufficient to interfere with making a satisfactory examination. An injunction was granted solely on the ground that this was a nuisance to the plaintiff in his professional work.—Hechelman v. Kindt, 40 Pennsylvania County Court, 277.

Effect of Waiver of Privileged Communications in Insurance Contract.—The rule as to privileged communications between a physician and patient is for the benefit of the patient and not the physician, and the physician is not entitled to claim the privilege where the patient has waived it. A member of a benefit society waived privileged communications between himself and his physician in his contract. It was held in a suit against the society for the insurance that the action of the court in allowing the physician, who was called as a witness for the defendant, to refuse to testify on the ground of privilege was reversible error.—Cronin vs. Court of Honor, 187 Ill. App. 480.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 20, 1915.

NATURAL AND ARTIFICIAL IMMUNITY IN DIPHTHERIA.

THERE is probably no other disease than diphtheria in which theory and practice are so closely interwoven, in which laboratory and clinic are so intimately associated, and in which research is so markedly stimulated by bedside experience. For this reason, and also because it represents the pioneer achievement of modern scientific medicine in the battle with infective disease, diphtheria possesses a perennial interest. Although many of its problems have been solved, there are a great many more that are still veiled in obscurity. To-day the focus of investigation in this disease is the question of natural and artificial immunity.

Within recent years there have been published the results of many studies in this domain, studies concerned with the methods of determining the degree of natural immunity in any individual case, with the influence of diphtheritic infection upon the preexisting natural immunity, with the mutual influence of passive and natural immunity, with the production of active immunity, and with the ready clinical determination of the presence or absence of natural immunity. Without discussing in detail any of these problems with which most medical readers are already familiar, it may be of interest to point out a few of their most striking characteristics. A very comprehensive survey of this field has been contributed by Hans Kleinschmidt to a recent issue of the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung* (Vol. 3, No. 3).

Of eminent significance is the fact that 93 per cent. of newborn infants have an antitoxin in their blood no different from that which is artificially formed in animals, or which develops in human beings after these are infected with the diphtheria bacillus. This natural immunity of young infants rapidly diminishes during the first year of life, and later, up to the fifth year, so that of infants one year old 57 per cent. are immune, and of children from 2 to 5 years of age 37 per cent. are immune. From this age onward to the fifteenth year 50 per cent. of the individuals are naturally protected against diphtheria. This proportion increases to 76.6 per cent., between the ages of twenty-one and forty years, and then diminishes to 48.2 per cent. up to the sixty-fifth year. The above figures correspond very closely with clinical experience as to the age incidence of diphtheria, namely, the rarity of this disease among infants under six months of age and the relative rarity among adults. It has been shown that the natural immunity of the mother is transmitted to the child *in utero*, and that even the nursing infant receives antitoxin in the milk. The increasing immunity in later childhood and in adult life is to be attributed to a latent infection, which fact corresponds very closely with one's knowledge as to the prevalence of diphtheria carriers.

The above data can now be easily verified with the aid of the so-called Schick test, in which, as the result of the intracutaneous injection of a minute quantity of diphtheria toxin there develops at the end of from twenty-four to thirty-six hours a circumscribed area of redness and infiltration, persisting for from seven to ten days, and fading with a superficial scaling and a persistent brownish pigmentation. This reaction which is the result of the irritant effect of the diphtheria toxin, occurs if there is less than 1/30 of a unit of antitoxin in one cubic centimeter of the blood of the individual tested; in other words, it indicates the absence of immunity. A negative reaction shows that the individual has a sufficient amount of antitoxin in his blood to protect him from infection with the Klebs-Löffler bacillus.

Within certain limitations the practical value of the Schick test is perceived in a number of directions. In doubtful cases of diphtheria in which bacteriological examination is not conclusive, a negative Schick reaction, indicating the presence of antitoxin in the blood, would speak against the diagnosis of diphtheria, at any rate if the illness has lasted only a few days. As a means of enabling one to make a retrospective diagnosis of diphtheria in cases of paralysis, etc., in which there is no definite knowledge of a preexistent diphtheria, the demonstration of an absence of antitoxin from the blood about three or four weeks after an illness would indicate, although not absolutely, that this was not diphtheria. Another important application of the Schick test consists in determining among those who have been exposed to diphtheria which ones are and which ones are not immune, so that prophylactic inoculations of antitoxin may be made in the latter instances only. This measure would mean a real economy in public health administration and would tend to restrict the possibility of serum sickness.

The active immunization of individuals by means of inoculations with diphtheria vaccines although a method promising much for the future, is not as yet adapted to general use. Behring's toxin-antitoxin mixture, the exact composition of which is still withheld from the profession, when injected into an individual, sets up an immunity at the end of ten to fourteen days, a period so long as to render this method by itself of little value in the case of individuals who have been exposed to diphtheria and whom one may desire to protect. This disadvantage may be obviated, Kleinschmidt says, by the simultaneous use of passive and active immunization.

THE NERVOUS SYSTEM IN NAVAL WARFARE.

War as it is now waged on sea or land obviously must place a great strain upon the nervous system. The most modern weapons of destruction, including immense guns, explosive shells, aerial arrows, and the various types of flying machines, have rendered war more trying by far to the nerves of the combatants than was formerly the case. But if fighting on land is more nerve racking than of yore, battles on the sea are yet better calculated to shatter the nerves of the participants. The tension produced by waiting for and dreading an attack, in these days of submarines and airships, cannot but tend to bring about certain mental affections in some. In the United States *Naval Medical Bulletin* of October, 1914, is a paper which first appeared anonymously in the *Marine-Rundschau* XXI No. 5, translated into French by Marcaudier for the *Archives de Médecine et de Pharmacie Navales*, April, 1914, and translated into English by Dr. I. W. Richards, Surgeon U. S. N.

Among other statements made in this paper is the following: "Reports based on figures from the last great wars show that the number of mental diseases is greater for all combatants, but in particular for the officers. The number of cases increases a little after the outbreak of war, reaches a maximum when the war attains its full development, and does not fall again until long after it has ended. For the Russian army during the last war the figures rose to 2 per 1000. For the army in the field one notes especially cases of excitement and mental confusion. Individuals placed in a state of lowered resistance by alcoholism, former illness, or hereditary traits were the first to be attacked. If, as has been said, an increase in the number of these cases is a fact signalizing every war, this proves that among all the men assembled many carry the seeds of an affection perhaps already recognizable by an alienist; others have had nervous trouble during their youth which will become aggravated under the influence of fatigue until manifested by symptoms which can no longer be overlooked. Mental maladies are becoming better and better known, and if the number of cases cited in reports is increasing, this increase may be accepted with satisfaction as a sign that we understand more clearly how to search for and recognize these affections."

The paper is summarized thus. The primary requisite for the success of a fleet in a naval war is a healthy personnel, so far as the nervous system is concerned. All possible measures should be taken, therefore, in the fleet to overcome the damage caused by inviduals defective in this respect, in view of grave developments and to assure the selection of men in the best condition. If it appears that in recent years there has been a slight increase in diseases of the nervous system this fact need not cause any anxiety regarding sanitary conditions. On an average the crews are in a condition to meet every exigency. Medical officers must eliminate the weaklings from the navy and see that they are replaced as far as possible by an equal number of sound men. There is no peril in the present situation. Diseases of the nervous system are only a menace to an exhausted people who cannot make good their deficits.

The moral to be drawn from this valuable paper would seem to be that the examination of the would-be naval fighters should be of an especially searching character. In particular, should those who exhibit symptoms of an unstable nervous system be subjected to severe tests. For this purpose, the services of alienists would have to be called in, but when the absolute necessity, under modern conditions of naval warfare, for having sailors sound in mind and body is considered, there is little doubt that such a course should be followed. The modern naval seaman must have no physical or mental defects, and the only means of insuring this as far as possible is by a particularly rigid examination.

THE EFFECTS OF HEAT ON DRIED IMMUNE SERA.

It has long been known that if immune sera in their natural condition are subjected to the action of heat, they will lose their effectiveness even if the degree of heat is insufficient to bring about coagulation of their contained albumin. The specific antibodies contained in these sera are, therefore, comparatively thermolabile. It is also known that proteins which coagulate when subjected to a moderate degree of heat while in complete solution will remain unaltered if previously dried, even though the amount of heat be greatly increased. For instance, albumin in watery solution coagulates at about 58°. If now absolutely all the water is removed it must be subjected to a temperature of 170° before it will coagulate. On the basis of these observations Matsuda has been carrying on some experiments on the effect of heat on immune sera which have been dried. He found (*Centralbl. f. Bakt.* 1914, lxxxv, 83) that if he dried cholera immune sera, diphtheria immune sera, or hemolytic sera over calcium chloride at room temperature he was later able to heat the dry residue to 95° for twenty-four hours without reducing the power of the sera to neutralize toxin or to hemolyze red cells. Only after heating to 95° for four days was there any perceptible diminution in the immune bodies.

The observation itself is of interest and is an excellent demonstration of the necessity of the presence of water for all reactions of this sort. Matsuda, however, goes further and offers this method as a means of protecting the serum against infection or of freeing it from non-spore-bearing bacteria which may have found their way into it. It would seem obvious that if the serum were absolutely dried the resistance to heat of any bacteria which it might contain would be increased equally with that of the immune bodies so that the subsequent heating would have but little sterilizing action. The method of drying which he used is not nearly so good as the one of freezing and drying in a vacuum. This latter method takes much less time, since it can be accomplished in a few minutes with the proper apparatus, and it has a

far less injurious action on the antibodies. The preliminary freezing avoids the concentration of the substrate which is bound to take place in any other method. The preservation of sera in the dried state offers many advantages which will some day be acknowledged, but there is great doubt whether the subsequent heating of this dry material can bring about any desired effect.

Gas Phlegmon and Gas Gangrene.

These lesions have been but little known in warfare. In fact only within the past ten years has their nature been fully understood. Naturally crepitation is characteristic of spreading gangrene of the subcutaneous tissues, and this crepitus is due to a certain degree of emphysema resulting from decomposition of the gangrenescent tissues. But in some localities it is possible to show that wherever trauma is possible emphysema could be due to entrance of air from without. True gas gangrene, however, is due solely to the activities of gas-forming bacilli. The latter include nearly all the anaerobic bacteria, so that there should be a definite causal group of lesions, including tetanus, gas bacillus lesions, malignant edema, and others as yet problematical. No one can diagnose a true gas gangrene without cultural tests. If any strain of anaerobes is able to form gas *in vitro*, on culture media, it is presumably an organism which can cause or has caused gas phlegmon or gas gangrene *in vivo*. In addition to the causes of tetanus and simple gas bacillus lesions, there is another anaerobe which inhabits the same earth, which plays a role in the genesis of malignant pustule and malignant edema. In animal experiment it is sometimes difficult to distinguish clinically between these types. The reader will recall that in 1892 E. Fraenkel discovered the gas bacillus which goes by his name. This was easily recognizable throughout the world as the familiar cause of gas gangrene. In military supplement No. 14 of the *Muenchener medizinischer Wochenschrift*, which appears in No. 45 of that periodical, Fraenkel, by request, reports his views on the subject of gas gangrene. This report lays weight on the essentially grave prognosis in this class of cases. Within a few hours this type may involve an entire limb, and patients are beyond the reach of treatment. Once an early diagnosis is made, however, the tissues should be divided right and left and oxygen infiltrated therein by means of a bomb. In addition hydrogen peroxide tampons must be freely used. The author recommends this procedure as all that is at present available under war conditions.

Impounded Water and the Prevalence of Malaria.

Stagnant water in a country in which mosquitos are present is always a menace to the public health. There are in mosquito breeding districts of the country many artificial ponds constructed for industrial purposes. Power plants and railroads, for instance, make ponds and dams. Dr. H. R. Carter writes in the *Public Health Reports* of December 25, 1914, concerning impounded water and the prevalence of malaria, with especial reference to a malarial survey of certain such waters undertaken by the Public Health Service. "The object of the survey is to determine (1) the influence such waters exert on the incidence of malaria, (2) what conditions affect this influence for good or ill, and (3) what measures can be taken to minimize the ill effect of such waters and to increase to the maximum their good effect. The surveys are to be physical and zoological. The first is to determine if the physical conditions of the places examined are such as would make them suitable breeding places for anopheles. The second is to determine what places actually are breeding malaria-bearing mosquitos. There is little doubt that this scheme when carried out will yield a good deal of valuable information and will be productive of a considerable amount of good in hindering the prevalence of malaria. It has been clearly demonstrated that if the steps taken actually prevent the breeding of mosquitos, malaria will be extinguished. The plan, therefore, of the Public Health Service is in the best interests of public health and should meet with the earnest cooperation of power-plant owners, railroad authorities, and all those who are responsible for the construction of ponds in mosquito-infested parts of the country."

News of the Week.

American Red Cross in France.—The French Foreign Office has advised the American Red Cross that the Minister of War, "appreciating the generous and valuable services of American Red Cross units at Pau," is desirous of sending at least one of these units, consisting of three surgeons and twelve nurses, to the north or the east of France, where a large number of badly wounded soldiers are in need. As the two hospital units at Pau have a great deal of serious work in hand, it has been thought best not to remove one of these units from Pau. Offer of an additional American unit of three surgeons and twelve trained nurses has been made for service at Dunkirk or such other place as may be designated by the French Minister of War.

The American Ambulance at Neuilly.—A number of British army surgeons who recently visited the American Ambulance at Neuilly expressed their admiration of the perfect arrangements made for the care of wounded. After an inspection of the wards brief addresses were made by Sir Almroth Wright, Sir Berkeley Moynihan, and Dr. Alexis Carrel.

Drafting Army Surgeons in Italy.—The Italian Government recently ordered the senior medical students throughout Italy to attend a special course in emergency surgery in the field hospital service. They have now been drafted into the medical corps of the army.

Iron Crosses for Nurses.—A dispatch published in *The Sun* says that thirty-eight nurses of the German ambulance corps have been decorated with the Iron Cross by Emperor William and that other women soon will receive the decoration, which hitherto has been given only to men.

Committee of American Physicians for the Relief of the Belgian Profession.—A recent visitor to Belgium says of the desolation there: "No one who has not been to Belgium within the last five months can picture, can even dimly conceive that country's desolation. . . . Wherever our ambulance cars went they met endless processions of refugees: endless, for the straight, flat Flemish roads are endless, and as far as your eye could see the stream of people was unbroken: endless, because the misery of Belgium is endless: the mind cannot grasp it or take it in. . . . It was not flight: it was the vast, unend-

ing movement of a people crushed down by grief and weariness, pushed on by its own weight, by the ceaseless impact of its ruin. . . . I saw six thousand refugees sleeping on straw in the Palais des Fêtes, packed so tight on the floor of the immense hall that there was no standing room betwen any two of them. . . . You could not believe what you saw: you were stunned as if you yourself had been crushed and numbed in the same catastrophe."

An American gentleman who saw the food and clothing put into the hold of the steamship *Lynorta*, which took supplies for the State of Virginia to the Belgians, crossed the Atlantic on the ship and went into Belgium to watch the distribution of the articles among the people. He has returned and declares: First, that every pound of flour and every article of clothing sent from America by the Relief Commission is received by a Belgian; and, second, that all who get such gifts are in direst need of them. Hunger seems to have broken down all class distinctions in Belgium. Captain Green of the steamship *Batiscan*, which sailed with food from Philadelphia on December 6, says that the suffering among the Belgian people cannot be exaggerated. Linden W. Bates, manager of the Commission for Relief in Belgium, states that within a few months the bread lines in Belgium will be 2,500 miles long, which would reach from New York to Salt Lake City.

Physicians and their families have shared the common fate. Appeals for food, drugs, and clothing are numerous and urgent. The resources of this committee have been so limited that it has not felt justified in sending anything but food to our starving colleagues. One hundred and fifty-six physicians and eleven medical societies have thus far contributed to this fund. There are approximately 142,300 physicians in the United States. If each one would contribute even a small sum, it would be possible to supply the necessary food, drugs, and clothing. Do not hesitate because your check is not as large as you would like it to be. Contributions of any amount will be welcome.

Every cent given will be economically spent for supplies for Belgian physicians and their families. There are no charges for shipping and distribution. Not a cent of the contributions received has been spent for stenographer, stationery, stamps, etc. The following contributions were received during the week ending February 13, 1915:

Dr. O. O. Cooper, Hinton, W. Va.	$10.00
Dr. F. A. Dodge, Le Sueur, Minn.	10.00
Dr. Alfred A. Herzfeld, New York, N. Y.	10.00
Dr. A. W. Sieker, Plymouth, Wis.	5.00
Dr Charles H. Cargile, Bentonville, Ark.	10.00
Dr. A. A. Bornscheuer, Pittsburgh, Pa.	2.00
Dr. Lyn Waller Deichler, Philadelphia, Pa.	5.00
Dr. H. T. Goodwin, New York, N. Y.	5.00
Dr. Henry S. Weigle, Muncy, Pa.	5.00
Dr. James S. Keyes, Brooklyn, N. Y.	5.00
Dr. J. I. Johnston, Pittsburgh, Pa.	15.00
Dr. Frederick J. Russeguie, Saratoga Springs, N. Y.	10.00
Dr. Frank H. Jackson, Houlton, Me.	5.00
Dr. Howard L. Frost, Cleveland, Ohio.	10.00
Dr. H. St. L. Moncure, Norfolk, Va.	5.00
Dr. A. J. Braden, Duluth, Minn.	5.00
Dr. Wendell C. Phillips, New York, N. Y.	75.00
Dr. Russell S. Fowler, Brooklyn, N. Y.	25.00
Dr. John W. Farlow, Boston, Mass.	25.00
Dr. E. W. Link, Palestine, Texas.	10.00
Dr. H. R. Link, Palestine, Texas.	5.00
Dr. H. Gifford, Omaha, Nebr.	100.00
Jefferson County Medical Society, Birmingham, Ala.	50.00
Dr. Edgar R. McGuire, Buffalo, N. Y.	10.00
Dr. Max Einhorn, New York, N. Y.	25.00
Dr. Joseph L. Miller, Thomas, W. Va.	10.00
Dr. David Chester Brown, Danbury, Conn.	10.00
Oshkosh Medical Club, Oshkosh, Wis.	50.00
Dr. George M. Dill, Prescott, Wis.	1.00
Camden County Medical Society, Camden, N. J.	50.00
Dr. Joseph Walsh, Philadelphia, Pa.	10.00
Dr L. B. Pilsbury, Lincoln, Nebr.	5.00
Dr E. E. Montgomery, Philadelphia, Pa.	25.00
Dr. J. T. Clegg, Siloam Springs, Ark.	1.00
Dr. K. B. Huffman, Bentonville, Ark.	1.00
Receipts for week ending Feb. 13th.	$605.00
Previously reported receipts.	2,528.00
Total receipts	$3,133.00
Previously reported disbursements	$2,530.00
Disbursements week ending Feb. 13th, 275 boxes of food at $2.20 per box	605.00
Total disbursements	$3,135.00
Deficit	$2.00

F. F. Simpson, M.D.,
Treasurer.

The Death Rate in 1913.—The statistics published recently by the Census Bureau show that in the registration area of the United States in 1913 with an estimated population of 63,298,718, covering twenty-four States, there were 890,848 deaths. Deaths in 1913 showed a slight increase over 1912 and were at an average of 14.1 per thousand of population. Following are the rates for the States included within the registration area: California, 14.5; Colorado, 11.5; Connecticut, 15; Indiana, 13.3; Kentucky, 13.3; Maine, 15.3; Maryland, 16.2; Massachusetts, 15; Michigan, 16.3; Minnesota, 15.4; Missouri, 12.5; Montana, 12; New Hampshire, 17.1; New Jersey, 14.3; New York, 15; North Carolina (figures relate only to municipalities having a population of 1,000 or over in 1900), 16.8; Ohio, 13.8; Pennsylvania, 14.6; Rhode Island, 15; Utah, 11; Vermont, 15.8; Virginia, 13.9; Washington, 8.5, and Wisconsin, 11.5. The lowest death rate shown by any registration State was that for Washington, 8.5 per 1,000, while New Hampshire's rate, 17.1, was the highest. The death rate per thousand of population in New York City in 1913 was 14.3, Rochester 14.6, Syracuse 15.7, Albany 19, Buffalo 15.8. Chicago was 15.1, Boston 16.4, Philadelphia 15.7, Pittsburgh 17.1, Baltimore 18, Newark 14.4.

New York City Death Rate.—There were 1,464 deaths and a death rate of 13.15 per 1,000 of the population during the week ending February 6 as against 1,503 deaths and a rate of 14.04 during the corresponding week in 1914, a decrease in the absolute number of deaths of 39, and in the rate of .89 of a point, which is equivalent to a relative decrease of 99 deaths.

Automobile Accidents in Connecticut.—There were eighty-eight automobile fatalities last year in the State of Connecticut, according to figures published by the Secretary of State. This is an increase of eighteen over the year previous.

Killed by the Italian Earthquake.—According to figures given out in Rome, 24,203 persons perished in the recent earthquake. At Avezzano the dead numbered 10,719, which is 96 per cent. of the population of the town. In the entire province of Aquila, in which Avezzano is situated, 23,747 persons lost their lives.

The Need of a State Sanitary Code.—The New York State Public Health Council has transmitted a report of its work to the Governor, in which it points out the necessity for a State sanitary code. The duty of enacting sanitary regulations has been exercised by 1,438 local boards of health, making it possible to have that many sets of rules, yet the health commission which framed the present health law discovered that many communities had no sanitary code whatever.

Clearing House for Mental Defectives.—Charities Commissioner Kingsbury of this city has appointed the following committee to consider the plans of Dr. Schlapp for a clearing house for mental defectives: Dr. Charles L. Dana, chairman; Dr. Thomas W. Salmon, vice-chairman and secretary; Mrs. William K. Vanderbilt, Mrs. Charles Dana Gibson, Judge Franklin C. Hoyt, Franklin B. Kirkbridge, Prof. Stephen P. Duggan, Prof. Robert S.

Woodworth, Dr. William L. Russell, Raymond B. Fosdick, and Dr. Walter Fernald.

The High Cost of Radium.—The chief of the Bureau of Mines was recently strongly criticized for failing to make good his promise to turn out radium at one-third of the present market price of $120 a milligram. Instead of producing it at a 30 per cent. decrease, the critic said, it had cost 200 per cent. above the market price, and moreover the bureau had failed in its promise to produce a greatly increased quantity.

The Texas State Board of Medical Examiners.—At a meeting of this Board, held at Waco, February 4, the following officers were elected: *President*, Dr. T. J. Crowe, Dallas; *Vice-President*, Dr. M. F. Bettencourt, Mart; *Secretary-Treasurer*, Dr. M. P. McElhannon, Belton. The Board is composed of the following members: Drs. J. J. Williams, Groesbeck; M. F. Bettencourt, Mart; H. B. Mason, J. S. McCelvey, Temple; M. P. McElhannon, Belton; J. H. McLean, Fort Worth; W. C. Swain, Dallas; Morrow, Austin, Crowe, and Scothorne, Dallas.

Civil Service Examinations.—Open competitive examinations for the following positions in the New York State Department of Health will be held in various cities throughout the State, February 27, 1915: (1) Director, Division of Communicable Diseases, salary $4,000. Open to men only. Applicants must be physicians of not less than five years' standing, and, when appointed, shall not be over sixty years of age; they must also submit evidence satisfactory to the Public Health Council or to a duly authorized committee thereof, that they have had not less than five years' experience in those phases of public health work which relate to the cause, prevention, and control of communicable diseases. (2) Director, Division of Public Health Nursing, salary $2,500. Open to women only. Applicants must be either physicians or registered nurses; they must also submit evidence satisfactory to the Public Health Council or a duly authorized committee thereof, that they have had not less than three years' suitable administrative and practical experience in one or more of the following subjects: (*a*) Obstetrics, (*b*) Infant Welfare, (*c*) Social Service, (*d*) Tuberculosis, (*e*) Communicable Diseases, (*f*) School Nursing. The examinations are open to residents and non-residents without restriction, but all candidates must be full citizens of the United States.

On February 27 an examination will be held for Superintendent of the Onondaga County Tuberculosis Hospital (just outside the city of Syracuse), salary $2,500 and maintenance for superintendent and family; and in March 6 for Superintendent of the Oswego County Tuberculosis Hospital (Orwell, N. Y.), salary $1,200 and maintenance. These examinations are open only to male physicians who are licensed to practise in New York State and who have had at least three years' experience in the practise of medicine.

Application blanks for any of these examinations may be obtained from the State Civil Service Commission, Albany, N. Y.

Dr. Henry S. Oppenheimer has removed to 276 Madison avenue, New York.

Dr. Nicholas A. Gallagher has been appointed city physician of Malden, Mass.

Dr. Francis X. Dercum of Philadelphia has been appointed Consulting Physician to the State Hospital for the Chronic Insane at Fairview, Pa.

The "American Practitioner" has been purchased by the Urologic Publishing Association and consolidated with the *American Journal of Urology, Venereal and Sexual Diseases*. The consolidated journal will be under the editorship of Dr. William J. Robinson. The publication offices will be at 12 Mt. Morris Park West, New York City.

Harvey Society Lectures.—The ninth lecture of the series will be given at the New York Academy of Medicine, 17 West Forty-third street, on Saturday evening, February 27, at 8.30 P.M., by Prof. R. R. Bensley, University of Chicago. Subject: "Structure and Relationships of the Islets of Langerhans and Criteria of Histological Control in Experiments on the Pancreas."

National Control of the New York Quarantine.—The Committee on Public Health of the New York Academy of Medicine has sent a letter to Governor Whitman urging the transfer of the quarantine station at this port to the national government. The letter suggests that now would be an opportune time to make the transfer as the term of the present quarantine officer expires this month. During the past two years it is said to have cost the State nearly $100,000 a year above receipts to maintain the quarantine station.

Osteopaths Barred from Practice.—The finding of Dr. D. Webb Granberry of East Orange, the osteopathic member of the New Jersey State Board of Medical Examiners, who refused to sanction the licensing of graduates of the extinct College of Osteopathy in Passaic to practise osteopathy, has been sustained by the full Board. This bars from license about ninety graduates of the institution who threaten now to appeal to the courts for a mandamus.

Obituary Notes.—Dr. JOSEPH KALISHER of New York, a graduate of the New York University Medical College in 1881, and a member of the American Medical Association and the New York State and County Medical Societies, died at his home on January 27, aged 56 years.

Dr. LESLIE HOWARD EVANS of Hebron, Me., a graduate of the University of Vermont, College of Medicine, Burlington, in 1912, and assistant physician and pathologist at the Maine State Sanatorium, died at the Central Maine General Hospital, Lewiston, on January 17, aged 35 years.

Dr. WILLIAM J. SHEEHAN of New Haven, Conn., a graduate of the Medical Department of Yale University in 1895, a member of the American Medical Association and the Connecticut State Medical Society, and vice-president of the New Haven Medical Society, died at St. Raphael's Hospital, New Haven, after a short illness from septic poisoning, on January 13, aged 44 years.

Dr. JAMES MORRISON BODINE of Louisville, Ky., a graduate of the Kentucky School of Medicine, Louisville, in 1854, formerly dean and professor of anatomy in the University of Louisville, Medical Department, and a member of the American Medical Association, the Kentucky State Medical Association, and the Jefferson County Medical Society, died at his home on January 25, aged 84 years.

Dr. ANDREW DICKSON PACKER of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1908, and surgeon to the Long Island College Dispensary, died at his home, on February 1, aged 35 years.

Dr. ALONZO B. HUGHES of Keokuk, Ia., a graduate of the College of Physicians and Surgeons, Keokuk, in 1897, and a member of the Iowa State and Lee County Medical Societies, died at his home, on January 17, aged 57 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

CHADWICK MEDALS AND PRIZES AWARDED—SANITARY STATE OF EXPEDITIONARY FORCE—TYPHOID INOCULATION—HABITUAL DRUGGING—MOTOR LABORATORY—OBITUARY.

LONDON, January 29, 1915.

THE Chadwick medals and prizes of £50 each to the naval and military officers who have most distinguished themselves in promoting the health of these services were presented at the second Chadwick lecture as I informed you they would be, Sir W. J. Collins again presiding. He explained that the Chadwick trustees were availing themselves for the first time of their optional power to offer these distinctions. Sir Arthur May, medical director general of the navy, introduced Fleet Surgeon R. C. Munday as the officer selected on behalf of his service and remarked that very few people knew how enormously the health of the navy had improved in the last thirty-five years. The sick rate per 1,000 in 1878 was 47 per day; now it is 25. The death rate was then 6; to-day only 2. If the sick rate had continued undiminished they would be having every day 5,000 more men on the sick list. The improvement placed in the fighting line no less than the crews of seven dreadnoughts—an achievement of hygienic measures.

The recipient for the army service was Colonel W. H. Horrocks, who was introduced by Sir Alfred Keogh, medical director-general. He said the colonel was responsible for the health of the army in France and was specially well known for his success in dealing with Malta fever, which used to strike down 600 to 700 men every year. To-day there is no expense due to that for there is no fever at Malta. Sir W. J. Collins then presented the medals and prizes, after which Dr. F. M. Sandwith delivered his second Chadwick lecture.

Sir F. Treves on taking the chair at a Chadwick lecture made an important statement as to the sanitary state of the British expeditionary force. Speaking with experience in the South African and Russo-Japanese wars he declared the present sanitary arrangements were without parallel for the measures carried out to secure the health of the soldiers and to care for them when attacked by disease. But he went on to say that though typhoid could thus be immensely lessened, an additional precaution was needed against it and that was afforded by inoculation. This truth, he emphatically asserted, admitted of no doubt. The results in the expeditionary force had been astonishing. Before the war there had been 212 cases of typhoid, of which 201 were unprotected, for 173 out of the 201 had never been inoculated, 28 had received a single inoculation or had not received any for over 2 years. Out of the 212, only 11 had been inoculated, and there were 22 deaths, none of whom had been inoculated. In the whole force not a single man who had been inoculated had died of typhoid. Sir F. Treves considered the figures left nothing to be said and those who tried to persuade men against inoculation were playing into the hands of the enemy, who would give the same advice. He remarked further on the revolution in the transport service shown in the present war—a motor laboratory, motor ambulances, and motor kitchens having been supplied up to the front. But he thought we should never be able to dispense at the actual firing lines with the horse ambulance; for a motor could get into a ditch but could not get out. A horse could. Besides, a motor could not travel a whole day with a column, *i.e.* owing to gearing could not travel at three miles an hour for 12 hours.

Sir William Osler, regius professor of medicine at Oxford, on Wednesday evening addressed the officers and men of light infantry stationed there on typhoid fever. He wore a colonel's uniform and began by saying this disease had been for above a century a terrible scourge of armies. He hoped they would not listen to the cranks who were circulating statements against inoculation. The question was perfectly plain—were they to be led by a set of misguided and ignorant cranks, such as anti-vaccinationists and other antis, whose literature showed the profoundest ignorance of everything that had been proven in scientific medicine and everything going on during the last half century? It was appalling to think that people who did not lack intelligence should be in ignorance so abysmal as was displayed in the literature distributed by their societies.

Much has been written about the evil effects of the drug habit, and lately the injury to the mental power of those indulging in it is again coming forward. Last summer Dr. Armstrong Jones presented in a newspaper a vivid picture of brilliant careers wrecked and families reduced from affluence to pauperism through this habit. His presentation of the subject elicited a reply from Dr. Stansfield, who denied that mental derangement was so frequently due to this habit as is constantly represented and appealed to the records of lunatic asylums in support of his view

In the one in which Dr. Jones himself resides he found only six cases recorded as thus caused in 20 years. In Dr. Stansfield's institution he has full notes of 8,404 cases admitted and among them only nine in which the drug habit was considered to be the exciting or predisposing factor in the causation.

Reports of the Commissioners in Lunacy are quoted which corroborate these statements. The habit is certainly to be depreciated but facts need not be misrepresented to enforce the lesson of its danger.

I told you about our motor ambulances and operating theater at the front. A very important addition has been made, viz. a motor laboratory presented to the war office by an anonymous donor and named after Princess Christian. It is equipped with the most approved appliances and cannot fail to be of service to the medical staff. This motor bacteriological laboratory seems well designed and complete. Attached to it is a motorcycle with sidecar. This will go right forward to the field and bring back to the laboratory stationed at the base samples for investigation. The car is from 20 to 30 horsepower and cost £2,000.

Deputy Surgeon-General George Alder Watson of the Indian Medical Service, has died at the age of 83. He served in the Crimean War at the seige of Sebastopol, in the Indian Mutiny at Inhow and the Siege of Dhar. He was also with the Afghan Field Force in the advance on Kandahar and was awarded the medal. He qualified in 1853 and retired from the army in 1885.

Dr. Burney Yeo, whose death I reported to you in November, left a fortune of above £90,000, most of which he bequeathed to institutions for the benefit of the profession.

OUR LETTER FROM THE PHILIPPINES.

(From Our Regular Correspondent.)

TREATMENT OF CHOLERA—EPIDEMIC CYCLES OF VARYING SEVERITY—INSPECTION OF HEALTH CONDITIONS IN THE INTERIOR—FILIPINO RED CROSS PROJECT ABANDONED—DISAPPEARANCE OF THE CHOLERA—A SANITARY COMPANY FOR EMERGENCIES.

MANILA, December 20, 1914.

AN excellent paper by Drs. A. P. Goff and O. E. Denney, in charge of the cholera wards at San Lazaro Hospital, was recently read before the Philippine Islands Medical Society, based on the 330 cases of cholera which came under treatment. Of this number, 72.5 per cent. recovered, which is an unusually high proportion. Ultimate decision as to diagnosis rested in the bacteriological findings of the Bureau of Science. The course of the outbreak was unusual in that a group of patients gravely ill was followed by one less ill, and then with a group presenting but a few mild symptoms of the disease. This cycle repeated itself throughout the outbreak. These groups did not come from any one source of infection, but were made up of cases widely scattered. Of the cases admitted, 56 per cent. were violently ill, and of these 61 cases needed emergency treatment. As a diagnostic sign, the authors point out that all acutely ill patients sleep with their eyes partly open, two-thirds of the pupil being visible. This was regarded as significant in border line cases awaiting bacteriological diagnosis. Treatment was based on the restoration of body fluid and prevention of nephritis. Intravenous injections of 0.45 per cent. sodium chloride and 0.25 per cent. sodium bicarbonate were used, the fluid entering the veins at the rate of about 1 liter in 45 minutes. Sometimes as much as 10 or 12 liters were given in 24 hours. Given slowly, cramps and vomiting were avoided, and usually a quiet sleep followed. No infections occurred. Proctoclysis was also used with excellent results. One case recovered after complete suppression of urine for 96 hours. The average duration of illness in fatal cases was 72 hours; of convalescence, comprising disappearance of all symptoms and two negative examinations of stools, 13 days. Most pregnant women aborted.

For the purpose of investigating health conditions in the Mountain Province, with a view of formulating plans for the furtherance of health, sanitation and general welfare of the uncivilized hill people, Major E. L. Munson, who has been acting as advisor in health and sanitation to the Government of the Philippines, will leave for the Mountain Province to spend at least a month and make a horseback trip of some 400 miles. He will leave Manila immediately on the return of Dr. Heiser. There has been a considerable addition to the sanitary personnel sent to the uncivilized people within the past few months, and the Secretary of the Interior is desirous of extending medical facilities among them as rapidly as possible. Some little difficulty has been encountered, however, in finding doctors and sanitary inspectors willing to work among them. Plans are under way to train a number of Igorotes for work among their own people, and several Moros have recently been entered for the course in the Training School for Nurses, with a view to their return to take up medical work in the hospitals of the Moro country.

The proposition to send a Red Cross party, composed exclusively of Filipino doctors and nurses to the European war has fallen through, as the American National Red Cross Society cabled that only persons born in the United States, and speaking a language of one of the belligerents other than their own, would be considered. The movement had already attained considerable magnitude, the local society had appropriated 10,000 pesos as a start for the fund, a subscription list was to be opened in each province by the Governor, the Filipino "Boy Scouts" were to institute a "Tag Day," and other auxiliary measures were being considered.

Cholera in Manila has been completely eradicated, and only a few sporadic cases are occurring in a few places in the provinces, where it is completely under control. It is expected that it will have been entirely suppressed within two or three weeks. In Manila the systematic examination of non-suspects for cholera, which has been made at the rate of some 2,000 per day, was discontinued a fortnight ago, as nearly two weeks had passed and nearly 25,000 examinations made without discovering a carrier. The force of emergency sanitary employees is being called in to Manila and will be largely discharged in the next few days. A plan has been worked out, however, to form a sanitary company which will be maintained as a reserve to meet emergencies arising from cholera, plague, smallpox, etc. When no emergency exists, the personnel is to do routine work in vaccinating, the sanitation of provincial towns, the education in sanitary matters of the uncivilized people, etc. The proposed organization is to have one senior health officer in charge, four junior health officers as assistants, four sanitary inspectors, eight senior assistant sanitary inspectors, and thirty-two assistant sanitary inspectors. This gives a total personnel of forty-nine, divided into four sections of one doctor, one sanitary inspector, two senior assistant sanitary inspectors, and eight assistant sanitary inspectors. These sections are of convenient size to operate independently, or they may be aggregated into larger groups or the full company, as emergency may demand. The men are to be carefully trained and selected, and be paid somewhat better than others of similar grades. On an epidemic starting up in the provinces, the plan is to have one or more sections take over the situation, using the provincial and municipal sanitary personnel merely as assistants. Experience has demonstrated that no provincial organization can be expected by itself to cope successfully with any situation of real gravity.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 4, 1915.

1. A Study of Children with Positive Skin Tuberculin Reactions. O. F. Rogers, Jr.
2. Two Cases of Rupture of Intestine. L. Davis.
3. Urinary Acidity and Beta-Oxybutyric Acid Determinations in Recurrent Vomiting. W. S. Parker.
4. The Significance of *X*-Ray Examination Following Operation for Congenital Pyloric Tumor. C. L. Scudder.
5. Some Studies in Fat Indigestion. C. H. Dunn.
6. Acute and Chronic Empyema. W. Whittemore.
7. Report of a Case of Congenital Multiple Cystic Disease of the Kidneys in Which One Kidney was Removed. F. S. Watson.
8. A Cheap Electric Heater. E. von Adelung.

1. Positive Skin Tuberculin Reactions in Children.—O. F. Rogers, Jr., has made a study of the subsequent history of 69 children who gave a positive von Pirquet reaction while in the Massachusetts General Hospital and who have been out of the hospital for an average of two years, four months. The results show that before the age of two a positive skin reaction seems to

be an indication that the child's life is likely to be short. The mortality among all children up to the age of 10, who react to the von Pirquet test is much higher than that of normal children.

2. Rupture of Intestine.—L. Davis reports two cases of this condition in children, aged respectively seven and eight years, in the one instance resulting from a fall and in the other resulting in the patient being struck down by an automobile. Both cases illustrate the well-known fact that operations for ruptured viscera to be successful must be prompt. In the first case reported, the margin of time elapsed since the accident had very nearly reached the limit of possible successful issue for that particular case. To wait until the diagnosis is certain in these cases is to court disaster. In cases of ruptured intestine, with effusion of septic contents, the author is convinced that profuse and thorough irrigation of the peritoneal cavity is a life-saving measure. There has been no time for walling off on the part of nature and hence there need be no fear of spreading the infection; it is an entirely different proposition from a peritonitis from an appendix, in which cases nature has practically always had some opportunity of localizing the process, and irrigation is to be condemned. The author has found that children and adults retain ordinary tap water by rectum as well as, if not better than, normal salt solution.

4. Congenital Pyloric Tumor.—C. L. Scudder has *x*-ray evidence of the persistence of pyloric stenosis in cases of this condition subjected to posterior gastrojejunostomy. The recognition of the persistence of the tumor in congenital pyloric stenosis is important for the following reasons: The tumor alone with the mucous membrane changes is an adequate cause of the obstruction in all its phases, and it is unnecessary to imagine a pyloric spasm associated with the obstructing tumor. The surgical treatment of these cases is without any question the only permanently effective treatment. The postponement of the operation with the idea, now so prevalent, that the hypothetical spasm will let up and the tumor disappear and the child recover is unjustifiable. A baby having tumor obstruction will always have tumor obstruction. The omission of the hypothetical pyloric spasm from any consideration in these cases will result in earlier adequate surgical relief.

5. Fat Indigestion.—C. H. Dunn summarizes the typical features of fat indigestion in infancy as an inability to gain weight without fat and an inability to gain with it. Chronic disease, particularly tuberculosis, is found associated with these cases with marked frequency. Long continued overfeeding may be the primary injury. One can only to a very slight extent compensate for the deficient power to digest and absorb fat by increasing the carbohydrate and protein. The microchemical examination of the stools for fat is a reliable guide in the feeding of these cases. In the treatment of severe cases of fat indigestion the mild modifications used must be low in fat, average in carbohydrate, comparatively high in protein. The extra sugar should be maltose. A certain number of the milder cases will do well on this treatment. Severe resistant cases are those which cannot gain on a low quantity of fat, and cannot tolerate an increase. A large number of cases are so severe and resistant that they can only be saved by human milk. Breast milk will save most of these cases, even the severe ones, if used in time. It should always be used in resistant cases, whenever it can be obtained. Even a little breast milk is of value and may save a case which would otherwise be fatal. After a period of breast milk feeding, many cases are found no longer severe and resistant to artificial feeding. If breast milk cannot be obtained, the feeding is very difficult and the outcome uncertain. Excessive increase of carbohydrate or protein will not help these severe cases, and may do harm; not more than 7 per cent. carbohydrate or 3 per cent. protein, should be given. Whey mixtures are of no help, except sometimes in very young babies, who vomit curds; they may do harm. Giving the protein in the form of precipitated casein may be tried, and may help in some cases. There is not sufficient evidence of its value to indicate its use as a routine.

6. Acute and Chronic Empyema.—W. Whittemore has studied the end results of the cases of acute and chronic empyema operated on at the Massachusetts General Hospital during a period of ten years. The mortality in acute empyema was 20 per cent. Many of the bad results are caused by the fact that the diagnosis is not made early enough and that the operation is not done soon enough. One should operate when aspiration shows the serum to have a good many leucocytes in it rather than wait until it becomes pus. A good many cases are not drained at the bottom of the cavity so that there is a certain collection of pus that does not drain easily. If in exploring a cavity through the first incision one is not at the bottom, a second incision should be made, provided the patient's condition allows it.

New York Medical Journal.

February 6, 1915.

1. The Active Immunization of Hay Fever. S. Oppenheimer and M. J. Gottlieb.
2. The History of Extirpation of the Spleen. E. B. Krumbhaar.
3. Sexual Impotence. I. S. Koll.
4. Is Sight to Be the Sole Intellectual Sense? A. L. Benedict.
5. Digitalis Therapy. S. Neuhof.
6. Chronic Indigestion Associated with Chronic Appendicitis. J. J. Gilbride.
7. Nose, Throat, and Ear Conditions. R. B. Scarlett.
8. The Urine in Old Age. H. Greeley.
9. Chronic Parenchymatous Nephritis with Myocarditis. H. A. Fisher.

1. Active Immunization in Hay Fever.—S. Oppenheimer and M. J. Gottlieb immunize their hay-fever patients by injecting gradually increasing doses of pollen extract to produce tolerance to the anaphylatoxin formed in the body. Beginning with one to five units of pollen extract, the dose is gradually increased until a local reaction appears at the site of the injection. This dose is then continued until the patient shows no more reaction. Then the dose is gradually increased as before. One unit of pollen toxin is the amount of antigen dissolved in one cubic centimeter of extract at a dilution of one to twenty millions.

5. Digitalis Therapy.—S. Neuhof points out that the best single criterion of the amount and duration of digitalis administration is its clinical effect. The beneficial effect of digitalis depends chiefly upon producing increased contractile power of the cardiac musculature. The slow production of arrhythmias is usually coincident with full clinical effects of the drug. If decompensation demands the continuance of digitalis, the rapid onset of arrhythmias does not contraindicate its further use. Atropine sulphate 1/150 to 1/100 grain three times a day, given internally or subcutaneously at the beginning of medication, occasionally prevents nausean and vomiting in susceptible individuals. The hypertension of cardiovascular disease does not contraindicate the use of digitalis. To derive clinical benefits quickly, digitalis should be given in full therapeutic doses. When digitalis acts promptly in small doses, the effect is likely to be temporary. For permanent improvement long continued medication is usually required. Digitalis occasionally produces epigastric pressure sensitiveness, and "hunger pains" which appear to

be due to heightened vagal tone. These symptoms precede vomiting by one or two days and indicate a full therapeutic digitalis effect. This epigastric pressure sensitiveness must be carefully distinguished from that sometimes caused by cardiac decompensation.

8. The Urine in Old Age.—H. Greeley states that microorganisms found in the nasal mucosa may frequently be obtained from the urine and that this may be the result either of excretion processes or, as seems more probable, to a common specifically lowered resistance of the individual in parts of the body favorable for the growth of the microorganisms. The latter include enterococci, diphtheroids, streptococci, colon bacilli, Friedländer's bacillus, aorsporidia and pathogenic yeasts.

Journal of the American Medical Association.

February 6, 1915.

1. The History of Opium and Some of Its Preparations and Alkaloids. D. I. Macht.
2. A New Operative Treatment for Selected Cases of Cerebral Spastic Paralysis. W. Sharpe and B. F. Farrell.
3. Occurrence of Return Cases of Scarlet Fever and Diphtheria. Experience of the Chicago Department of Health Since the Introduction of a System of Classified Quarantine. G. B. Young.
4. Sensitized Versus Non-Sensitized Typhoid Bacteria in the Prophylaxis and Treatment of Typhoid Fever, with a Report of Seventeen Cases Treated with Sensitized Vaccine. A. L. Garbat.
5. Guides in Vaccine Therapy. H. Greeley.
6. Diabetes Mellitus Treated with Fluid Cultures of the Lactic Acid Bacillus. Report of Four Cases. A. C. Henderson.
7. The Effect of Gravitation on the Presentation and Position of the Fetus. C. G. Barnum.
8. The Nursing Infant. B. Craige.
9. Quinine Solution for Bladder Irrigation. E. McDonald.
10. A Case of Splenomyelogenous Leukemia Treated with Benzol. C. F. Graham.
11. Closure of Pylorus. Case Report with Suggestion as to Technic. R. A. Barr.
12. Poisoning by Mercuric Chlorid Presenting Unusual Features. H. C. Wood, Jr.
13. Report of a Case of Diabetes Mellitus Complicated by Occasional Pentosuria and Lactosuria. J. Rosenbloom.
14. Congenital Absence of Right Pectoralis Major and Minor Muscles. J. Gardiner.
15. Report of a Case of Acute Poliomyelitis. L. F. Frissell.

2. Operation for Cerebral Spastic Paralysis. — W. Sharpe and B. F. Farrell report a method of surgical treatment for spastic paralysis, performed in sixty-five cases selected from a total of 201 cases of this condition. In these cases of the hemiplegic, paraplegic, or diplegic type, with a definite history of difficult labor with or without the use of instruments, in which, on ophthalmoscopic examination, signs of intracranial pressure are shown in the dilated retinal veins and a blurring and haziness of the optic disks, especially of their nasal halves, a large right subtemporal decompression is performed to relieve the intracranial pressure. If the intracranial pressure is extremely high and remains high after the operation, a left subtemporal decompression is performed the following week, the operative recovery requiring only a week or ten days. The operation itself consists of a vertical incision over the side of the head from 2½ to 3 inches in length, extending from the parietal crest down to a point overlying the zygomatic arch and just anterior to the external auditory meatus; that is, to the lowermost point of the cranial cavity. The fibers of the temporal muscle are separated longitudinally and then a small opening in the squamous bone, made by the Doyen perforator and burr, is enlarged by rongeurs to a diameter of from 2 to 3 inches. The dura is now incised in a stellate manner, allowing the brain to expand, and in this way the increased intracranial pressure is relieved. The dura is *not* resutured and the bone is not replaced. The usual pathological findings are definite supracortical fibrous or cystic formations resulting from a cortical hemorrhage occurring at birth. These lesions are treated according to the individual findings—removed, punctured, the interior touched with some mild corrosive to cause an obliteration (great care being taken that no excess of the corrosive fluid escapes over the cortex), and very frequently, merely let alone; that is, more damage to the cortical cells may be done by endeavoring to remove the lesion and therefore it is wiser not to attempt it. The decompression operation is performed merely to offset the effects of the pressure of this hemorrhage with cystic formation, and the resulting spasticity and mental impairment. The after-treatment consists in the correction of deformities by tendon lengthenings if necessary, or merely stretchings of the contracted muscles, the maintenance of corrected positions through the employment of especially adapted braces, skilled massage and faradism, particular attention being given to the weakened and overstretched muscle groups. A careful, systematic course in muscle training is carried on daily. The improvement in the author's cases selected for operation was marked not only by a lessening of the spasticity, but also by a definite amelioration of the mental condition of the patient.

4. Sensitized Vaccines in Typhoid Fever. — A. L. Garbat has found that the treatment of typhoid fever by sensitized typhoid bacteria offers a more rational therapy from an immunological point of view than by the ordinary non-sensitized vaccine. The repeated inoculation of large doses of sensitized vaccine even in very sick patients, was not attended by any harmful effects or a distinct negative phase; the general course of the disease seemed milder and the complications less; the occurrence of a crisis in the infection took place in a small percentage of cases, the improvement usually being gradual. Perhaps more striking results will be attained by the use of more frequently repeated and smaller doses.

7. Effect of Gravity on the Fetus. — C. G. Barnum believes that it has been shown that the action of gravity contributes to the production of the cephalic presentation, and that the interpretation of Schatz' experiments was an error because of the manner in which the support was applied in those experiments. In support of the proposition that the action of gravity participates in the determination of the cephalic presentation, three main considerations are brought forward: (1) The amount and distribution of the effective part of the weight of the fetus lying in the amniotic fluid. (2) The admitted contribution of the action of gravity to the production of the left occipito-anterior position, which is one of the most characteristic features of the cephalic presentation. (3) The very great probability that the action of gravity contributes to the production of the normal cephalic presentation and the normal position of the fetus in animals.

9. Quinine Bisulphate in Bladder Irrigation.—E. McDonald states that the requisite of an irrigating solution in cystitis in women is that it should be non-irritating, easily obtained, antisetic, and stimulating and healing to the inflamed surfaces. Of all the substances used by the author, quinine bisulphate is said to best fulfill these requirements. It is easily soluble in water, is comparatively non-irritating, and is distinctly antiseptic, much more so than the various irrigating solutions now generally used. It has a phenol coefficient of 0.5, inhibits the growth of a fresh typhoid culture in the strength of 1:30,000. It may be used in irrigating in a strength of 1:2,000 without noticeable irritation.

The Lancet.

January 30, 1915.

1. The Telephone Attachment in Surgery. Sir James Mackenzie Davidson.
2. Splenectomy for Enlarged Spleens with Anemia. G. Barling.

3. A Critical Study of the Basis of Abderhalden's Serum Reaction. W. E. Bullock.
4. Electrotherapy at a Base Hospital. W. J. Turrell.
5. Fear and Disease. E. T. Jensen.

1. **The Telephone Attachment in Surgery.** — Sir James Mackenzie Davidson advocates as a means of locating foreign bodies in wounds the use of a telephone, preferably with double receivers, connected together by means of a steel or elastic band, so that each ear has its separate receiver. This not only increases the intensity of the sound, but also serves to cut off extraneous sounds which might interfere with the audibleness of the telephone. Should the surgeon wish to have one ear uncovered so as to be able to attend to the remarks of anyone near him, it is quite a simple matter to move aside one of the receivers. This double arrangement, however, is not essential, and a single telephone gives quite good results if the surgeon's hearing is acute. The carbon plate is placed upon the patient's moistened skin, and plaster or bandage may be used for holding it in position tightly against the skin. The other end of the telephone should have attached to it a bare wire, of silver preferably, which has been disinfected, by boiling or otherwise as the surgeon may direct. One end of this wire being attached to the telephone terminal, which of course cannot be disinfected readily, the other end need be handled only by the surgeon or his assistant with the usual antiseptic precautions, and the wire can either be wound round any instrument it is desired to use, or, a spring clip may be employed by means of which the wire can be conveniently brought into connection with the knife, probe, needle, or forceps, as the case may be. Under these conditions, if the instrument is introduced into the body it will, on first contact with any metal, give rise to an unmistakable click carried through the telephone, and then, if it be gently moved or slightly disturbed so as to make a rubbing contact with the foreign body, an equally unmistakable loud rattle will be elicited. By such means the metal can be dissected out (if the knife is used), or otherwise freed from the encircling tissues, because a constant control can be exercised over the foreign body by reason of the microphonic rattle it produces when the instrument comes into contact with it. A very useful point to bear in mind is that in cases where a foreign body has been carefully localized by means of *x*-rays, a needle can be attached to the telephone in the manner stated, run down on to the foreign body, and, when the characteristic sound is heard, can be maintained in its position as a guide before any incision is made. The telephone arrangement has a special utility in ophthalmic surgery.

3. **The Basis of the Abderhalden Reaction.**—W. E. Bullock has not been able to cause the production in rabbits of a ferment which digests coagulated egg white by the injection subcutaneously, intraperitoneally, or intravenously of raw egg white. A minute quantity of amino-acids is present in 10 c.c. of blood serum of rabbits and dogs, and it was found (in rabbits) that after a bleeding these substances are increased in amount. An autolytic ferment is found in the blood serum of rabbits, dogs, and in human serum. The serum of the pregnant rabbit is unable to break down rabbit placenta, and the serum of the pregnant bitch is unable to break down dog placenta. Human blood serum from the pregnant female and from the healthy male, incubated with human placenta, produced by chemical or physical action amino-acids. Rat blood serum ("normal" and "tumor") breaks down rat tumor. Guinea-pig serum ("normal" and "tumor") breaks down guinea-pig tumor and mouse tumor. The blood serum of the guinea-pig is not rendered more active in this property by a previous inoculation of the animal with mouse tumor. The method devised by Abderhalden, even with technical improvements, is thus seen to be inadequate to distinguish normal from pregnant or cancerous sera. The fundamental experiments adduced by Abderhalden do not, on repetition, give the results stated by him, and a proteolytic ferment normally present in the serum of mammals acting on tissue substrates of varying lability, prepared in accordance with his directions, in all probability accounts for his results and their confirmation by others.

5. **Fear and Disease.** — E. T. Jensen believes that apart from the consideration of the eliminating capacity, which may here be assumed to be more or less constant for the individual, toxemia from the alimentary tract has always two factors—the chemical, comprising the toxins themselves, and the vital, dealing with the resisting power of the individual. This resisting power depends on the tone of the viscera and is powerfully influenced by the subjects' state of mind. Further, this tone may well be part of a condition which should be normally shared by the entire musculature of the body. This apparently explains adequately why the active are, as a class, more healthy than the sedentary. If fear can paralyze the hollow viscera, it must follow that happiness and courage can, to some extent at least, cause them to contract and check toxic absorption. This would constitute a link between mind and body by which the power of suggestion is transmitted to the organism. Thus may some of the cures by Christian and allied "sciences" be explained, and improvement in health follow improvement in circumstances, be these affairs of heart or pocket.

Berliner klinische Wochenschrift.

January 4, 1915.

The Vita Sexualis and Warfare.—Touton discusses one of the oldest subjects of the world. Warfare and "free love" have always gone hand in hand. The soldiers have their own camp followers and also appropriate the females of the conquered foe. Victorious campaigns are also followed by eras of promiscuous love. The old Asiatic soldiers took their concubines along, thereby doubling the equipment; but in case of victory sometimes found it more profitable to choose a concubine from the defeated, who had a good wardrobe of her own. Some soldiers declared that they could always fight more desperately if there was a woman awaiting them at the rear. The Jews would allow no women within the camp and those in the rear were at least nominally employed with military duties. The Greek commanders at Troy quarrelled over beautiful captives. The first step before a battle among the later Greeks was to always to place their concubines in a position of safety, a non-sublimated "ladies first." Alexander the Great abolished the custom of camp followers, but after the conquest of Persia the victors took concubines from the defeated. Rome, in the Empire, did not allow her soldiers to marry and prohibited camp following by Roman girls. The intense activities of the troops naturally had an anaphrodisiac effect. Hannibal's unsuccess in Italy was due largely to the fact that during his 16 years of occupation, very many of his soldiers formed relations with the native women. Some great Roman generals began their campaigns by driving away the concubines, who before one battle had numbered 2,000. It is evident, however, that while camp following was prohibited for Roman maidens there was no serious opposition to the presence of foreign women who settled in tents, etc., near the camp. When on leave of absence the soldiers visited them, but marriages were forbidden. That the cru-

sades did not better succeed was due to the relatively great number of loose women present. Some dressed as men, others as nuns, all posing as pilgrims. Some fought in the ranks. During the periods of siege immorality broke out in such a degree that women were flogged and branded. In the more successful crusades all women were kept out of the army, but on its arrival in Asia segregation became impossible. In the wars of the Middle Ages we find alternate periods of license and persecution in respect to women camp followers. At the close of the XV century the presence of venereal disease among the soldiers and prostitutes introduced a new argument, had one been necessary, against the alliance between soldiers and prostitutes. At this period, and probably for centuries before, any idea of concubinage must have disappeared and the women are always termed public prostitutes. At the time of the Thirty Years War we see attempts at regulation. A certain number of girls only were allowed to each company of soldiers, while the former showed evidences of organization and policed themselves. In certain campaigns and sieges the number of women was almost incredible and these with the male camp followers all had to be fed and transported with their baggage. In times of reaction all foreign prostitutes were threatened with amputation of the nose, and soldiers were encouraged to marry, the presence of their wives not being prohibited. The institution of soldiers' wives, however, only led to intense misery and hardship for the latter and their children. In certain localities soldiers had brothels in their barracks, the women making a pretense of running a sort of canteen for the sale of coffee. They paid a tax voluntarily. Napoleon, as might have been expected, came out strongly against prostitution. His original way out of it was imprisonment of women as a necessary measure to prevent venereal disease in his men. This program was impracticable, however, save under favorable conditions, and an attempt was made to register and examine the women for contagious disease. In Berlin alone, with a then population of 100,000, Napoleon's officers rounded up nearly 1,200 prostitutes, of which only one-third were registered. In more recent warfare, with every effort to protect the troops, brothels have been tolerated. In Mexico at present, soldiers and their wives often fight side by side. The author concludes that the attempts to separate men and women during warfare has never succeeded and never will.

Münchener medizinische Wochenschrift.

December 29, 1914.

Pneumococcus Angina and Its Treatment. — Leshke describes three clinical types of this affection: 1. Follicular, an ordinary follicular tonsillitis. 2. Angina which accompanies pneumococcus influenza. 3. Septic angina and general sepsis due to pneumococci. In the latter the local symptoms show no marked seriousness as compared with the ordinary follicular form and indeed may be so mild that the origin of the sepsis may be quite overlooked. The cultivation of pneumococci from the tonsillar crypts and blood establishes the diagnosis. The author relates a case each of pneumococcus sore throat with general reaction and pneumococcus sepsis. The author appears to regard severe angina with a general reaction (the first type) as differing only in degree from pneumococcus influenza complicated by angina. The former as compared with other forms of acute tonsillitis runs a rather protracted course, and is accompanied by an influenza-like reaction. In the simple form, however, we see follicular plugs and even a deposit while the angina in pneumococcus influenza is usually bright red and velvety. The author treats all these pneumococcus affections with ethylhydrocuprein, now sold under a proprietary name.

Etiology of Endocarditis Verrucosa.—Reye concludes his serial article as follows: the affection is always of bacterial origin whether occurring alone or with general rheumatism. The probable cause is a streptococcus anerobe, and the one heretofore known as the *S. mitior* or *S. viridans*, the alleged cause of endocarditis lenta, Hence the same microorganism may be able to cause two processes differing widely in the clinic. This duality is probably based on differences in the resisting power.

Tetanus in Wounded Soldiers.—Madelung has collected from hospital reports, correspondence, etc., a series of 27,677 wounded of whom 174 (6.6 per thousand) developed tetanus. The majority of these cases came from the Vosges Mountains campaign. In 80 cases the projectiles were infantry bullets, in 27 cases shrapnel bullets, and in 53 cases shell fragments. The wounds occurred in nearly all localities, the lungs being an exception. The author's notes on the outcome of the disease control 166 cases of which number 51 recovered and 115 died. In other words the mortality was 69 per cent. While this figure is a notable improvement over that in older warfare, analysis shows that with our theoretically available resources it could have been made smaller. Many patients received no prophylactic inoculation, many received much too little serum, and some got none at all. But three patients received magnesium sulphate and all recovered.

Snowblindness in Troops. — According to Gross this condition was well marked in the Napoleonic wars of 1812, the soldiers who returned home suffering freely from reddened eyes and obscured vision. The reflection of light from the snow causes a genuine ophthalmia, the eyelids and conjunctivæ being red and swollen. Blephorospasm is present, thus causing blindness. The sensations are extremely painful and disagreeable. Chemosis sometimes develops. The entire condition greatly resembles electrical ophthalmia. Despite its severity the condition yields to treatment and recovery should occur at the end of a fortnight. No statement is made as to whether the German troops are supplied with snow glasses.

Münchener medizinische Wochenschrift.

January 5, 1915.

Clinical Signs of Beginning Heart Failure.—Moritz states that the mildest symptom of heart failure is insufficiency of movement when brought out by considerable muscular effort; while "insufficiency of rest" is the severest type. Here the patient lying supine and making no effort whatever shows evidences of cardiac failure. Between these extremes there is every degree of intensity and in chronic heart disease the organ passes from one degree to the other. In one sense of the term the force of the heart has never been measured; given units of time we cannot tell how much effort the heart makes in each unit. From another angle the behavior of the heart is under the influence of numerous separate factors. Our mainstay at present is to determine the disordered circulation which must result from cardiac insufficiency—the anomalous distribution of the blood-mass. Naturally a compensated heart is never an insufficient heart and must be left out of all calculations. A weakened left ventricle is first noticed clinically in the respiration, the back pressure causing pulmonary stasis. This may be manifested as a stasis-bronchitis with cough and eventually pulmonary edema. A weakened right ventricle on the contrary leads to congestion of the liver and dropsy, chiefly of gravitation. On the other hand palpitation,

pain and constriction over the chest, dyspnea may alike indicate cardiac weakness or mere nervousness. To distinguish between the two we can get much information from the pulse which is at least suggestive, the pulse beat in a general way being an index of the force of the cardiac systole. Normal volume with normal frequency naturally signify an efficent heart. The sphygmomanometer, on the contrary, does not give information as to cardiac force. In indicating increased blood pressure it only shows that the heart is doing an abnormal amount of work, a condition which if sufficently maintained may in time result in cardiac weakness. High blood pressure can thus be set up in a heart already weak and this state of affairs has naturally a grave prognosis. A quickened pulse as in Grave's disease may be evidence of cardiac failure. The family practitioner's method of testing the strength of the heart by sudden muscular exertion while of value may be the source of much falacy. The acceleration of the pulse is much less significant than failure of the pulse to drop to the normal within a reasonable time. Quite different is the behavior of the pulse after severe prolonged efforts, for an entire 24 hours may elapse before the pulse is quite normal. The author has recently studied this subject in soldiers after forced marches and the like and finds that tachycardia persists for relatively long periods.

Treatment of Tetanus.—Schneider reports a series of cases occurring in one of the Bavarian Military Hospitals. Individual experience is extremely misleading, and gives us no line on the general morbidity and mortality. In his hospital 22 cases have been treated since October 5, and in ten of these amputation or exarticulation had been performed in indication. In regard to the serotherapy of the disease the author thought it justifiable for the ulttimate good to use a parallel. Thirteen patients received the serum in sufficient dosage by the subcutaneous route and every one died, all but one within the first four days and the exception within the sixth day. These practically fulminant cases were not influenced at all by the serum. The author calls them insuccesses, but no treatment can be expected to save much life under the circumstances. In the other (nine) cases serum, was injected chiefly into a vein and three patients recovered while the rest, as a rule, showed improvement for a time. The severity of the disease was the same for each series. The high mortality in the combined material—3 recoveries in 22 cases—which coincides with the old mortality of the disease under narcotics, may have been due in part to the fact that nearly half the patients had just undergone amputation (or exarticulation); but in theory this fact should be turned in the other direction.

Deutsche medizinische Wochenschrift.

January 7, 1915.

The Utility of Vaccine Which Has Been Treated with Sulphuric Ether.—Voigt states that after vaccine has been sterilized with ether *a la* Fornet it may still give positive results, provided vaccination is performed immediately. But when vaccine thus treated is preserved even for a brief interval it can no longer be used for that purpose. If the vaccine-ether mixture is used *perse*, it retains its power for a longer period than when it has been dried. After vaccine has been freed from germs by ether, it may again become contaminated after ether evaporation, after drying and preservation, etc. It must be apparent therefore, that the ether principle is a detriment rather than an aid to vaccination.

Fatal Appendicitis from a Grazing Bullet.—Colley reports a case in which a bullet, which did not enter the abdominal cavity apparently aroused to activity a chronic appendicitis which had never caused symptoms. Death took place from peritonitis which was secondary to gangrenous appendicitis. The man had been struck in the chest wall—beteen sixth and seventh ribs at the anterior axillary line—apparently by two bullets, the entrance wounds being close together. No exit wounds could be found, and the only possible inference was that the projectiles had merely grazed the thorax. The double opening was the result. Immediately on being struck the officer collapsed, apparently severely injured. The intestines became tympanitic, the liver very tender to pressure, incoercible vomiting set in, thirst became intolerable, and the entire picture was one of acute peritonitis. The diagnosis had at first been penetrating abdominal wound. The patient could not have withstood an operation and death took place in five days. It appears that in some manner the shock of the bullet had activated an old appendicitis leading to gangrenous inflammation with perforation. A mere coincidence seems hardly credible. The author states that in the urgent haste of wound dressing many cases of appendicitis are clearly overlooked or as he states "slip through one's fingers." Apparently he does not refer to cases present before mobilization, but to those which appear after that period, although the present victim must represent a type of latent appendicitis without history or symptoms.

Asepsis and Amputation in War.—Schuttze has thus far performed fifty amputations, exarticulations and Gritti and Pirogoff operations. Thus far the results of asepsis have been excellent. There were no cases of erysipelas or sepsis, although several cases of tetanus developed. Healing was always smooth. The rule was to *drain*—the number of sutures had been limited to three. Iodine was used throughout. The fixed dressings demanded by the military authorities evidently had to be disregarded in a measure. The indications for amputation were comminution of the hard and soft parts, fulminating gas gangrene and shattering of the long bones with formation of necrotic pus. In more doubtful cases the soft parts were laid broadly open for exploratory purposes and incidentally for drainage. Of especial interest are the tetanus experiences. During two weeks of damp weather from 20 to 25 cases of tetanus were seen. After the weather had become dry, tetanus cases ceased entirely. The disease developed two days after a Pirogoff amputation, incubation period six days. The patient recovered under intravenous injection of serum, and morphine, Since this experience every subject for amputation receives phophylactic serum. The author implies that in all the other tetanus material the mortality is 100 per cent. Three patients still living he regards as doomed.

Intermittent Hydrosalpinx (Hydrops Tubæ Profluens).—Paul Wanner reports a case of this condition. The patient, 36 years of age, had experienced ever since her eighteenth year the periodic discharge from the vaginal orifice of a watery fluid, which was always preceded by an enlargement of the abdomen. Examination at one of these periods revealed a distention confined to the right side of the abdomen. Catheterization of the right Fallopian tube was followed by the discharge of three quarts of a limpid liquid containing no albumin. At the same time the abdominal enlargement disappeared. The cause of this condition is an atresia of the fimbriated extremity of the tube which prevents the fluid normally secreted by the latter from draining into the peritoneal cavity. If the uterine orifice is also occluded the tube may assume enormous dimensions, Schröder citing a case incorrectly diagnosed as ovarian tumor in which at autopsy the tube was found to contain nine liters of fluid.—*Revue Médicale de la Suisse Romande.*

Insurance Medicine.

Significance of Syphilis and the Wassermann Reaction for Life Insurance.—Professor Schottmüller refers to a recent article on this subject by Professor Florschütz which covers the same ground as an earlier article by himself. Florschätz refers to 167 deaths in a certain company in four years from progressive paralysis, which represent an insurance of nearly 1,800,000 marks. The author goes a little more closely into the subject. Of the 167 deaths 121 or three-fourths had been insured at ages up to 50 years. Thirty-eight of the 121 subjects had been insured for less than 5 years, 93 for less than 10 years, and but 29 had been insured for more than 15 years. Hence death followed a relatively short period of insurance. Not less fatal than syphilis of the brain is syphilis of the blood-vessels; in the author's experience no less than 40 per cent. of all cardiac cases had been syphilitic.

The author agrees with Florschütz as to the difficulty in recognizing syphilis from the personal history or results of clinical investigation. Statistics show the great frequency of the malady, especially on a basis of Wassermann testing. The author finds in this manner that 19 per cent. of men have had syphilis, while Blashko states that those who have not married before the age of 30 are infected to the amount of 20 to 25 per cent. The number who confess syphilis is but 2.7 per cent, and only 16 per cent. of autopsy syphilis was foreshadowed in the personal histories. Alienists state that only in one-third of all cases of progressive paralysis in institutions was a history of syphilis obtained. Every insurance company, in other words, has among its insured three or four times as many cases of syphilis as it has official cognizance of. In England the "supermortality" from syphilis amounts to 217 per cent.

As the author and Florschütz have already shown, all this should be avoidable by recourse to Wassermann tests. Florschütz, however, does not believe in obligatory tests, and on this course he will naturally be upheld by all those who profit from the profession of life insurance. Florschütz naturally fears perfunctoriness in testing and also the false inferences from a single Wassermann negative test in connection with syphilitic risks. These drawbacks, however genuine, seem to the author to have no serious weight against the very obvious benefits which should accrue from Wassermann selection. Ought we to bar cardiac examinations because in a certain percentage of cases bad risks secure insurance? There is a parallelism throughout between a blood test and the urine test, yet we do not abandon urine testing because now and then a nephritic subject obtains insurance.

Old forgotten syphilis in middle-aged people often escapes mention in the personal history, but such cases could be quickly checked up by a blood test. It is also a blessing to the applicant to give him a chance to be rid of this taint, whether or not he gets the insurance later. The few old syphilitics who might slip in undetected should not discredit the routine use of the blood test.

It may be objected that younger syphilitics may seek insurance when the Wassermann is in a negative phase, but this course would involve wholesale deception, such as would be readily exposed sooner or later, and threaten a disrupted claim after death.

Florschütz sees an ethical barrier to a compulsory routine test, but insurance societies are not essentially self-seeking institutions and are enlisted on the side of the greatest good to all. As the author has shown before, those rejected by blood tests benefit in the end. They have a chance to become sound and ultimately get insurance.—*Blätter für Vertrauensärzte der Lebensversicherung*, 1914, V. No. 4.

Medical Investigations.—This term covers more than one or two types as shown by Edward Magruder in his investigations on the subject with relation to life insurance. He divides the subject into five different kinds as follows: 1. Medical investigations by medical examiners, covering facts not secured at time of examining applicant. This relates to information obtained by the medical examiner from the family doctor or other interested party with reference to the applicant. It is not a neasy matter to handle as so much depends upon the skill and tact of the medical examiner. Good will undoubtedly result from special instructions of medical examiners of arguments and methods usually found serviceable in enlisting the cooperation of the attending physician. 2. Investigations by medical directors, covering the mental and moral qualifications of their local examiners. Thorough investigation, as well as appointment of medical examiners through the recommendation of the medical department, due to fitness for the position, and not through the recommendation of agents, will to a great measure relieve this difficulty of incompetent examiners. 3. Investigations by medical directors, local or special examiners, or by local examiners working under instructions from the medical directors. Especially in accident companies the nature of the accident or health risk which is accepted on the truthfulness of the statements in the original application, and without medical examination, makes a special investigation necessary. The frequency with which persons are found in possession of life policies during this contestable period, who have passed examination by the staff of the company, shows that something certainly is wrong. What is needed is a medical man who can perform the combined duties of traveling inspectors, judges of the character and present fitness of local examiners, and without any additional cost to the company, to add the benefits of their medical training to the equipment of the present salaried inspector, making his employment unnecessary. 4. Investigations by medical directors, local examiners, or both, covering the facts and circumstances surrounding the deaths of policyholders. 5. Medical investigations in their relation to cooperation between two or more interested companies. Cannot the life companies, with advantage, cooperate more closely with each other in their medical investigations and in relation to the qualifications of their examiners, also with the accident companies through their bureaus, and thus establish a service which will render better results than existing conditions now permit?—American Life Convention.

Death from Accident.—The stimulation by an accident of a dormant growth so that it rapidly results in death, which, but for the accident, would have been deferred until a later period of life, is held in Fidelity & C. Co. v. Meyer (Ark.) 44 L. R. A. (N. S.) 493, to be within the operation of a policy insuring against bodily injury, sustained through accidental means, resulting "directly, independently, and exclusively of all other causes" in death.

Book Reviews.

Appendicitis: A Plea for Immediate Operation. By Edmund Owen, F.R.C.S., D.Sc. (Hon.), Surgeon to the French Hospital; Consulting Surgeon to St. Mary's Hospital, and to the Hospital for Sick Children, Great Ormond Street, London. Cloth. Price $1.50 net. New York: William Wood & Company, 1914.

If every general practitioner who has not already seen the light as regards the necessity of immediate operative treatment in cases of acute appendicitis could be compelled to read this book, the mortality percentage in this disease would almost immediately approach zero; the deaths being practically limited to some of the occasional obscure cases in which diagnosis is unavoidably delayed, to a few of those operated upon by inexperienced men, and to the occasional complications, such as pneumonia, thrombosis, or embolism, which go to make up part of the risk attached to every major operation. Owen has stated the case fully and frankly and, we believe, justly; and we heartily commend the iteration and reiteration of the main theme—the necessity for immediate operation.

We are glad to see that he emphasizes the fact that in clear cases nothing is gained and perhaps much lost by waiting for blood counts, though their value is unquestioned in obscure cases and in certain differentiations. The chapters on Diagnosis, Differential Diagnosis, Appendicitis in Children, and Complications of Appendicitis are of especial value to the surgeon as well as to the practitioner. In this and other parts of the book the significance of deranged pulse-temperature ratio, the false sense of security that may come with the cessation of pain when gangrene supervenes, the deceptive mildness of the symptoms in some of the fulminating cases, and many other points of vital importance are strongly emphasized. All phases of the subject are covered, and that, too, with a pleasing diction that holds the attention and cannot fail to convince even the skeptic.

By way of adverse criticism we must express our utter disapproval of the author's method of closing the incision in clean cases. Silk is advised as the suture material throughout. Why not catgut for the peritoneum, muscles, and fascia, even if one should prefer some other suture material for the skin? But then, as the author says in regard to the method of dealing with the appendix, "each surgeon naturally thinks his particular way the best," and as the subject in general is so well handled, we can readily excuse what seems to us an error in technique in the operation itself; for Owen has spiked all the guns of the opposition to the proposition that acute appendicitis demands immediate operation, and that is what he set out to accomplish.

The Ileocecal Valve. By A. H. Rutherford, M.D. (Edinburgh). Price, cloth, $2.25 net. New York: Paul B. Hoeber, 1914.

The contents of this book constituted the author's thesis for the degree of M.D. at the University of Edinburgh. It consists of a critical study of the literature describing this valve, the author's observations on a living subject who had an artificial anus 8 cm. long in the cecum, the examination of this valve in two dogs immediately after death, and, finally the study of 32 specimens removed at autopsies of human subjects at periods ranging from 3 to 36 hours after death. He finds that the valve in life is quite different in many respects from the textbook description of two more or less crescentic folds or lips projecting into the cecum and having an oval or slit-like orifice. In his specimens this description would fit only those examined many hours after death, or comparatively soon after death if the temperature of the room had been fairly high, conditions evidently entailing post-mortem changes in the valve. In the fresh specimen and in the living he found the normal appearance of the valve to be "a hemispherical mammillary eminence, about 1.8 cm. in diameter, scarlet in appearance, smooth, and glistening. The summit is truncated and pierced by an orifice of a stellate appearance, with lobulated elevations between the rays of the star. This elevation is about 0.5 to 1 centimeter high. Surrounding the valve mammilla, of scarlet appearance, is the mucous membrane of the colon and cecum, which is of a pink color. No frenula are to be seen in life." He finds the valve competent, and that its function is that of a sphincter similar to the pylorus and the internal anal sphincter, and is twofold: to regulate the flow of semifluid feces through the valve and to prevent regurgitation. The work has been carefully done and his conclusions, backed up by forty or more illustrations, seem to be entirely borne out.

The Balneo-Gymnastic Treatment of Chronic Diseases of the Heart. By Prof. Theodor Schott, M.D., Bad-Nauheim, Germany. With a Foreword by James M. Anders, M.D., LL.D., Professor of Medicine, Medico-Chirurgical College, Philadelphia. Price $2.50. Philadelphia: P. Blakiston's Son & Co., 1914.

This interesting book contains a complete exposition of the Nauheim treatment of heart affection by carbonic acid baths and resistance exercises written by one of the originators of the method. This therapeutic measure has, of course, been often described by Schott and others, but never so fully and satisfactorily as in this monograph. The resistance exercises are very clearly described and are illustrated by 41 pictures showing better than words how each of them is to be executed. The book will serve as an authoritative guide to any physician wishing to acquaint himself with the Nauheim treatment, and not the least of its lessons will be, as Dr. Anders says in his graceful foreword, "a true appreciation, not only of the indications presented by individual cases for the mode of treatment in question, but also of the contraindication, so as to deter the annual exodus of 'incurables' and improper cases from making the hazardous experiment of an ill-advised expatriation."

Manual of Obstetrics. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia. With 171 Illustrations. Price $2.25. Philadelphia and London: W. B. Saunders Company, 1914.

The present volume gives in concise form a satisfactory presentation of present-day obstetrics. Although the book is small, it contains all that is really necessary on the anatomy and physiology of the mother and fetus; pregnancy, with its diagnosis, hygiene, and management; lesion, physiological, and pathological; the puerperium, with care of the infant; obstetrical operations; sections on fetal pathology and mixed feeding, and a valuable chapter on the medicolegal aspects of obstetrics. No space is wasted on theoretical discussions and academic controversies, and there are no unnecessary illustrations. We find no mention of "twilight sleep."

Rose and Carless' Manual of Surgery. For Students and Practitioners. Ninth Edition. Revised by Albert Carless, M.B., M.S. (London), F.R.C.S.; Professor of Surgery in, and Surgeon to, King's College Hospital, London; formerly Examiner in Surgery to the Universities of London, Glasgow, Manchester, Liverpool, and Leeds; Consulting Surgeon to the King Edward Memorial Hospital, Ealing; to the St. John's Hospital, Twickenham, etc. 8vo, 1420 pages, with 609 illustrations in the text and 16 full page colored plates. Price, muslin, $6.00 net; half morocco, $7.00 net. New York: William Wood & Company, 1914.

It is self-evident that a work on surgery that has reached a ninth edition and has been translated into several different languages must be one of unusual merit. "Rose and Carless' Surgery" has long enjoyed the reputation of being one of the best textbooks in the English language and is on the recommended or required list of a very large proportion of English and American medical schools. Although but three years have elapsed since the publication of the eighth edition, there have been advances of varying degrees of importance in many branches of surgery. For this reason instead of reprinting, a thoroughly revised new edition has been prepared. In this edition a chapter has been added on the use of heat, light, electricity, and radium in surgery. We are glad to see that the attitude of the author toward radium is one of sensible conservatism. He recognizes its usefulness as an adjunct to surgery, but has not been carried away by enthusiasm. Descriptions of the newer advances in the field of surgery have been incorporated in the text in various parts of the book, many new illustrations have been added as well as several new colored plates, and the work has thus been brought strictly up to date. By careful condensation and elimination the book has been kept within former space limits. The descriptions are usually models of clearness and conciseness; and it is safe to say that this edition is destined to advance still further the popularity of a work already recognized as standard throughout the world.

Special Article.

MEDICAL LIBRARIES.*

V. 1915.

ALBANY.—New York State Medical Library. Education Building, Albany, New York, U. S. A. Miss Frances K. Ray. 16,395.

AMSTERDAM.—Library of the Netherlands Medical Society. In the University Library, Singel 421 Amsterdam, Netherlands. Dr. C. E. Daniëls. 25,600.

ANTWERP.—Library of the Antwerp Medical Society. Royal Athenæum. Avenue du Commerce 34, Antwerp, Belgium. Dr. A. Delhaye. 3,450.

BALTIMORE.—Library of the Medical and Chirurgical Faculty of Maryland. 1211 Cathedral street, Baltimore, Maryland, U. S. A. Miss Marcia C. Noyes. 23,000.

Johns Hopkins Hospital Library. North Broadway, Baltimore, Md., U. S. A. Miss Minnie W. Blogg. 14,000.

BEIRUT.—Medical Library of the Syrian Protestant College. Beirut, Syria. H. Porter. 2,158.

BELFAST.—Library of the Ulster Medical Society. College Square, N. Belfast, Ireland. Dr. Wm. L. Storey. 2,000 (1913).

BERLIN.—Library of the Kaiser Wilhelm Academy. Scharnhorststrasse, 35, Berlin, N. W., 40, Germany. Dr. Kuntze. 72,170.

Library of the Imperial Public Health Department. Klopstockstrasse 18, Berlin, N. W., 23, Germany. Dr. Würzburg. 71,800.

Library of the Berlin Medical Society. Ziegelstrasse 10-11 (Langenbeck Haus), Berlin, N., 24, Germany. Dr. Hans Kohn. 40,000 (1913).

Library of the German Surgical Society. Ziegelstrasse 10-11 (Lagenbeck Haus). Berlin, N., 24, Germany. Dr. Herman Fischer. 40,000 (1913).

Library of the Society of Internal Medicine. Ziegelstrasse 10-11, Berlin, N., 24, Berlin, Germany. Dr. Max Meyer. 10,000 (1913).

BIRMINGHAM, ENG.—Library of the Birmingham Medical Institute. Edmund street, Birmingham, England. Mr. Thomas George Johnson. 15,200.

BIRMINGHAM, U. S. A.—Library of the Jefferson County Medical Association. Public Library, Birmingham, Alabama, U. S. A. Carl H. Milan. 1,500.

BOSTON.—Boston Medical Library. 8 Fenway, Boston, Massachusetts, U. S. A. Dr. John W. Farlow. 80,666.

Treadwell Library, Massachusetts General Hospital. Boston, Mass., U. S. A. Mrs. Grace W. Myers. 8,493.

Boston City Hospital Medical Library. 818 Harrison avenue, Boston, Mass., U. S. A. Dr. John H. Mc-collom. 3,145.

BRIGHTON.—Library of the Brighton and Sussex Medico-Chirurgical Society. The Dispensary, 113 Queen's Road, Brighton, England. Dr. R. J. Ryle. 4,000.*

BRISTOL.—Bristol Medical Library. University of Bristol, Bristol, England. Mr. C. King Rudge. 23,000.

BROOKLYN.—Library of the Medical Society of the County of Kings. 1313 Bedford Avenue, Brooklyn, New York, U. S. A. Mr. Albert T. Huntington. 65,000* (1913).

BRUSSELS.—Library of the Royal Academy of Medicine of Belgium. Palais des Académies, Rue Ducale, Brussels, Belgium. Mr. Henri Beckers. 100,000* (1913).

BUDAPEST.—Library of the Royal Medical Society of Budapest. VIII Szentkirályi-utca 21, Budapest, Hungary. Dr. Rudolphe Temesváry. 20,351.

CALCUTTA.—Library of the Medical College of Bengal. Bowhazar, Calcutta, India. Ram Chandra Mookerjee. 50,000.*

CHELTENHAM.—Cheltenham Medical Library. Clarence street, Cheltenham, England. Dr. J. Rupert Collins. 2,390 (1913).

CHICAGO.—Department of the Medical Sciences of The John Crerar Library. 87 Wabash Avenue, Chicago, Illinois, U. S. A. Mr. J. Christian Bay. 62,899.

CINCINNATI.—Cincinnati Hospital Library. Cincinnati, Ohio, U. S. A. Dr. E. W. Mitchell. 18,958 (1913).

CLEVELAND.—Library of the Medical Library Association. 2318 Prospect avenue, Cleveland, Ohio, U. S. A. Mrs. S. M. Harding. 20,000.

COLORADO SPRINGS.—El Paso County Medical Society Library. Colorado Springs, Colorado, U. S. A. Mr. Manly D. Ormes. 3,000.

COPENHAGEN.—Library of the Copenhagen Medical Society. Vester Boulevard, 6, Copenhagen, Denmark. Dr. Joergen Moeller. 8,700.

Library of the General Hospital. Kommunehospitalet, Copenhagen, Denmark. Dr. Joergen Moeller. 5,000.

DANBURY.—Wile Medical Library. Danbury Hospital, Danbury, Connecticut, U. S. A. 1,000.*

DENVER.—Library of the Medical Society of the City and County of Denver. 266 Metropolitan Building, Denver, Colorado, U. S. A. Dr. A. J. Markley. 15,000.

DETROIT.—Library of the Wayne County Medical Society. 33 East High Street, Detroit, Michigan, U. S. A. Miss Jane A. White. 10,000.

DUBLIN.—Library of the Royal College of Physicians of Ireland. 6 Kildare street, Dublin, Ireland. Mr. Robert Phelps. 17,000.

Library of the Royal College of Surgeons in Ireland. Stephens Green, Dublin, Ireland. Alfred Miller. 30,000.*

EDINBURGH.—Library of the Royal College of Surgeons of Edinburgh. Edinburgh, Scotland. Mr. Harold J. Stiles. 20,000.

Library of the Royal College of Physicians of Edinburgh. 9 Queen street, Edinburgh, Scotland. T. H. Graham. 100,000.*

Library of the Royal Medical Society. Melbourne place, Edinburgh, Scotland. Mr. A. P. Ormiston. 30,000.*

FALL RIVER.—Library of the Fall River Medical Society. 109 South Main street, Fall River, Massachusetts, U. S. A. Dr. George L. Richards. 1,230.

FLORENCE.—Medical Library. 33 Alfani street, Florence, Italy. Dr. Antonio Cazzaniga. 14,822.

FRANKFORT.—Senckenberg Library. Victoria Allee 9, Frankfurt á Main, Germany. Dr. Rauschenberger. 90,000.

GLASGOW.—Library of the Royal Faculty of Physicians and Surgeons of Glasgow. 242 St. Vincent street, Glasgow, Scotland. Dr. Alexander Duncan. 80,000.

HARTFORD.—Library of the Hartford Medical Society. 38 Prospect street, Hartford, Conn., U. S. A. Dr. Walter R. Steiner. 5,500.

HASTINGS.—Library of the East Sussex Medico-Chirurgical Society. 16 Silchester road, Hastings, England. Dr. Rupert Stanley. 3,120 (1911).

HAVANA.—Library of the School of Medicine of the National University. General Wood Laboratories, Havana, Cuba. Dr. José A. Valdés Anciano. 4,910.

JACKSONVILLE.—Library of the Morgan County Medical Society, Jacksonville, Illinois, U. S. A. Dr. Carl E. Black. 2,000.*

JERSEY.—Library of the Jersey Medical Society. David Place, Jersey, England. Mr. Henry I. Shone, 550.

KINGSTON.—Medical Library of Queen's University. Kingston, Ontario, Canada. Miss Jessie Gordon. 1,500.*

LEEDS.—Library of the Leeds and West Riding Medico-Chirurgical Society and School of Medicine of Leeds University. School of Medicine, Leeds, England. Dr. J. B. Hellier. 9,531.

LIVERPOOL.—Library of the Liverpool Medical Institution. 114 Mount Pleasant, Liverpool, England. Mr. William Jones. 14,000.

LONDON.—Library of the Royal College of Surgeons of England. Lincoln's Inn Fields, London, England. Mr. Victor G. Plarr. 70,000.

Library of the Royal Society of Medicine. 1 Wimpole street, London, W., England. Mr. Charles Richard Hewitt. 70,000.*

Library of the British Medical Association. British

*The object of this biennial list of libraries owned by medical societies, or conducted in the interest of the medical profession, is to facilitate their growth and activity by promoting donations and exchanges. A star shows the absence of recent accessions of bound volumes. Official titles, degrees, and historical data are omitted. Copies may be obtained by sending the postage to the librarian of the New York Academy of Medicine.

Medical Association, 429 Strand, London, W. C., England. Mr. Spencer Honeyman. 41,000.
Library of the Royal College of Physicians. Royal College of Physicians, London, England. Dr. Norman Moore. 25,000.*
Library of the Medical Society of London. 11 Chandos street, Cavendish square, London, W., England. Mr. George Bethel. 25,000.*
Library of St. Bartholomew's Hospital, Medical School, West Smithfield, London, E. C., England. Mr. Alfred Henry Coughtrey. 15,000.
Library of University College Hospital Medical School. University street, Gower street, London, W. C., England. Mr. L. R. Thomas. 13,500.
Wills Library, Guy's Hospital. St. Thomas's street, London, S. E., England. William Wale. 8,000.
Library of St. Thomas's Hospital. London, S. E., England. Mr. George Rendle. 7,000.
Library of London Hospital Medical College. Turner street, Mile End, London, E., England. 5,000.*
Library of the Westminster Hospital Medical School. 12 Caxton street, London, S. W., England. Dr. E. B. Hulbert. 1,200.*
Library of the Ophthalmological Society of the United Kingdom. 1 Wimpole street, London, W., England. Mr. Charles Richard Hewitt. 6,000.
Library of the Medico-Psychological Association. 11 Chandos street, Cavendish square, London, W., England. Mr. George Bethel. 5,000.*

LOS ANGELES.—Barlow Medical Library. 742 North Broadway, Los Angeles, California, U. S. A. Miss Jessie A. Wier. 5,000.

LOUISVILLE.—Jefferson County Medical Library. City Hospital, Louisville, Kentucky, U. S. A. Miss Annie L. Goff. 5,000.

MADRAS.—Library of the Medical College, Madras. Park Town, Madras, India. S. Chidambara Pillay.

MANCHESTER.—Library of the Manchester Medical Society. University, Manchester, England. Mr. A. F. C. Davey. 43,000.
Library of the Manchester Royal Infirmary. Manchester, England. 5,000.*

MANILA.—Library, Bureau of Science. Manila, Philippine Islands. Miss Mary Polk. 30,000.

MELBOURNE.—Medical School Library, University of Melbourne (Carlton), Victoria, Australia. Mr. Frank Gladish. 12,094.

MILWAUKEE.—Library of the Milwaukee Medical Society. 141 Wisconsin street, Milwaukee, Wisconsin, U. S. A. Dr. Wilbur L. LeCron. 8,000.

MINNEAPOLIS.—Library of the Hennepin County Medical Society. 1114 Donaldson Building, Minneapolis, Minnesota, U. S. A. Mrs. Carrie C. Jones. 4,860.*

MONTREAL.—McGill Medical Library. Montreal, P. Q., Canada. Miss Jane Cameron. 22,000.*

MUNICH.—Library of the Munich Medical Society. Altheimer Eck 20, Munich, Germany. Dr. Bernhard Spatz. 66,075 (1913).

NEWARK.—Library of the Newark Medical Library Association. Newark, New Jersey, U. S. A. Mr. John Cotton Dana. 2,000.

NEW HAVEN.—Library of the New Haven Medical Association. 152 Temple street, New Haven, Connecticut, U. S. A. Dr. Gustavus Eliot. 6,000.

NEW ORLEANS.—Library of the Orleans Parish Medical Society. 141 Elk Place, New Orleans, Louisiana, U. S. A. Mr. George Augustin. 12,000.

NEW YORK.—Library of the New York Academy of Medicine. 17 West 43d street, New York, N. Y., U. S. A. Mr. John S. Brownne. 98,400.
Library of The Rockefeller Institute for Medical Research. 66th street and Avenue A, New York, N. Y., U. S. A. Miss Lillia M. D. Trask. 7,650.

NOTTINGHAM.—Library of the Nottingham Medico-Chirurgical Society. 64 St. James's street, Nottingham, England. Mr. Kenneth Black. 600.*

ORANGE.—William Pierson Medical Library. Orange Free Library, Orange, New Jersey, U. S. A. Dr. Palmer A. Potter. 2,850.

PARIS.—Library of the Faculty of Medicine of Paris. 12 rue de l'École de Médecine, Paris, France. Dr. F. L. Hahn. 250,000.
Library of the Academy of Medicine. 16 rue Bonaparte, Paris, France. Dr. Ernest Wickersheimer. 60,000.*
Libraries of Medicine and Biological Chemistry of Pasteur Institute. 25 rue Dutot, Paris, XV, C. Raveau. 25,000.
Henri Feulard Library. Hôpital St. Louis, 40 rue Bichat, Paris, France. Dr. Léon Brodier. 21,300.
Library of the H. de Rothschild Hospital. 199 rue Marcadet, Paris, XVIII, France. Dr. H. Bougeant. 10,000.*
Central Library of Internes. 3 A. Victoria, Paris, France. André Mesureur. 20,000.*

PETROGRAD.—Library of the Imperial Military Medical Academy. 23 Pirogoff Embankment, Petrograd, Russia. Dr. A. Voynic-Sianozensky. 18,000 (1913).

PHILADELPHIA.—Library of the College of Physicians of Philadelphia. 19 South 22nd street, Philadelphia, Pennsylvania, U. S. A. Mr. Charles Perry Fisher. 103,355.
Pennsylvania Hospital Medical Library. 8th and Spruce streets, Philadelphia, Pa., U. S. A. Mr. Milton M. Bergey. 15,000.*

PITTSBURGH.—Library of the Pittsburgh Academy of Medicine. 43 Fernando street, Pittsburgh, Pennsylvania, U. S. A. Miss Williamina Duncan. 5,600.

PLYMOUTH.—Library of the Plymouth Medical Society. Athenaeum Chambers, Plymouth, England. Mr. Gerald Robinson. 1,200.*

PORTLAND.—Maine Medical Library. 79 Bramhall street, Portland, Maine, U. S. A. Miss Marcia A. Libby. 1,478.

POUGHKEEPSIE.—Library of the Medical Society of the County of Dutchess. 54 Market street, Poughkeepsie, New York, U. S. A. Dr. A. L. Peckham. 2,100.

PROVIDENCE.—Library of Rhode Island Medical Society. 106 Francis street, Providence, Rhode Island, U. S. A. Dr. George D. Hersey. 25,500.

PUEBLO.—Pueblo County Medical Library. Pueblo, Colorado, U. S. A. Dr. W. W. Bulette. 3,063.

READING, ENG.—Library of the Reading Pathological Society. Berkshire Hospital, Reading, England. Dr. J. B. Hurry. 3,500.

READING, U. S. A.—Library of the Berks County Medical Society. Sixth and Walnut streets. Reading, Pennsylvania, U. S. A. Dr. Clara S. Keiser. (1913).*

ST. LOUIS.—Library of the St. Louis Medical Society. 3525 Pine street, St. Louis, Missouri, U. S. A. Miss Ella B. Lawrence. 16,000.

ST. PAUL.—Ramsey County Medical Library. St. Paul, Minnesota, U. S. A. Miss Irene Goette. 5,500.

SAN FRANCISCO.—San Francisco County Medical Society Library. 135 Stockton street, San Francisco, California, U. S. A. Dr. Leo. Eloesser. 6,000.

SAVANNAH.—Library of the Georgia Medical Society of Chatham County. Hall of the Georgia Medical Society, Savannah, Georgia, U. S. A. Miss Maude Avant. 5,100.

SCRANTON.—Library of Lackawanna County Medical Society. Real Estate Exchange Building, Scranton, Pennsylvania, U. S. A. Dr. L. C. Kennedy. 2,000.

SONYEA.—Medical Library of Craig Colony for Epileptics. Sonyea, New York, U. S. A. 3,000.

STOCKHOLM.—Library of the Caroline Institute. Stockholm, Sweden. Emil Haverman. 42,000.
Library of the Association of Swedish Physicians. Stockholm 16, Sweden. Dr. E. O. Hultgren. 35,000.

TERRE HAUTE.—Library of the Vigo County Medical Society. Emeline Fairbanks Memorial, Seventh and Eagle streets, Terre Haute, Indiana, U. S. A. Mrs. S. C. Hughes. 1,477.

TOKYO.—Library of the Tokyo Charity Hospital Medical College. Atago Cho, Shiba, Tokyo, Japan. Dr. Yutaka kon. 4,600.

TOPEKA.—Stormont Medical Library. Topeka, Kansas, U. S. A. Mr. James L. King. 3,200.

TORONTO.—Library of the Academy of Medicine, Toronto. 13 Queen's Park, Toronto, Canada. Miss Louise Mason. 6,078.

VANCOUVER.—Library of Vancouver Medical Association. 633 Hastings street, W. Vancouver, B. C., Canada. Miss Mary M. D. Maclagan. 2,000.*

VIENNA.—Library of the Physicians' Association of Vienna. IX/3, Frankgasse 8, Vienna, Austria. Dr. Heinrich Paschkis. 60,000.
Library of the Medical Society of Vienna. Rotenturmstrasse 19, Vienna, I, Austria. Dr. Leopold Senfelder. 3,000 (1911).

WASHINGTON.—Library of the Surgeon General's Office, U. S. Army. Washington, District of Columbia, U. S. A. Dr. C. C. McCulloch. 189,171.
Naval Medical School Library. Foot of Twenty-fourth street, N. W., Washington, D. C., U. S. A. Naval Officer in Command. 16,000.*
Library of the Bureau of the Public Health Service.

Washington, D. C., U. S. A. D. S. Masterson. 7,000.

WAVERLEY.—McLean Hospital Medical Library. Waverley, Massachusetts, U. S. A. Miss E. Kathleen Jones. 5,576.

WHEELING.—Library of the Wheeling Medical Library Association. Ohio Valley General Hospital, Wheeling, West Virginia, U. S. A. Dr. Frank LeMoyne Hupp. 2,500.*

WILKES-BARRE.—Luzerne County Medical Society Library. Wilkes-Barre, Pennsylvania, U. S. A. Dr. Lewis H. Taylor. 5,568.

WINNIPEG.—Medical Library of the College of Physicians and Surgeons of Manitoba. 311-314 Boyd Building, Portage avenue, Winnipeg, Manitoba, Canada. Miss S. D. MacIntyre. 2,000.

WORCESTER.—Worcester District Medical Library. 18 Elm street, Worcester, Massachusetts, U. S. A. Dr. Merrick Lincoln. 10,126.

YORK, ENG.—Library of the York Medical Society. 1 Low Ousegate, York, England. Dr. A. B. Northcote. 6,000* (1913).

YORK, U. S. A.—York County Medical Society Library. York County Court House, York, Pennsylvania, U. S. A. Dr. I. H. Betz. 3,000.*

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held January 8, 1915.

Dr. CLARENCE A. MCWILLIAMS IN THE CHAIR.

Ligation of the First Part of the Left Subclavian for Aneurysm.—Dr. V. GAUDIANI presented a man, forty-six years old, who came under his care in May, 1913. He had had luetic infection twenty years before, but had never taken any treatment. A few months before he had noticed a pulsating tumor of the size of an egg rising from the sternal notch and extending behind the sternocleidomastoid muscle. He did not show any other trouble with the exception of an area of anaesthesia on the inner side of the forearm, and a dilatation of the left pupil. A murmur could be heard over the tumor; this was also audible along the axillary vessels. Although the case had been considered an inoperable one, Dr. Gaudiani advised a central ligation of the subclavian. The operation was performed under intratracheal insufflation to prevent possible pneumothorax. An incision was made from the manubrium of the sternum, curving upward over the sternocleidomastoid muscle, and reaching down the outer extremity of the clavicle. Such an incision was decided on because it would permit eventually the resection of the sternum or clavicle and allow also a peripherial ligature in case the central was not feasible. After the muscle had been cut through, the tumor appeared covered by the internal jugular and by the upper part of the vena anonyma. The former was ligated and severed and the latter was gently pulled down. By means of blunt dissection it was possible to penetrate behind the sternum, along the carotid, until central compression of the aneurism was possible. Such compression stopped the pulsation in the sac and the radial pulse. A silk ligature was passed and a stop knot was made. The patient made a good recovery and he could now attend to his duties in iron foundry work. No radial pulse could be felt. The stretching and isolation of the subclavian loop of the sympathetic nerve, known as the ansa Vieussensi, which surrounded the sac, could explain the mydriasis of the left pupil. Dr. Gaudiani referred to the literature bearing on such unusual cases and said that only nine had been reported in Savariand's statistics (*Revue de Chirurgie*, 1906, Vol. II), which were the most recent. Of these, four were cured, three recovered, and two died. An older statistics, published by Jakobsthal (*Zeitschrift für klinische Chirurgie*, Vol. XLVIII) reported one single case of ligature of the subclavian at the same place. This case was Dr. Kammerer's and his patient died after a few weeks from secondary hemorrhage.

Dr. HERMAN A. HAUBOLD said he wished to emphasize one feature of the problem confronting them. They had before them a class of cases which presented a mortality which was high and they thought that this mortality was due largely to the method of approach. The subclavian artery laid higher in the neck than was depicted in most anatomies and, therefore, they performed an atypical operation making an atypical approach to the vessel. The operation was not a difficult one. Dr. Janeway administered intratracheal insufflation. A question arose in operating upon this patient, What would happen to the pleura? The patient, as shown by Dr. Gaudiani, was in splendid shape. He had no radial or axillary pulse and the pain and other distressing features had disappeared.

Dr. FREDERIC KAMMERER said that his case, referred to by Dr. Gaudiani, differed in some points from the one shown. The ligature in his case had to be placed around the left subclavian artery at a distance of one inch from the arch of the aorta and, in order to accomplish this, the sternal end of both clavicles and the manubrium of the sternum had to be removed. The ligature, consisting of several strands of chromic acid gut, was tightened only to such an extent that pulsation in the aneurysm ceased (MEDICAL RECORD, December 23, 1899). The patient did very well at first, the wounds healing by first intention, but he succumbed to a secondary hemorrhage four weeks after operation. At the autopsy the ligature was found apparently within the walls of the vessel, having cut through the latter.

Dr. ROBERT H. M. DAWBARN asked if the starvation plan of treatment in ligation of the subclavian for aneurysm had been tried. This method had not been tried as often as it should have been. In the work that he had done white vaseline at a temperature of 120° had been injected into the vessel and with good results. The method in conjunction with radium had a greater effect and *vice versa*.

Splenomegalic Anemia Treated by Blood Transfusion.—Dr. EDWARD W. PETERSON presented this patient, a boy four years of age with a negative family history. His trouble began when he was nine months of age, at which time it was noticed that his skin was very sallow and his abdomen was larger than it should have been. He had frequent attacks of vomiting and diarrhea with slight elevation of temperature. At the age of one and one-half years he was jaundiced. At the age of two years and ten months he was fairly well nourished and developed, but his appearance was cachectic and the mucous membranes jaundiced. The abdomen was large, the spleen extending to the line of the anterior superior spine of the left ileum, 13 c.m. below the costal margin. It was never smaller while the child was under observation. The liver extended three fingers below the costal margin. There was a gland the size of a hazelnut palpable under the angle of the left jaw, but otherwise the lymphatic system was negative. There was a systolic murmur at the apex, heard over the precordium and transmitted toward the axilla. On January 10, 1914, the blood count showed red blood cells 1,300,000, hemoglobin 15 per cent., white blood corpuscles 23,000. The differential count showed polymorphonclears, 32.5 per cent.; small lymphocytes, 31.5; large lymphocytes, 28 per cent.; transitionals, one per cent.; eosinophiles, 2 per cent.; basophiles, .5 per cent.; myelocytes, 5.5 per cent. The urine was negative save for traces of indican. The hemochrome test was also negative. The temperature was rarely normal, being usually around 100° or 101° F. Under medical treatment there was but little improvement. On May 9, 1914, the patient was sent for blood transfusion. The father acted as the donor and 275 c.c. of blood was transfused. The blood count before transfusion was red blood cells 2,530,000; hemoglobin, 36 to 40 per cent.; white blood cells, 29,000. After transfusion, the count showed red bloodcells, 4,580,000; hemoglobin, 60 per cent.; white blood cells, 14,100. Improvement followed the transfusion to such a remarkable degree that the parents considered the child well. However, in September, he again showed a muddy yellow color, began to lose weight and strength and suffered from frequent small nose bleeds. He gradually lost weight and strength until brought to the hospital four weeks ago, when he was scarcely able to stand alone. His condition was much the same as at the previous examination, except that he was weaker. As medical treatment had failed and as blood transfusion had brought about only temporary relief, and as the patient was growing progressively worse, splenectomy was advised and agreed to by the parents. On December 14, 270 c.c. of blood was transfused and this was followed immediately by splenectomy. The removal of the spleen was effected through a five and one-half inch rectus incision. The spleen weighed 422 grams. There were no attachments. The vessels in the pedicle are very large and were ligated individually. The total time of the operation was sixteen minutes. There was no shock and the loss of blood was scarcely appreciable. The wound healed primarily. The tempera-

ture of the patient ranged from 100° to 103° during the first week after the operation and then fell to normal. From the time of the operation the epistaxis stopped. This was probably also attributable to the hemostatic effect of the blood. The present condition of the patient showed an improvement as to weight and strength. The muddy color was clearing somewhat and there was no jaundice. The points of particular interest in this case were: 1. The splenomegaly with anemia commencing in infancy, the patient having no syphilis, rachitis, or malaria. 2. The marked improvement after the transfusion of May 9, 1914, followed by a recurrence of the symptoms in a more aggravated degree. 3. The very decided improvement which had followed transfusion and splenectomy. This was merely a preliminary report and the ultimate result would be given later. Dr. Peterson presented the report of the histological examination made by Dr. Sondern who diagnosed the condition as hyperplasia of the spleen and localized perisplenitis.

Arteriovenous Anastomosis for Thromboangeitis Obliterans.—Dr. C. R. L. PUTNAM presented this case. The patient was an Austrian Jew, tailor, who suffered two and a half years ago with thromboangeitis obliterans resulting in spontaneous gangrene of the big toe. This was later amputated and later an amputation in the midtarsal region was done. When he first saw him in September, 1913, he was suffering from gangrene of the stump; gangrene was on the dorsal surface of the foot, where on an area size of the palm of the hand the skin was black, dry and leathery. Swelling and edema reached to above the knee. He suffered great agony and was obliged to use codine in varying doses most of the time. At the request of Dr. Herman Appel, he did a lateral arterioveno-anastomosis, following Bernheim's technique. At the apex of Scarpa's triangle, the vessels were united and the proximal end of the vein tied off so that the artery and distal portion of the vein formed a "Y." Good pulsation in the vein occurred immediately, the valves breaking down in less than a minute. The artery wall was very thick, and its lumen correspondingly small. Immediately after the operation the circulation improved, he had no more pain and the swelling and edema of the leg disappeared rapidly. The gangrene of the foot did not recover, but a successful amputation was done above the ankle, which healed well. He has supported his large family at his regular work ever since.

When seen on January 7th, the neuritis had entirely disappeared, and since the operation he had never asked for any kind of anodyne at night.

Dr. BENJAMIN T. TILTON said that the important point in regard to arteriovenous anastomosis for thromboangeitis obliterans was the question of the permanency of the result obtained. No one doubted the fact that the blood current could be successfully diverted from the artery into the vein and that the valves of the vein were broken down by the stream of arterial blood. It was furthermore apparent in most cases of successful anastomosis that the circulation in the foot improved and the pain diminished. It was more than doubtful, however, whether this improvement continued and warded off an amputation. At the present time he had in the hospital a case of thromboangeitis obliterans who had both legs amputated for this disease. For the past year he had had signs of the same disease in one arm and hand, complete loss of the radial pulse, cyanosis, ulceration about two finger nails and severe pain. Three weeks ago he performed a lateral anastomosis between the brachial artery and the larger of the two venae comites, ligating the vein above the anastomosis. The immediate effect was striking. The pain lessened, the fingers became rosy in color and warm. This improvement, however, at the present time was not so noticeable and he doubted if they had gained any material advantage from the operation.

Dr. CHARLES GOODMAN said Dr. Putnam's case emphasized that in non-septic gangrene an arteriovenous anastomosis followed by a low amputation would prove satisfactory. All surgeons agreed that heretofore nothing short of an amputation of the thigh would relieve these cases of the excruciating pain which they were known to suffer. It was the pain above all the other symptoms which brought this class of patients to the surgeon, because it was well recognized that this symptom could not be relieved by any form of medical treatment. Arteriovenous anastomosis should not be performed in the presence of a rapidly spreading or fulminating gangrene. They did not as yet know the real cause of the disease, but an arteriovenous anastomosis would ward off an impending or threatened gangrene and prolong the life of the limb. Within the last few days he had had an opportunity of examining two of his cases operated upon respectively two and a half and two years ago. The limbs in both of these cases showed that the gangrene had been held in abeyance and amputation had not been necessary. Experience in vascular surgery, both in the laboratory as well as in the human being, led me to believe that end to end anastomosis on the vessels was preferable to the other methods, such as side to side, end to side, intubation and invagination. Arteriovenous anastomosis by this method offered the simplest technique, and while it did not cure the underlying cause of the disease, it could prolong the life of the limb almost indefinitely and relieve the patient of the distressing pain without resorting to amputation.

Dr. LEO BUERGER said that in a series of 75 amputations at least 75 per cent. would have a recurrence and have to be reamputated. The great majority of these cases would get well spontaneously, but it would require a long period of time. In fact there was no way of telling whether the patients subjected to arteriovenous anastomosis would get well or not. He asked Dr. Putnam if the veins at the time of operation delivered more blood than was expected and if they showed they were functioning properly, doing good work. He believed that one should look askance at all the results because they got as a rule but temporary improvement.

Gastroenterostomy for Duodenal Ulcer.—Dr. C. R. L. PUTNAM presented this patient. He was admitted to Lincoln Hospital in October, 1914, with diagnosis of chronic gastric or duodenal ulcer. The points of interest in this case were the extremely violent hemorrhages from which this patient suffered. He himself saw very large stools which were simply masses of blood. The attack for which he entered the hospital began five weeks before and was characterized by haematemesis and melena. Owing to his exhaustion he was kept in bed for four weeks, during which time he had less and less blood in the stools and gained considerably in strength. November 20, gastroenterostomy was done. An uneventful recovery followed and he went back to work about the fifth week.

Excision of the Pylorus for Structure Due to the Ingestion of an Acid.—Dr. PUTNAM presented this patient, who was admitted to Lincoln Hospital in October, 1914, to the medical service, with a history of having swallowed muriatic acid solution, of the strength used for cleaning stone, seven weeks before admission. He declared that before that he had had no trouble with his stomach, but was always very thin. An *x*-ray was not taken immediately because he was afraid to use bismuth in the then condition of the stomach. After two weeks of liquid diet, a small amount of bismuth was given and an *x*-ray obtained, which showed a small stricture one inch to the left of the middle line, with a fine trail of bismuth running to what looked like a stricture of the pyloric end, trailing off to tight stricture. At this time he had stopped gaining strength and was beginning to lose rapidly. The *x*-ray diagnosis was cancer, but the history of the ingestion of hydrochloric acid made it necessary to consider the possibility of traumatic stricture. At the operation the whole pyloric end of the stomach was found hard and apparently impervious. There were a few small glands in the gastro-hepatic omentum and over the pancreas, but no evidence of cancer could be found in the neighboring organs. In view of the extreme hardness of the growth, it was thought best to excise the pylorus and the cancer bearing area. This was done, a posterior gastro-enterotomy being performed. The examination of the pylorus by Dr. Rohdenburg showed no cancer but a complete destruction of the gastric mucous membrane, which was replaced by a squamous epithelium which, in his opinion, must have grown down from the esophagus. This would seem to imply complete destruction of the stomach lining. Dr. Putnam showed the specimen, the *x*-ray, and the section of the pylorus.

Etiology of Embolic Enteritis.—Dr. A. V. S. LAMBERT read this paper based on two cases presenting interesting phases both in etiology and diagnosis. He reviewed what had been reported in which the lesions were essentially the same, namely, disseminated foci of hemorrhagic infiltration of an inflammatory nature in the submucosa, the remaining coats of the intestine at first not becoming involved and the mucosa remaining intact until late in the course of the process. Dr. Lambert's cases, although they resembled these in

some particulars, presented certain differences which were of interest. The first case was that of a man, 44 years of age, who entered the hospital twenty hours after the onset of his symptoms. These consisted of pain in the hypogastric region shifting later to the umbilical region. He vomited and raised large quantities of gas. He had been constipated for several days and the abdomen was swollen. He had grown rapidly weaker and sicker and the pain had become well nigh unbearable. He gave a history of a milder attack a year and one-half before the present one. At the time of admission to the hospital the patient appeared to be *in extremis*. The man presented a condition of shock and prostration out of proportion to the physical signs in the abdomen. An acute pancreatitus seemed the most probable diagnosis, but in view of a history of stomach trouble, a peritonitis following a ruptured ulcer of the stomach was suggested. The patient appeared too ill for that condition. At operation an excess of clear fluid was found in the peritoneal cavity, which was sterile on culture and showed no pus cells or bacteria. The small intestine was greatly distended, of auniform dark color, and intensely congested. The of a uniform dark color, and intensely congested. The coils were glistening with no fibrin on them. Search was made for mesenteric thrombosis but none was found. In the mesentery, where it joined the intestine, there were fan-shaped hemorrhages, bright red in color. On the free surface of the gut there were dark hemorrhagic areas which did not appear to bear any relation to those in the mesentery. When seen from within the gut the mucous membrane was distinctly raised above the surrounding parts and appeared hemorrhagic over these areas and was everywhere intact. There was no obstruction in the bowels and distention stopped at the cecum. The appendix was not acutely inflamed. The patient survived only a short time after the operation. The operative findings were negative save for the numerous small disseminated hemorrhagic foci in the markedly distended jejunum and ilium. The microscopic examination showed findings similar to those described by Oberndorfer and Hart. While the mucosa was intact, in the submucosa there were pronounced hemorrhagic infiltrations and edema with little or no exudation of leucocytes. No emboli or thrombosed vessels could be demonstrated.

The second case was that of a woman, 38 years of age, who gave a history of abdominal pain for two days before admission to the hospital. She was not nauseated and did not vomit at first but later persistent vomiting supervened and also chills and fever. She rapidly grew weak and became prostrated. She gave no history of a previous attack. At the time of admission the case was supposed to be one of diffuse peritonitis, probably from a ruptured appendix, but the atypical appearance and the presence of profound shock threw doubt on the correctness of this view. At operation the appendix was found to be slightly swollen and congested with fibrin on the surface. Its lumen later showed the changes characteristic of chronic appendicitis. There was considerable fluid in the peritoneal cavity, the pelvis being filled with a purulent exudate. Some of the intestines were matted together with fresh fibrinous exudate, and the small intestine was covered for its entire length with flakes of fibrin and was greatly congested. The appendix was removed and drainage provided after aspirating the fluid from the peritoneal cavity. The patient died seven hours after the operation. Examination of the fluid from the peritoneal cavity showed the presence of pneumococci and diphtheria bacilli similar to those found in the lungs. These showed an early stage of broncho-pneumonia. There were a few punctate hemorrhages in the visceral pericardium. In addition there was a fatty liver, and old fibrous pleurisy and arteriosclerosis of the aorta. There were numerous small ulcers and accumulations of clots of blood bulging from the ulcers into the lumen of the intestines At the margins of these ulcers, were seen remnants of the thrombus-like mass of blood which apparently were the starting point of the lesion. Scattered through the intestine were irregular bluish masses, situated just beneath the mucosa which on section were found to be composed of clotted blood. The microsconical examination showed an intense hemorrhagic infiltration of the mucosa and submucosa with accumulation of leucocytes in many places. There was also ulceration of the mucous membrane and destruction of tissue with necrosis. Nowhere could emboli or thrombi be demonstrated. The lesions in these two cases, though they resembled those described under the term embolic enteritis, differed from them in some important particulars. They represented rather a diffusely scattered hemorrhagic infection with pronounced edema of the small intestine. The lesions began in the submucosa and rapidly infiltrated the mucosa. As the process developed there was a marked infiltration of leucocytes, and finally, in the later stages, an ulceration of the mucosa. No evidence of embolism or thrombosis could be found. The pneumococci in the second case might have been responsible for the disease, but the diphtheroid bacillus was lost and no animal experiments were made, so its exact relationship to the lesions must remain in doubt. The rarity of these lesions would lead one to the conclusion that there was some peculiar element in these cases. Might it not be possible that in pyemia the intestinal lesions were comparatively few in number in any given case and that as they formed in the submucosa and tended to rupture into the lumen of the bowel, they gave rise to small ulcers causing the diarrhea so frequent in this condition. From the standpoint of therapeutic measures, the outlook was discouraging. They were unable to remove the infected portion of the intestine giving rise to the peritonitis. It was not possible to drain the entire peritoneal cavity and operation by partial drainage would prove unavailing. None of the cases, so far as the author was aware, had been reported recovered.

Cancellous Bone Lesions.—Dr. GEORGE BARRIE presented this communication in which he reported a series of 20 cases of cancellous bone involvement that could not be classified as syphilitic, tuberculous, malignant or suppurative; neither could these cases herein reported as systemic lesions be grouped with the diseases of bone whose etiology was known to be due to disturbed metabolism through the ductless glands. The author divided this series of cases into three groups: (1) Metaplastic osteomalacia (systemic lesions). (2) Hemorrhagic osteomyelitis (local lesions). (3) Osteo-chondro-fibroma congenital tumor). After discussing the etiological and pathological theories advanced in regard to osteomalacia he concluded that further research was needed on this point. In the cases of metaplastic osteomalacia that had come under his observation all had given the physical signs of robust health. The bone lesions, except at the time of fracture, caused no symptoms of pain, tenderness, or discomfort. The cellular blood picture and hemoglobin percentage had been practically normal throughout numerous examinations. Urinary examinations had been negative for Bence Jones bodies. The Wassermann and tuberculin tests had given negative results. Antiluetic medicinal treatment had been given in two cases without apparent effect. The *x*-ray pictures had not shown any bone lesions above the pelvis in the cases observed. The routine use of the *x*-ray had been of great value in throwing light upon and demonstrating the presence of many cancellous bone lesions that only gave trivial clinical symptoms of their presence. In their work skiagraphs of the entire skeleton had been taken in all cases in which there was a suspicion of more than a single focus.

The second group of cases to which the author had given the term hemorrhagic osteomyelitis comprised those localized inflammatory processes which occurred most commonly in or near the ends of the long bones. When through operative interference the lesions were exposed, and depending upon the stage of reaction present, one of two general clearly defined forms were exhibited, namely, the hemorrhagic granulation tissue (solid) lesion or the fibro-cystic or wholly cystic lesion. The etiology was apparently primarily due to trauma. In this form of osteomyelitis the diagnosis was quite generally incorrectly made of medullary giant celled sarcoma, myeloma, medullary giant celled tumor, etc. In a paper recently published (*Annals of Surgery*, Feb., 1913, and *Surgery, Gynecology and Obstetrics*, July, 1914), the writer had discussed the place these giant scavenger cells occupied in this inflammatory process. A more active stimulant reaction with increased fibrin production caused local metaplasia and converted the hemorrhagic granulation tissue into fibrous structure with consequent retraction and cyst formation. This advanced form or stage of the initial lesion gave on operative picture of a localized fibrocystic osteomyelitis. Whether or not the lesion had advanced from the hemorrhagic to the fibrocystic, or purely cystic stage, could only be determined positively during operative interference and exposure and then only might a con-

clusive diagnosis be made. The use of the *x*-ray should always be resorted to for diagnostic purposes. At present it had its limitations. One was unable to state from the skiagraphs whether or not the more or less symmetrical lesions were hemorrhagic (solid) fibrocystic, or cystic, whether they possessed a lining membrane or did not. Sixteen cases of lesions of this group had come under the observation of the writer during the past three years. The lesions were distributed as follows: There were eight of the femur, three of the tibia, two of the fibula, and one each of the radius, ulna and ilium. Of these 16 cases, 10 had submitted to operative interference, two cases apparently would not require operation, and two others had refused operation but were being kept under observation. Two cases had been lost sight of. In the 10 cases operated upon, five proved upon exposure to be solid, that was, of the hemorrhagic non-metaplastic type; four were fibrocystic and one was frankly cystic. In only one case had the author felt it necessary to perform an amputation for this lesion. The mutilating operation in his instance was considered preferable on account of the age and enfeebled condition of the patient. In several cases the writer had been content to currette, swab the cavity with iodine and close the wound. In others where the cavities were larger partial filling had been accomplished by shavings removed from the normal bone. The ages of the patients had ranged from 3 to 63 years. The size of the lesions had varied from that of a coffee bean to a large goose egg. The relation of the size of the lesion to the duration of the disease was quite indefinite. As a rule the process was a slowly progressive one. A definite history of initial trauma was obtained in two-thirds of the cases. The period of time elapsing from the date of the injury to the onset of symptoms had varied from the time the injury had been received to eighteen months later. No lining membrane was present in nine out of 10 cases operated upon. The clinical diagnosis of these lesions in the upper end of the femur was frequently difficult to make because they simulated closely the symptom complex of hip disease of the acetabular type. The *x*-ray made a correct diagnosis easy.

In the third group of cases, those of osteo-chondrofibroma, the cancellous bone lesion must be regarded as a true tumor, that was, an autonamous growth of benign characteristics possessing the potentialities for sarcomatous degeneration. After discussing the etiology of this condition, Dr. Barrie said he had had the opportunity of personally observing only one case. This he reported on account of its rarity as a single growth in the cancellous bone and because of the interesting features it presented. The patient was a boy 12 years of age, well nourished and giving a negative family history. He had limped since he was two years of age. He gave no history of injury. He had felt no pain or tenderness in the left limb but the femur was one and one-half inches shorter than the right. An osteotomy had been performed some years ago for the purpose of straightening the bowed femur. The histological report returned stated that the condition was osteitis fibrosa. This was another instance of the mistake of making a diagnosis from an unselected portion of a diseased mass. Dr. Barrie exhibited lantern slides illustrating this case.

—Dr. Robert H. M. Dawbarn emphasized the fact that it was necessary to make a diagnosis between the ordinary malignant growths, carcinoma and sarcoma of bone, and the semimalignant ones. Other conditions such as osteomalacca, rickets or osteitis were not necessarily malignant. In osteomalacca a number of bones were involved, and this held true in rickets. In osteitis the use of the thermometer was of great value. The point he raised was that in malignant or semimalignant conditions, and long before they got any change in the shape of the bone whatsoever, the first pathological change was invariably a decalcification. This could be determined by the use of a needle held in the claws of a hemostat. If the condition was malignant or semimalignant one could pass the needle into the tumor as though it was cartilege; in ordinary healthy bone it would be found to be of stony hardness.

Dr. Wisner R. Townsend, speaking in regard to the early diagnosis of these cases, said an early diagnosis could not be made unless the patient was seen early. Many came to the orthopedist without any symptoms except swelling. Often they did not complain of pain. This was a fact that struck him in the cases brought to his observation in the hospital. Unless swelling was marked there was nothing to direct their attention to their condition until they had pain or lameness.

THE NEW YORK PSYCHIATRICAL SOCIETY.

Stated Meeting, Held November 4, 1914.

The President, Dr. William L. Russell, in the Chair.

Report of the Standing Committee on Legislation.—Dr. William Mabon made this report in which he called attention to the fact that the State Hospitals had failed to receive sufficient money to meet their needs and that because of this fact they were more crippled than ever before. It meant to them a serious disorganization if the present conditions were continued. The institutions depended upon a raise in the appropriation if they were to continue in doing the right work. The New York Psychiatrical Society would be called upon to designate the needs of the State hospitals. The Hospital State organization would offer every effort, as would the State Lunacy Commission, to further the work. There must be more appropriations made, or there would be a return to the conditions that existed in 1890. The working force had been reduced by about forty; the stenographic staff had been reduced; this all worked against their interest. The conditions as they existed to-day were not good and it was hoped that the members of the New York Psychiatrical Society would think over the matter and in the coming fall be prepared to help in the fight in the legislature that would enable them to get suitable appropriations for their work. Dr. Mabon stated that a bill was now before the Governor which had for its object the abolishing of the Mohansic State Hospital, and another bill which provided for the erection of a hospital instead. He believed that the members of the Society should act as a Society and not as individual members in combating this measure. The necessity for another State Hospital in the immediate vicinity of New York was imperative, as at the Manhattan State Hospital, of which Dr. Mabon was Superintendent, they care for over 4900 patients, whereas their capacity was only 3600. If this bill abolishing the Mohansic State Hospital were approved, it would be necessary to select a new site, which would result in delays and the waste of nearly half a million dollars which had already been expended for the site of the Mohansic State Hospital, and improvements thereon. The second bill provided for a site to be acquired for the sum of $25,000.00. As land within a radius of fifty miles from New York could not be obtained for a reasonable amount, it would be necessary to go further up the State, and even then land could not be had for less than $250.00 an acre. At this price only 100 acres of land would be available, whereas 1000 were required. The second bill also provided for the erection of a complete institution, including all service buildings, as laundry, store-houses, kitchens, nurses' homes, etc., at a cost of $2,000,000.00, for 2000 patients, at an average of $500.00 per capita. It was well known that at the present time a suitable hospital for this number of patients could not be erected at less than $1,000.00 per capita. He hoped that the members of the Society would write to the Governor asking him to veto both of these measures. For many years it had been his view that there should be a bond issue to provide for the new buildings made necessary by the increase in the number of insane in New York State. If such a bond issue was made, definite plans could be outlined for the next twenty years, and ample accommodations could then be provided for the excess which now overcrowds the hospitals. He had presented this question to the Legislature on various occasions during the past fifteen years but had been unsuccessful in his efforts. He was glad to see that the Governor of the State was advocating this means of caring for the insane. If this plan were in vogue they would not have so much difficulty getting suitable appropriations for maintenance each year from the Legislature. As it was now, maintenance, extraordinary repairs, and new buildings were provided for by the Legislature each year, and as the total amount was one-fifth of the revenue of the State, it had appalled the members of the Legislature and they had always reduced the amounts asked for and needed. Dr. Mabon felt that the medical profession should be behind them in what they were striving for, inasmuch as the profession was more in touch with the institutions for the insane than formerly. The profession should take them up in their efforts to raise the standard of the care of the insane; to assist them in all their studies into the causes and prevention of insanity, and in the work of the labo-

ratories. Hospital superintendents were no longer considered as hotel keepers, but as professional men engaged in the scientific study of the problems of insanity, both from the laboratory, the clinical, and the sociological aspects. They should get together before the convention met in conference with representatives of different organizations and with those who were interested in caring for the insane in order that such action as was necessary might be taken. This convention would meet early in the spring. The subject of the mental defective should also be considered. The Committee asked for suggestions from members of the Society which bore upon the work. They could make this subject a very broad one. Dr. Mabon regretted to see that mental defectives were grouped with the insane. The mental defectives composed a very large body and should receive special consideration. The State never assumed the obligation of caring for the mental defectives as it did for the insane and if the responsiblity for caring for this class could be properly placed, they would have accomplished something.

Dr. CHARLES L. DANA believed that this class should be under the charge of the State Board of Charities.

Dr. MABON said one meeting of the Society should be devoted to this subject of caring for the mental defectives for it was such an important one. By a careful study of the subject they could accomplish something, and they should begin this work at once.

Dr. THOMAS W. SALMON said that there was a tremendous interest all over the country in the care of mental defectives and in twelve different States a special study of the question was being carried on. The medical profession had not been so much interested heretofore in the study of the mental defectives as they had been in the study of the insane. It seemed particularly desirable that an Association like the New York Psychiatrical Society should go into this matter of caring for this class of people.

Dr. MABON said that there was one member of the Society who had been appointed by the Governor of the State to study and report upon this question and it occurred to him that the report he made should stand; his judgment in this matter should be of great value to the Society. Every similar society should formulate some general plan for caring for the insane, the mental defectives and epileptics. He repeated that he believed one meeting of the Society should be devoted to a general discussion of the mental defectives.

Dr. DANA moved that the report be received and placed on file and the usual course be taken. This was carried.

Committee on National Hygiene Movement. — Dr. SALMON read this report for Dr. Russell, chairman of this committee. In this report and in the discussion which followed a general survey was made of the movement, especially in Scranton, Pa., Springfield, Ill., and other cities. Surveys had been undertaken by physicians from public health committees. Many things that were being done today and not before were very impressive and more had been accomplished that had been thought possible.

A Study of Periodic Mental Depressions. — Dr. L. PIERCE CLARK presented this paper which was based upon the analysis of two cases of mild recurrent depressions of the manic-depressive type which had never sought asylum or sanatorium care. The first was that of a woman of 50 years of age who suffered from neurasthenic depressions from the time of the birth of her only child at 27 years of age. The nervous disorder occurred on a background of an open type of personality. It was shown by dream analysis and free association of the early childhood that she had an intense maternal-sister attachment, the persistent fixation of which made it impossible for the patient to adjust herself to normal sexuality or to the sequential state of maternity demanded in the marriage relations. After the birth of her only child the patient regressed to infantile trends, was depressed, and had ideas of suicide and a host of so-called neurasthenic symptoms which were symbolic of death, symptoms such as dizziness, faints, loss of breath, headache, nausea, vomiting, and a sense of impending collapse. Whenever difficult situations of new mental stress were applied the patient had a periodic depression. The analysis and therapeutic talks quickly removed the depression and the patient had found a larger and safer outlet for her interest and aims in life.

The second case was that of a young unmarried man of 34 who had an intensive love for his mother and an equally strong feeling of hate for his father. He found no adequate outlet for his aims and interest in life, had a latent and prolonged period of self-pollution, could not adjust himself to normal sexual life, and yet could not sublimate these into his life work. In alternating from these two great dilemmas of life at 23 years of age he finally undertook a line of work which utterly failed to meet the requirements of the libido in its larger sense, had a shock, regressed to the infantile strivings, became depressed, and contemplated suicide. Since the first breakdown he had had seven depressive periods at irregular intervals. The analysis was largely of the conscious life and an effort to give the patient a fair understanding of the general situation, of the precipitating causes and their relationship to the depressions. The result of analysis and therapeutic tactics was rapid relief from the depression and a much more stable and efficient outlook on life at home and in other social and business relations. The cases were presented as a contribution to the mechanism of the manic-depressive syndrome as especially elaborated by Hoch and Kirby which in its main tenets contended that after a more or less abrupt rupture of the libido the latter regresses to the infantile instincts and there when the socially adaptive tendencies of the main personality suppress or repress their strivings the person gets depressed because the libido is held back and the libido then strives for outlet in unconscious craving as shown in suicidal acts or wishes for death and union with loved ones. The author dwelt at length upon the pressing and practical importance of the scientific analysis of even the milder types of depressions and the therapeutic advantages of such procedures. It was his hope also that by so doing the baleful recurrence of such disorders might be lessened or done away with altogether.

The Clinical Varieties and Anatomical Changes in Alzheimer's Disease.—Dr. CHARLES I. LAMBERT presented this communication in which he stated that in 1906 Alzheimer had described an atypical mental disorder occurring in middle life. It was striking in the insidious development, rapidly progressive course, and the profound grade of dementia reached. Since Alzheimer's original communication some seven or eight other comparable cases had appeared in the European and American literature. During the writer's connection with the New York Psychiatrical Institute and the Manhattan State Hospital, six other cases came under his observation. The first two cases which the writer reported were both men 49 years of age without significant heredity or makeup but with a history of alcoholism. In each there developed insidiously without attacks of unconsciousness or convulsions, a most profound dementia. The onset was first evident in inattention, indifference, and absent-mindedness, later becoming more manifest in declining efficiency, progressive impairment of memory, retention, grasp, poverty of thought, followed by aimless, restless, foolish behavior, and increasing dilapidation which went on apace toward an apathetic dementia, incapacity to comprehend, to talk, to walk, and a bed-fast state in which the patient muttered, and mumbled, and fussed, and fumbled, pulled at his bedding, wet and soiled himself, chewed a little and gulped down what was put into his mouth, vegetated for a time and died like a decerebrated animal. Among the more striking symptoms in these cases were the outstanding symptoms of agnosia, aphasia, apraxia. An exact analysis of these focal symptoms presented considerable difficulty since to an impaired general recognition, word understanding, and expression, there was added a general dementia and an unresponsive, resistive attitude. At the beginning or very early there developed a conspicuous word poverty which increased to complete loss of spontaneous speech without gross paralytic symptoms developing so that one might probably conceive the aphasic symptoms resting largely on the marked dementia present and in the nature of a mixed sensory motor transcortical aphasia. In the ophosic and apraxic disorder the absence or impairment of motor function should be remarked. Dr. Lambert then related the history of a third and fourth case, the patients, being respectively 61 and 71 years of age, in which likewise there developed gradually, without cerebral irritation, apoplexy or paralytic phenomena, evidences of deterioration. In addition to the diffuse non-systemic symptoms of dementia there stood out in the first case a diffuse aphasic or paraphasic disorder, largely of a sensory type at first, later of both a sensory and motor transcortical type. There was little motor or ideatory apraxia in this case. In the second

case there was also considerable paraphasia and jargon-aphasia but more prominent were the symptoms of motor, more particularly ideatory apraxia. Here, too, must be remarked the absence of objective paralysis, although in the second case a right heminopsia was suspected, and anatomically properly so, due to a high grade parieto-occipital atrophy of the cortex of purely a senile character. The writer then related a fifth case, occurring in a woman 56 years of age. The case was admittedly impure clinically. There was moderate alcoholism, probably insufficient to produce or account for the Korsakoff-like syndrome. There was no history of trauma but such could not be wholly excluded as a thin rust colored membrane lined the dura; however, the gross appearance of the dura was everywhere intact and healthy looking. The more probable condition was a premature presbyophrenic complex. However, the distribution and character of the anatomical changes were of special interest in relation to such a possibility. The influence of all the factors enumerated, however, could not be denied. In nearly all the cases the onset at an early age would seem to preclude a simple senile dementia from consideration. The rapid course and grave dementia with the appearance of aphasic and agnosic symptoms, and some ataxia, might suggest a brain tumor, but pressure symptoms were absent. An arteriosclerotic brain disease could be excluded because of the absence of peripheral arteriosclerosis and development of a deep dementia without antecedent history of headache, vertigo, or apoplectic attacks. A typical general paralysis might have been considered most probable but the biological finding should control this. An atypical Lissauer type of general paralysis might be thought of in all the cases, but especially in the third and fourth. Traumatic insanity might be considered but in one case only was there such a possibility. Alcoholism might have played a minor rôle but the essential features of chronic alcoholism were lacking. The symptoms indicated a wide spread severe cortical disease, in type comparable to a grave senile dementia, premature in development and more profound in degree. The pathological process underlying this condition had not been fully and accurately studied. It appeared to develop irrespective of vascular fields and the normal condition of the vessels inclined one to believe that some form of abiotrophy underlay the disease process predisposing the brain to earlier senile involution. In both cases presented, in the atrophic field the plaques were not only more numerous but the fibrillar changes more severe, the nerve cell loss more pronounced, and neuralgia reaction more marked than elsewhere in the brain. The prototype of this disorder was probably represented in the Lissauer types of general paralysis. Again the clinical pictures presented by these groups of cases were essentially different from the presbyophrenic complex not infrequently occurring in senile dementia. While attempting to perceive the distinctions between the individual cases and grouns of cases here presented, the writer said he was fully aware of the fundamental continuity of the pathological process in all of the cases. The writer by means of lantern slides demonstrated the anatomical changes present in the several cases present.

Dr. H. A. COTTON said that these cases of Alzheimer's disease were not very numerous. He had one case under observation which he believed to be a case of this disease. For a long time there had been a partial general paralysis although an examination of the cells in the spinal fluid proved negative. Clinically this was a typical case of the kind described by Dr. Lambert. The anatomical findings were interesting in relation to the fat, to the relation of neuroglia, and the getting rid of the fat to the blood vessels. An important fact suggested by the reader of the paper was that metaholic changes did take place in the cortex. He thought that the more familiar they became with such cases, the more cases of Alzheimer's disease would be found and especially when they came to autopsy. He had seen but one case.

Dr. GRAEME M. HAMMOND said he had been particularly impressed with the paper. Personally he had never made a diagnosis of Alzheimer's disease and he thought it was possibly due to the fact that he knew so little about it. They probably saw these cases oftener than they knew, but as yet they were not able to differentiate them from paresis or dementia. From a study of the clinical features they would be better able in the future to make a diagnosis.

Dr. AUGUST HOCH said he had seen one case that clinically was Alzheimer's disease and one that Dr. Lambert also had seen. The case he saw he thought might have been of that sort. There was a dementia occurring in a relatively young man. He showed a previous organic dementia with diffuse aphasic disorders in general suggestive of a previous deterioration. There was a general paralysis but no arteriosclerosis.

Dr. SWEPSON J. BROOKS said he hoped that some day Dr. Lambert would report on a study of cases that were rarely mentioned, that was, cases of precox, showing that the same conditions were responsible for the symptoms presented. He felt that these cases were not explored sufficiently. There were certain substances in the body, toxic in nature, which were responsible for the condition. Dr. Lambert had shown that there was no condition of the arteries that was responsible for the breaking down of the cells; this was shown in the slides. Dr. Lambert had pointed out a field that should be productive of very interesting work.

Dr. H. A. COTTON asked Dr. Lambert if there were any convulsions in the case he reported.

Dr. LAMBERT replied that there were no convulsions in any case.

Dr. H. A. COTTON said that there was a patient who had been in the hospital five years and during the last month or two he had had two typical paretic convulsions.

Dr. LAMBERT said that they should suspect such cases as being of cortical nature. With regard to the fat content in the plaque it was not known whether it represented local tissue degeneration or degeneration of certain products deposited in the plaque. It was suggested that possibly degeneration exceeded local elimination and precipitation probably occurred.

The Differential Leucocyte Count.—S. R. Miller concludes that the total leucocyte count and differential formula in normal individuals are subject to relatively wide variations, which must be considered in the interpretation of studies made upon the blood of individuals presumably suffering from abnormal conditions. The interpretation of any differential count should be based upon a knowledge of that particular individual's normal blood picture, when possible; the average values for the locality in which that individual resides, and a consideration of those factors peculiar to the individual which might modify that particular blood. Differential leucocyte counts should always be reported in terms both of percentage and absolute numbers per cubic millimeter, and in all cases, where possible, more than one differential count should be made, especially in borderline cases in which slight changes are to be regarded as of diagnostic or prognostic value. The tendency to ascribe a diagnostic value to lymphocystosis is probably overdone. Only when the mononuclear elements constantly exceed the average percentage, the absolute values, and the upper limits of variation (35-40 per cent.) for the community, and when all modifying factors are considered, Miller claims, should one attempt to draw important and valuable conclusions from the figures obtained.—*Johns Hopkins Hospital Bulletin.*

Autoserotherapy in Dermatology.—José S. Hilario finds that autoserum alone is capable of producing spontaneous involution of certain dermatoses, especially those of actinic and nervous origin, and of those which have proved rebellious to chemical medication. As an antipruritic agent, autoserum is an excellent remedy. It plays a very active influence in the treatment of psoriasis in reducing the resistance of psoriatic tissue, thereby rendering it more apt to be acted upon by chrysarobin in weak percentages. Two or three per cent. chrysarobin is enough to produce a complete desquamation of the epithelium involved in the areas of psoriasis, in combination with the autoserum treatment. Owing to the low percentage of chrysarobin necessary to bring about healing, the possibility of producing secondary dermatitis, in psoriatic patients, is practically ruled out. While the autoserum, when it is aseptically and properly prepared, gives rise to no clinical reaction, it is capable of augmenting the hemolytic amboceptor in the serum from the individual into whom it is injected. The use of chrysarobin is not necessarily to follow a determined number of injections. The earlier the application of the ointment the faster the healing of the disease.—*Journal of Cutaneous Diseases.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 9.
Whole No. 2312.

NEW YORK, FEBRUARY 27, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE MENTALLY DEFECTIVE AS CASES IN THE COURTS OF NEW YORK CITY.

BY MAX G. SCHLAPP, M.D.,
NEW YORK CITY.
DIRECTOR OF THE CLEARING HOUSE FOR MENTAL DEFECTIVES, PROFESSOR OF NEUROPATHOLOGY IN THE POST-GRADUATE MEDICAL SCHOOL,
AND
LETA STETTER HOLLINGWORTH, M.A.,
NEW YORK CITY.
PSYCHOLOGIST IN THE CLEARING HOUSE FOR MENTAL DEFECTIVES.

(From the Clinic of Prof. Schlapp.)

IN recent years there has been a growing tendency among the more intelligent workers in penal institutions and in departments of correction, which may briefly be characterized in the idea that "the criminal, not the crime, should be punished." This tendency is indicated by the many studies of inmates of reformatories and prisons which have recently been made and are now in progress. No attempt will be made here to review the literature that has appeared on this subject. The writings of Saleilles on "The Individualization of Punishment" and of Grasset on "The Semi-Responsible and the Semi-Insane" present general discussions of this idea, and have no doubt stimulated experimental work. Interesting investigations are being carried on at Bedford Reformatory, among the juvenile delinquents in Chicago, and in various other places. The present paper deals with but one group of delinquents, *i.e.* the mentally deficient, and comprises a careful statistical analysis of 520 cases from the courts of New York City, examined during the past 21 months in the Clearing House for Mental Defectives.

The general organization and procedure of the Clearing House for Mental Defectives have been recently described by the present authors[1,2] and will not be rehearsed here. Among the 5,700 cases examined at this clinic in the 21 months since its establishment were 520 court cases. Each of these cases was given a mental, physical, and social examination, and the more important results of these examinations are presented here in the form of a statistical analysis. There has been an attempt to answer some of the questions that occur most naturally to the examiner, for example:

1—What charges are brought in the courts against those delinquents who are found to be mentally deficient?

2—Is there any correspondence to be discerned between the degree of deficiency and the nature of the delinquency?

3—How are the delinquents distributed as to age, both actual and mental?

4—To what extent are the delinquents physically defective?

5—How are mentally defective juvenile delinquents distributed in the schools?

6—What significant facts are revealed in the family histories of these patients?

7—What recommendations are made by experts for the final disposition of the offenders after the examinations have all been completed?

It should be understood at the outset that this study does not pretend to teach anything concerning delinquency in general. Also it tells nothing as to the percentage of feeble-minded individuals among court cases. It touches only upon offenders who were suspected, by magistrates or probation officers, of being mentally abnormal. The cases came from the various Courts as follows. The vast majority were brought from the Children's Courts, for the reason that the Director of the Clearing House happens also to be the official examiner to the Children's Court.

TABLE I—COURTS FROM WHICH RECEIVED (1913 AND 1914).

Children's Court	463
Magistrates' Courts	22
Court of Special Sessions	13
Night Court	6
County Courts	3
Criminal Courts	2
District Court	2
"Tombs"	2
Through N. Y. P. A.	2
Raymond St. Jail	1
Harlem Court	1
Dept. of Correction	1
N. Y. District Attorney	1
City Prison	1
Total	520

Distribution of the Basis of Age.—Table II shows that comparatively few individuals in our group are below ten years of age actually. The greatest number of juvenile cases appears at the Clearing House between the ages of 13 and 15 years—that is, at adolescence. A similar situation is shown in figures recently published from the Psychopathic Institute in Chicago by Dr. Augusta Bronner.[3] Twenty-five of our adolescent cases were found after examination to be of normal intelligence and were diagnosed as mentally unstable. This condition, appearing characteristically at adolescence, and accompanying the somatic changes which take place at that time, may be transitory and recoverable, or it may be the first outcropping of a fundamental neurotic weakness, which will affect the individual throughout life. Even with the imbeciles and morons it is often the case that unstable and criminal tendencies first manifest themselves at the beginning of adolescence. The following cases may serve to illustrate this point:

4353.—Girl. Actual age, 14 years; Binet age, 10 years; school grade, 7A. Arrested while wandering about the street at night. "Since she turned 12 years old she has been very disobedient, uses vile language, etc. About two months ago she took money from her mother's pocketbook. The patient became angry at the mother's scolding, and left home. About 6 o'clock the police brought her in, saying they had found her in Long Island City. She told the police she had been kidnapped. * * * Whether the retardation on the

Binet is due to actual mental deficiency or to temporary instability * * * is difficult to say. Further observation is necessary."

4222.—Boy. Actual age, 14 years; above the Binet. Left school from class 7A. Arrested for associating with vile and vicious persons. "Patient is certainly not mentally deficient. For the past two years, *i.e.* from the time when he was about 12 (the period of pubic stress) his conduct has been unsatisfactory. * * * Is impulsive, and states that he would not be sure of himself if he promised not to run away again."

3763.—Boy. Actual age, 12 years; Binet age, 10.2 years; school grade, 5A. Arrested on complaint of mother for incorrigibility. "The boy presents a fairly normal mental condition, although he is very emotional and easily upset. * * * If he does not improve, it is advised that he be placed somewhere so that he can be guarded against the temptations of his present environment. The condition is unquestionably due to adolescence."

3277.—Girl. Actual age, 12 years; Binet age, 9.6 years; school grade, 4B. Patient "holds up" children on the street and takes money from them. "Mother states that up to one year ago patient was a good girl, and never did anything wrong. Mother cannot account for the change in her actions. Last week patient played truant from school. She meets her brothers on the street, and induces them to play truant with her. She has become unruly and wild of late, and when corrected flies into a passion."

Table II—Showing Distribution of Delinquents Under Actual Ages and Binet Ages.*

Actual Age	Binet Age										
	Below 3	3	4	5	6	7	8	9	10	11	Above Binet
5			1								
6	2				1						
7			1	1	2	2					
8				3	2	8	1	3			
9			1	1	6	4	7	7	3		
10			1		5	7	10	6	7		
11			1		4	1	11	6	11	6	
12		1	3	2	1	6	5	13	12	7	2
13				1	2	7	4	17	18	8	1
14			1	1	5	7	6	11	23	14	7
15				2	5	5	16	32	26	20	19
16					1		1	8	3	9	4
17						1	2	5	3	1	1
18						3	2	1	1	2	
19								4	2		
20							1		1		
21		1		1		1		3	2	1	
Over 21	1		1		1	3	1		1		1

*Fractions are dropped when less than .5, and counted as a whole when more than .5. All records above 11.4 years on the Binet Scale, are rated as "Above the Binet."

Diagnosis.—The diagnosis of these cases ran as follows: In the table diagnoses are given without details of etiology, etc., which are given in the histories. For example, "retardation due to environment," "retardation due to epilepsy," "retardation due to physical cause," etc., are all given in this table simply as "retarded."

Table III—Summary of Diagnoses.

Morons	87
Imbeciles	84
Retarded	66
Mentally defective (degree as yet undetermined)	50
Mentally and morally defective	23
Neurotic	36
Moral imbeciles	36
Normal	28
Mentally unstable	25
Moral deviates (N. F. M.)	29
Epilepsy	5
Dementia praecox	6
Environment	10
Idiots	3
Not feeble-minded, but eccentric	1
Alexia and agraphia	1
Alcoholic dementia	1
Wanderlust	2
Chorea	1
Neurasthenia	1
Hysteria	1

Nature of the Delinquencies.—The various crimes and misdemeanors of which the patients had been accused are distributed as follows:

Table IV—Summary of Charges (1913 and 1914).

Theft and accomplice in burglary	131
Truancy	63
Sexual misbehavior	54
Improper guardianship or no guardianship	48
Incorrigibility (no specific charge but many general complaints)	45
Disorderly conduct (cursing, throwing stones, etc.)	33
Fighting and assault	22
Truancy and stealing (double charge)	20
Associating with vile and vicious persons	12
Witness or victim in white slave case	8
Murder and attempted murder	8
Vagrancy	6
Intoxication	6
Lost child	6
Arson	6
Begging	5
Peddling without a license	5
Broke parole	4
Attempted suicide	4
Carrying concealed weapons	3
Stabbing children and putting out their eyes	3
Waif and homeless	3
Corrupting the morals of children	2
Witnesses in felony cases	2
Destroying property	2
Forgery	2
Father tried to force schools to take child	1
Cruelty	1
Gave self up to police	1
Charged with being an improper guardian	1
Taking and procuring drugs	1
Intolerable nuisance	1
Violating child labor laws	1
Abandoned her child	1
Obstructing public entrances	1
Unlawful entry	1
No charge ascertained	1

It will be seen that theft and accomplice in burglary and truancy are the most frequent forms of delinquency. The adolescents, who are greatly in the majority among our cases, were classified in five groups with respect to mental age, and their crimes and misdemeanors were then tabulated in order to discover whether such an analysis would reveal any correspondence between degree of deficiency and the nature of the delinquency. Individuals from 12 to 16 years of age were included and were grouped as follows:

1—At age and above, the Binet scale.
2—Ten to twelve years, mental age.
3—Nine to ten years, mental age.
4—Eight to nine years, mental age.
5—Below eight years, mental age.

Practically every charge noted in the total list of charges occurred in every group, but there was a notable difference in the relative frequency with which the various types of crime and misdemeanor appeared under these five mental ages. In the first group, including those at age or above the Binet scale, those offenses occurred most frequently which require a certain amount of personal initiative for their accomplishment—assault, grand larceny, attempted burglary, attempted suicide, and sexual offenses of an aggressive kind. In the second group, comprising those who showed a mental age of from ten to twelve years, much the same charges were found as in the first group, except that truancy, arson, and disorderly conduct occurred with greater frequency. In these two higher groups such charges as improper guardianship, lost child, and vagrancy occurred with comparative infrequency. In the third group, including those from nine to ten years of age, mentally, the most frequent charges were sexual misbehavior, truancy, and theft. A very large percentage of the girls falls into this group and these are the most frequent charges brought against them. In the fourth group, comprising those eight to nine years old, mentally, charges of improper guardianship, truancy, associating with vile and vicious persons, and petty larceny, increase in number. Immoral conduct of an unaggressive kind is often charged. This is true also for the fifth group, which contains those under eight years of age, mentally, where charges

of improper guardianship, vagrancy, truancy, lost child, peddling without a license, and general incorrigibility predominate. These are, of course, the offenses which have their source in a general tendency to drift about, and a failure to perceive the social environment. They arise from a total lack of personal initiative, and are quite different from those noted in the highest group, where a certain amount of aggressiveness is necessary. However, it is not to be inferred that the lower grade of defectives includes only so-called "harmless" individuals, for occasionally a very vicious crime is reported among them. The general result of this analysis is about what might be expected, *a priori*, to eventuate.

Practically all offenses included in the general list were committed by members of both sexes. No crime which occurs with any considerable frequency is charged to one sex alone. Theft, truancy, sexual misbehavior, improper guardianship, incorrigibility, disorderly conduct, assault, etc., were charged to both boys and girls. But there is considerable difference in the relative frequency with which these various offenses are charged to the sexes. The following table gives the percentage of the total number of each sex charged with the various offenses. The total number of males examined was 371; the total number of females, 149.

Offense	Theft	Truancy	Sexual Misbehavior	Improper Guardian	Incorrigibility	Disorderly Conduct	Assault
Male	28.0%	15.1%	3.2%	7.3%	14.0%	4.8%	5.3%
Female	8.7%	10.1%	28.8%	15.4%	7.4%	4.7%	2.0%

The proportion of females arrested for sexual offenses is nine times as great as that of males, but for assault the proportion of females is only half as great as that of males. For improper guardianship females are arrested, in proportion to their total number, twice as often as males, but only one-third as often as males for theft. The sexes are arrested in equal proportion for disorderly conduct, but males are proportionately arrested twice as often as females for general incorrigibility.

It is impossible to say how much of this difference is due to original nature and how much to the difference in social attitude and environment to which the sexes are subject from birth. It is extremely unlikely, for instance, that girls are proportionately nine times as prone to commit sexual offenses as boys are. It is much more reasonable to suppose that, since sexual misbehavior is followed by such different results in the case of the two sexes, it is regarded by parents and society at large as a much more serious offense in the case of females, and that therefore girls are much more likely to be arrested for this offense than boys, though the latter may actually be more prone to it than the former. The results further suggest that sexual offense, on the part of girls, is more likely to be interpreted by parents, probation officers, and others as indicative of mental weakness than when committed by boys, and that girls are more likely to be brought, not only to the courts, but to the Clearing House as well, on this account. In the matter of theft, likewise, the fact that, proportionately, three times as many boys as girls are arrested on this charge, is probably no indication that boys have any greater innate tendencies to peculation than have girls. Boys are allowed to run about the streets, as girls are not, and thus form gangs and have much greater incentive and opportunity to steal than have girls.

In the course of a study such as this a certain amount of insight is gained into the social phenomenon known as the "gang." These gangs, formed among young boys, often persist as social entities after the members have reached maturity. The following extracts from histories will illustrate the relation which exists between juvenile delinquency and the "gang."

Case 2980.—Actual age, 15 years. Binet age, 8 years. Diagnosis, imbecile. Taken by father to the Children's Court, charged with incorrigibility. "He says he spends his time playing ball and shooting craps for buttons. He belongs to the 'Glendale Gang,' and he says the object of this gang is to fight each other, stealing, gambling, and ringing fire alarm boxes to see the engines run; although the boy claims he does not do these things himself."

Case 2675.—Actual age, 11.5 years. Binet age, 11.2 years. Diagnosis, intellectually normal but neurotic. Charged in the Children's Court with destroying property. "Probation officer's best methods failed to get him to tell of his offense. Inquiries made outside determine that he is not only a member of a gang that habitually commits the offenses charged, but that he is their leader."

Case 3615.—Actual age, 14 years. Binet age, 8.6 years. Diagnosis, deferred. Arraigned in the Children's Court for shooting a boy. "Dr. Schlapp questioned this boy, and he stated that he is a member of a gang by the name of 'East River Boys,' and that this gang 'has it in for' 'The Black Caps.' He was asked whether he would hesitate to shoot a man, and he seems to think it would be perfectly natural for him to do so, and this is the right way to look at matters. The boy must return for further observation."

Case 3818.—Actual age, 12 years. Binet age, 11 years. Diagnosis, mental instability, due to adolescence. Arraigned in the Children's Court for breaking parole. "He has been irritable and cranky for about one year. * * * He has been going with a gang, and this gang of small boys is frequently used by larger boys who induce them to steal, etc."

Case 4501.—Actual age, 14 years. Binet age, 7.2 years. Diagnosis, mentally deficient. Arraigned in the Children's Court for theft. "Officer saw a Mrs. S. —— who keeps a grocery store. She states boy is wild and hangs out with toughs, and that he goes with a gang who annoy her and her husband." A letter from the Department of Education further states, "We have known him for many years as a gangster and a truant."

Case 4559.—Actual age, 14 years. Binet age, 7.4 years. Diagnosis, imbecile. Arraigned in the Children's Court for theft. Belongs to the same gang as No. 4501. Both of these boys are in school in the ungraded classes.

Case 3571.—Actual age, 9 years. Binet age, 6 years. Diagnosis, high grade imbecile. Arraigned in the Children's Court for theft. "He was with a gang of boys who had taken a gown hanging in front of a store. Two of them were caught, the patient being one of these."

Recommendations for Disposition of Cases.—The recommendations of the examining physicians in regard to the final disposition of the 520 delinquents are interesting, especially in the contrast they afford to the former disposition of such cases. Formerly the majority would have been sentenced to penal institutions or to other forms of punishment. After examination by experts in pyschiatry it is noticed that only two out of 520 were recommended for penal institutions. Fifty-eight per cent. of the entire number were deemed fit subjects for detention in institutions for the feeble-minded or for clinic treatment. Philanthropy or "uplift work" in the ordinary sense was thought by these experts to be indicated in only six cases of the 520, whereas, as a matter of fact, a great amount of time, effort and money had already been spent in futile attempts to rehabilitate and to reform the

mentally defective persons included in the number. If social workers and the agents of philanthropic organizations in general could be trained to recognize the more obvious indications of mental abnormality, much time and money, at present wasted, might be saved. Punishment prescribed by law and moral suasion have little deterrent effect on this class of delinquents. Most of them do not appreciate the difference between right and wrong and have no perception of the social customs and expediencies which regulate the lives of those about them.

On the other hand, a certain percentage of those suspected of being mentally defective are found upon examination by experts to be intellectually normal, but to be suffering from remediable ills, social or physical. Such cases may be afflicted, for instance, with some toxic condition, with some nervous disorder, such as chorea, with temperamental difficulties, with anaemia or malnutrition. Or they may be the victims of a strange or vicious environment. Occasionally, for instance, it happens that an alien child is brought to the clinic, whose actions have led to the suspicion that he may be mentally deficient. Sometimes these newly landed aliens are found, upon examination, to be of normal ability intellectually, but as yet unadjusted to the new and strange environment. In these cases the individuals may be saved from anti-social careers by timely remedies wisely applied.

The following table (Table VI) gives the various recommendations concerning the cases. In some instances no intelligent recommendation for disposal could be made, owing to some technicality or circumstance connected with the case, or to the lack of a proper institution in which to detain the patient. This latter condition was especially true of the moral imbeciles. There is no institution in the State to which these cases may properly be sent. Many of them cannot be included in the category of the mentally deficient, hence cannot be sent to institutions for the feeble-minded, and they have no proper place in reformatories, since their defect is congenital and incorrigible. Yet they constitute, if anything, a greater menace to themselves and the community than do those who are defective in the strictly intellectual abilities.

TABLE VI.—RECOMMENDATIONS FOR DISPOSITION (1913 AND 1914)

Institutions for the feeble-minded	205
Clinic treatment	100
Change of environment	36
Strict supervision and discipline	34
Further observation	28
Institutions other than for feeble-minded	23
Physical treatment	16
Probation	9
Charitable aid, social-endeavor	3
Big Brothers	3
Deportation	2
Penal institutions	2
School	1
No recommendation possible	58
Total	520

There is, moreover, urgent need of State institutions for the criminally inclined who are at the same time definitely mentally deficient, for it is not socially just to commit the feeble-minded who are not delinquent to the same institutions where delinquents are detained. It seems likely that the State Commission at present working upon this general problem will recommend the establishment of separate institutions for male and female delinquents who are feeble-minded, so that these may be segregated from those who are mentally defective, but morally harmless. The intelligent cooperation of judges and probation officers is doing more and more to bring the delinquent feeble-minded to the attention of the expert, but State provision must be made for the proper disposal of these cases, or all the effort of judge, probation officer and expert psychiatrist fails of its whole purpose.

Heredity.—Twenty-eight per cent. of the cases showed bad family histories. These figures are undoubtedly too small, because in many cases it is practically impossible to obtain any family history at all, and in the majority of cases it is impossible to go beyond the grand-parents in obtaining facts. It is obvious that a trustworthy statement regarding heredity should be based on nothing less than an examination of all the closely related individuals, exactly the same as that to which the patient himself is subjected. Statements by parents and other members of the family regarding the amount of insanity, criminality, feeble-mindedness, etc., among relatives will probably almost never tally with the results of expert examinations. This desirable procedure would have been impossible in most cases, even had the funds and the facilities for the work been available, for these patients were, in a large percentage of cases, immigrants or the children of immigrants, with most of their relatives in Europe. When criminality, insanity, excessive alcoholism, epilepsy or feeble-mindedness is both recognized and acknowledged by the inexpert, and often grossly ignorant, persons giving the history, it is almost certain to have been actually present in a very marked degree, and, as stated, in 28 per cent. of these cases the presence of such factors was reported. These results, to be significant, should be checked up by family histories of a similar number of individuals taken at random in the community. The facts cannot be properly interpreted as they stand, and are only given here as being of more or less incidental interest.

Distribution of Juvenile Delinquents in the Schools.—Sixty-eight per cent. of the delinquents examined were attending school at the time of their arrest, either in the public schools or the parochial schools. They were distributed through the school grades as follows:

Grade	Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade	High School	Ungraded or Special Classes
Number attending	1	21	38	69	54	62	36	8	5	2	56

Since but 28 of the total 520 cases were diagnosed as normal, it follows that practically all of these delinquents in the schools were afflicted with some form of mental abnormality. The mode for the group falls in the third grade, whereas the modal age of the group is fifteen years. The modal school status of average children fifteen years of age is in the high school. According to this table teachers may expect to find mentally abnormal juvenile delinquents in any school grade, but they are to be expected most often from the third to the fifth grades. For a complexity of reasons they seem to accumulate at this point in school progress. Comparatively few of them can get beyond the fifth school grade, but a great many of them can reach the third grade, where average children of eight or nine years are found.

Of these children in the schools, 48 per cent. were found definitely feeble-minded, and were distributed as follows:

Grade	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Ungraded
Number attending	10	19	35	23	22	14	48

The great majority of the children had physical defects or symptoms of disease. These ranged all the way from carious teeth to serious conditions like syphilis and grave heart lesions. Some of the conditions were remediable by operation or medication, and the patients showed notable mental improvement after treatment, in cases where the mental condition was one of "retardation."

Conclusions.—The facts observed here have certain implications which should be of interest to the public at large, and especially to those who are concerned with courts, penal institutions, reformatories, or any other phase of social rehabilitation. A large number of delinquents are undoubtedly mentally irresponsible and in considering any particular case mental abnormality should occur as a possible causative factor. The only way to tell how many of the persons who pass through the courts are mentally abnormal would be to examine every one of them. At present only those are apprehended who are so obviously and flagrantly defective as to arouse the suspicion of persons inexpert in psychiatry. Many of the individuals finally brought to the Clearing House and diagnosed as imbeciles or morons were "repeaters," with records of five or six appearances in court. Totally irresponsible and hopelessly incorrigible, they had simply drifted from one term of punishment or from one period of probation to another, unrecognized as mentally defective. A case in point is that of a girl of sixteen years, a domestic, who had drifted from one place to another, discharged again and again, for petty offenses, until at length she committed a serious theft and was brought to court. It occurred at last to one of the workers in the shelter to which she was sent, "that there might be something wrong with her mind." She was brought to the Clearing House where she was recognized after examination as a high grade imbecile. All the philanthropic efforts that had been spent on her were absolutely wasted, for the girl was and always will be without insight into social situations. The penalty prescribed by law for the offense which she had committed was in reality irrelevant to her case. She could not be reformed, since she had not the power even to perceive the laws which she had broken, and there could be no social gain in sentencing her to a penal institution, since she was neither in any true sense responsible for her deeds nor able to profit by punishment.

Also in the case of those adolescents who suffer from mental instability, as described above, reformatories and penal institutions are not indicated. The outlook for these individuals is good if they can be placed in a favorable environment under wise supervision until the period of adolescence is past.

To those who have worked over the mass of material connected with these cases, and who realize what a small percentage of the total number of cases that pass through the courts yearly is here represented, it is clear that the great problem of individualizing punishment has as yet scarcely been even attacked. For many reasons it seems that the Children's Courts afford the best point of departure for the working out of a general scheme for social betterment in respect to the problem of delinquency. If every delinquent child could be thoroughly examined, mentally, physically, and socially, on his first appearance in the court, and disposed of according to the results of such examination, a great gain would without doubt be made towards the solution of the problem of adult delinquency. Several of the adult prisoners examined at the Clearing House had made their appearance in the Children's Courts while they were under sixteen years of age. If these defectives could have been properly apprehended at that time, their subsequent crimes could have been spared to themselves and to the community.

However, as has been mentioned before, much progress has been made in recent years in realizing the fact that a problem exists. It seems well nigh incredible now that only fifteen years ago there was no Children's Court in New York City; that children were tried and sentenced like adults. Mental and physical examination was unthought of. It was indeed the crime, and not the criminal, that was punished.

Recent investigations among inmates of various penal and reformatory institutions have revealed the following facts.

The New York Reformatory at Elmira finds 37 per cent. of its inmates clearly feeble-minded; the New Jersey reformatory at Rahway, 33 per cent.; the New York Reformatory for Women, at Bedford, 37 per cent.; the Massachusetts Industrial School for Girls, at Lancaster, 50 per cent., and the Maryland Industrial School for Girls, at Baltimore, 60 per cent.

These figures, since their publication last year, have become familiar to workers in the general field and need not be further commented upon at this time. There is no doubt that the results of special investigation must in time accumulate to such an extent that society at large will become aware of them. And this growth of knowledge will eventuate in a system of correction and justice under which there will no longer be any attempt to punish the irresponsible or to reform the feeble-minded.

REFERENCES.

1. Schlapp, Max G., and Hollingworth, Leta S.: "An Economic and Social Study of Feebleminded Women," MEDICAL RECORD, June, 1914.

2. Hollingworth, Leta S.: "The Frequency of Amentia as Related to Sex," MEDICAL RECORD, October, 1913.

3. "Mental Defectives Among Delinquents," *Journal of Criminal Law and Criminology*, November, 1914.

4. Alexander Johnson, American Year Book, 1913, p. 440.

AESCHYLUS—A DOCTOR'S STUDY.

BY W. B. KONKLE, M.D.,

MONTOURSVILLE, PA.

To know what is needful, that is wisdom; not to know much.—(Aeschylus cited by Stobaeus.)

AESCHYLUS, the thunderous, Mrs. Barrett-Browning designates him. In their intensity, their grandeur, their sublimity, their inspiration of awe, his lines move and resound like the lines of the great Hebrew prophets who from some one to three centuries went before him. Is not Greek culture in full flower the finest, the most lustrous product of mind's conquering and creative reign? Truly Greece at her zenith is the crown of historic time. The golden age of Hellas is the golden age of the world. Oh! the might and light of thought and spirit concentered and condensed in that brief

epoch! Of "the glory that was Greece" Aeschylus is an integral and noble part. Than he no star vaster, none more resplendent, shines in that rarest and fairest of constellations which Hellenic genius set in duration's firmament.

Aeschylus is by general acclaim styled the Father of tragic drama; just as Herodotus is known as the Father of history, and Hippocrates, the Father of medicine. But as there was history before Herodotus, and medicine before Hippocrates, so was there tragedy before Aeschylus. What these pioneers, recognized as such, *did* do, however, and what entitles them to primacy in their respective fields of effort, is to have garbled and classified and clarified, and thus put in available form the whole mass of accumulated opinions, ideas, and lore appertaining to mankind as a common heritage. The Greeks were, indeed, marvellous creators besides. But they are, nevertheless, notable as extractors of cream from cisterns of milk drawn laboriously by other men of all times and all climes.

Our further sketch will aim to present that interest in Aeschylus which might be deemed more peculiarly to concern the doctor. Studying our author from this viewpoint we may notice first his allusions to medical fable. Though not numerous these are well chosen and distinctly outlined. In his interpretation of the grand Promethean myth Aeschylus narrates how the unconquerable fire-giver taught and trained the sluggish, stupid, helpless human race, leading and lifting it to a plane of conscious and confident power. Does not his stately rhetoric roll down the "corridors of time" like Darwin in epic metaphor? From "Prometheus Bound" are taken these passages: "Thou knewest not how little it could do, this inertia, true paralysis of nightmare, which enchained the children of this idiot race?" "Did one fall ill, no relief at all, neither nourishment, nor ointment, nor drink. For lack of medicine the sick one died until I had shown the salutary preparations which to-day cure all maladies." Aeschylus does not fail to pay homage to Apollo, the healer. In "The Eumenides" he hails him as "all-powerful Loxias," adding that "he is the god of medicine" and "the purifier of others' houses." In the same drama he apostrophizes the divine physician, as savior of Admetus, thus: "Thou wast skillful to persuade the daughters of Erebus, and men were seen freed from death." Apollo's lordly son, apotheosized Aesculapius, most exclusive patron of the healing art, is not overlooked by our poet. In "Agamemnon" is found the following passage referring to Aesculapius as having been thunderbolted by Zeus at the instance of Dis for bringing back to life the most worthy Prince Hippolytus: for, "When the great physician of antiquity dared to lead the dead to life again, Zeus punished him for the deed." In "The Suppliants" Aeschylus speaks of another divine physician sprung from Apollo. Here is the passage: "The country itself where we are is the land of Apis called so formerly from the name of a physician. Come from the country of Naupactus, Apis, in reality, physician divine, son of Apollo, delivered this soil from devouring monsters." In the same drama the method of Io's fecundation is thus tersely phrased: "Zeus touched her with his hand, and by her had a son." In this play, too, allusion is made to Artemis as a midwife-goddess: "Also to keep watch over this soil ever may heroes beget other heroes, such is my prayer, and may Artemis-Hecate assist the women in child-bed."

According to chronology which may be taken as authoritative, Hippocrates was born only four years prior to the death of Aeschylus. This circumstance might seem to warrant the inference that Greek medicine during the active career of the Father of tragic drama was in an embryonic and crude state. But such a conclusion is far from the truth. As already remarked, there was medical science and art in Greece before the Father of medicine, and that, too, of extent and order not to be despised. Worthily prominent were the several medical schools, among which Cnidos and Cos perhaps rank first as to fame and influence. Rivals, at some points even antagonists, these centers of medicine assiduously and successfully cultivated learning and practice. So that when Hippocrates came he found awaiting him the task of commentator and organizer, as well as that of pathfinder. Aeschylus gives us a few glimpses of tenets prevailing in the medicine of his day. A doctrine of the physiology of the period was that in the process of reproduction the male furnishes a complete germ, and that the female is merely its host—that the father is the true generator, and the mother only the asylum of embryonic life. This view was conspicuously advanced by Pythagoras, and maintained by the school of Cortona which he founded. The implied conception is exactly analogous to that of depositing seed in its exclusive soil. It is said of a celebrated philosopher of Athens that, when surprised in the act of sexual intercourse outside the matrimonial pale, and bantered by a question as to what he was doing, he snapped back the reply, "I am planting a man." Aeschylus bases upon this doctrine his justification of Orestes as the avenger of Agamemnon against Clytemnestra. In "The Eumenides" he makes Apollo say: "You are a mother, and your child, as asserted, it is not you in fact who has given life to him. You are but the nurse of the new-born germ. The real generator is the one to whom pertains the initiative. The mother, stranger to the guest that she has received, shelters the infant to the end, if Heaven does not intervene."

Dreams figured prominently in the healing art of the time of our poet. To them was assigned much importance in temple medicine especially, even in that of the great temple of Aesculapius at Epidaurus. To this principle Aeschylus in "The Eumenides" makes reference thus—"At night when one sleeps the sight of the spirit is on account of it only more piercing; during the day one is often purblind." And just so to dementia was attributed peculiar significance. Our author in "Agamemnon" has to say about it this—"It exalts the audacity of mortals, this sad counsellor of misdoing, madness, mother of all crimes."

We find in "Agamemnon" the sage reflection, "Robust as it may be, fatally health lies close to suffering." In the same play a stroke is delivered to supernaturalism in this passage—"Moreover there are no words capable of replacing a dead man on his feet." In "Prometheus Bound" is presented this judgment—"For the sick it is an alleviation to know in advance correctly all that he must yet suffer"—a rule that might properly apply to Prometheus, but of doubtful application to most of his mortal *protégés*. By reason of its intense human interest the following passage from "The Coephori" may be given—Orestes' old nurse speaks—"An infant in the cradle can not say anything. It has hunger, it has thirst, it makes water upon impulse,

for with children at this age the belly will not wait. It is necessary to divine all. One can easily figure that I have often in this way been taken unawares. Then there were swaddling-clothes to wash; for as to laundress and nurse they are one and the same."

Aeschylus occasionally employs metaphor and illustration with a flavor, more or less intimate, of medical thought in certain of its modes. Familiar to modern ears are these figures of speech taken from "Agamemnon"—"A remedy even more terrible than the malady," and "She has sung the song of the swan." In "The Choephori," indicating a palace in mourning, Clytemnestra inquires, "What does this mean? Why such crying in the house?" The porter replies, "The dead kill the living, that is what I have to say." In "Prometheus Bound" Ocean says, "What! dost thou not know, Prometheus, that of this ulcer, wrath, the doctor is the spoken word?" In the same drama Prometheus asserts of primitive men that, "at first, they had eyes and saw not, ears and heard not—beings floating as in our dreams, during thousands of years nothing distinct for them, all was confused, all was befogged." Then to Prometheus is said, "Maladroit physician! surprised by evil behold thee without resource! Thou knowest not what to do for thyself, how to heal thyself."

The forecited excerpts represent rather completely perhaps the work of Aeschylus remaining to us of medical interest more strictly. But there is besides in him a large human element that can not fail to be of concern to the student of medicine and its auxiliary sciences. To the doctor with superlative relevancy may be ascribed the oft-quoted line of Terence—"I am a man, and I hold that nothing pertaining to humanity is foreign to me." Let us, then, briefly glance at the attitude of Aeschylus toward a few of the questions relating to man's nature and existence. One of the things most evident in the Father of tragedy is his fatalism. He is the arch-apostle of destiny. At the very center of his thought is the idea that what is to be will be. In no creed and in no other mind is predestination more vitally, more ineradicably imbedded. This from "The Choephori"—"Recollect that, free or submitted to the power of another, the master of us all is destiny." This from "Prometheus Bound"—"Let us bear as lightly as possible the destiny fixed for us, well convinced that with indomitable necessity there is no struggle possible." And again this—"Fatality ever prowls around us. She falls upon this one today, tomorrow upon that one." A preserved fragment is this —"Let one be riddled with wounds none the less one does not die of them if his day has not arrived. And by constantly staying at his fireside none the less one does not elude the term set by destiny." Even the gods are not exempt. Returning to "Prometheus Bound," with regard to "the triple Moira, the sombre Erinyes," the agents of destiny, the question is asked, "And may it be that Zeus, also, is subject to their power?" The reply is, "From the law of destiny he can not emancipate himself."

Aeschylus is, also, the mouthpiece of the principle of inevitable retribution, of inexorable vengeance. In "Agamemnon" he says—"Neither sighs, nor libations, nor tears can disarm the implacable wrath of the goddesses without hearthstone." In "The Eumenides" he makes the terrible Moira exclaim —"But who, also, among mortals is not seized with respect, nor enters into fright, at the name of that dread power which I have been made by destiny and the munificence of the gods? My prerogatives are not of yesterday. I, too, have a cult, wholly relegated as I am to the under-world, without sun, in darkness." But Aeschylus' attitude toward *lex talionis* is not one of admiration or even commendation. Rather does he manifest repugnance and horror in his portrayals of cold-blooded, pitiless vengeance. Again in "The Eumenides" he refers to the Erinyes as, "The unclean virgins, the hags, the superannuated females, for which has no liking neither god, nor man, nor beast; for the evil they have done committed to the dismal sojourn of crime, in the depths of Tartarus, objects of loathing alike to mortals and to the dwellers of Olympus." It is Apollo who speaks thus, afterward driving the unsightly sisters from his temple with this imprecation—"This is not a dwelling suited to you. Go where heads fall, where justice digs out eyes, where the blade blasts at its source the germ of new generations, where all is strewn with the litter of punishments and with palpitating limbs. The sharp cries of those stoned, the lamentations without end of the unfortunate nailed to the pale—for you those are your orgies, your atmosphere of feast, your pleasures, you, miserable refuse of immortals. Go, it is there that your shocking lineaments will find a becoming place. The den of the lion gorged with blood, that is a shelter worthy of you."

Aeschylus' pictures of human life show little of roseate hue. The deeper, graver shades largely predominate. The following passages which we quote collectively are selected as representative from a longer list. "Vanity of human things! Good-fortune, a shadow suffices to destroy it." "Poor human species! how ephemeral is thy wisdom, nothing solid, shade of smoke." "By thousands the earth nourishes scourges for our consternation and our punishment." "Of the beings of the articulate word none enjoys good-fortune without mixture." "The ills of humanity every man should expectantly await." "What value has life for him who has only to suffer?" "Better for the unfortunate never to have been born than to see the light of day." Aeschylus does not leaves us without a philosophy of life. We cite in instance these quotations—"Ah! the ideal is to be sheltered against suffering, with a just heart, content with one's lot." "Even in times of distress and bitterness let your soul be joyous each day." "Ah, well! is it by excitedly rushing from stem to stern that the pilot shall succeed in saving all when the ship is tried by the waves of the sea?" Homer's conception of loss and pain and grief and woe, as well as his attitude toward these, this wail from the "Iliad" sets forth—"Whatsoever may be our afflictions let us confine them within our soul; for of what use are tears? To live in sorrow, such is the lot assigned to mortals by the gods." It remained for Aeschylus to rise to nobler heights of vision and of faith. As a very prophet of the Infinite Unseen in "Agamemnon" he thus speaks—"This law is from Zeus—at the price of pain, knowledge. Drop by drop until we sleep, falls upon our hearts the sharp remembrance of sorrow; and in spite of us wisdom comes."

As Aeschylus stands face to face with the mystery of death there comes into his poetry a note of sadness, even of pain. How could it be otherwise in the movement of a mind at once powerful and sympathetic that was wont to strip the veil from truth? And yet with Aeschylus the hereafter is not

a realm of gloom. Hope and trust make him death's master. Occupying first the standpoint of material manifestation, and speaking in terms of earth and mortality, he voices in various places these reflections—"Ashes, all that remains of a man, a vase encloses." "Transmit them to the earth herself, that produces all, nourishing womb where all reenter to fecundate it anew." "High as may be our cries, exasperated as may be our fury, silently death reduces us to dust." "Alone among the divinities, death does not care for offerings. Victims, libations, nothing can bend her. For her there is no altar, for her no pæan; for alone among the gods she remains inaccessible to the sweetnesses of prayer."

From a loftier, serener plane of contemplation come the following utterances of Aeschylus. "Death is deliverance. No more griefs which crush the soul!" "How unjust is the aversion of men for death, this highway the most sure out of the evils that beset them!" "Oh, death! sovereign remedy, deign, deign to come to me! Thou only healest incurable ills. Once dead, no more anguish."

Upward again soars Aeschylus on the pinions of his mighty genius. His flight has placed him on a plane free from every fleck of cloud or mist, commanding all time and space. Listen to him now in "Prometheus Bound." "Then upon me falls the serpent of fire, the disheveled-haired flame, whilst the ether is in turmoil, stunnel by the uproar of thunder, by the shock of savage hurricanes. The earth trembles on its base, uprooted by the whirlwind, while the surging of the sea in its hoarse roarings mounts to the heaven, gigantically hurled upon the way of the stars. Until at last, engulfed in black Tartarus, Zeus casts my body, driven to and fro, into a giddy swirl without end, irresistible. Nevertheless, for all that I shall not die." But he who thus speaks is Prometheus, scion of an immortal race. Yet hear again Aeschylus in "The Choephori." Now he makes mortals address a mortal. By the libation-bearers to Orestes are spoken these words—"Child, the soul of one dead survives the burning bite of the funeral pile." And thus, as with his own proud Titan in spite of rock and chains and vulture, so with our lordly Aeschylus the ultimate tone, majestic, solemn, is a shout of defiance, of exultation, of victory.

WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT THE THERAPY OF SYPHILIS.*

By ADOLPH ROSTENBERG, M.D.,

NEW YORK.

DERMATOLOGIST TO THE BRONX HOSPITAL AND DISPENSARY AND GERMAN HOSPITAL O.P.D.

At the annual meeting of the American Medical Association in 1914, during the discussion in the symposium on syphilis the assertion was made by some prominent syphilographers that 99 per cent. of all general practitioners in this country were incapable of treating syphilis according to the advocated standard of to-day.

To say the least, this is rather a broad statement, and if really true, would indicate an awful state of affairs, as every general practitioner handles cases of syphilis and everybody will admit that syphilis is not an irrelevant disease. According to Blaschko 33 per cent. of syphilitics die of the disease, and in 50 per cent. of these cases death is caused by syphilis of a vital organ. Therefore the general practitioner should know how to treat this terrible scourge which, when taken in time, is readily amenable to treatment, but when left unrecognized becomes one of the worst menaces to the welfare of humanity.

Now, has the last word been spoken in syphilis therapy? Certainly not. In spite of all the latest investigations there is still even among our leaders a wide discrepancy as to the best methods of combating this disease. Wechselmann, for instance, in the new Virchow Krankenhaus, in Berlin, who undoubtedly has as much, if not more, experience than any other syphilographer, employs only salvarsan; and Buschke, his associate in the same hospital, rejects salvarsan altogether and still adheres to mercury.

Between these two extremes, however, the consensus of opinion of nearly all other investigators is that the rational therapy lies in a combination of both these drugs. We know that both are chemical agents which either kill the spirochetes or at least arrest their development. By experiments it has been shown that each one attacks the microorganism in a different way, therefore it seems plausible enough to use both weapons simultaneously against this disease. Furtherfore, the combination of the two drugs is not only more effectual than each alone, but the toxic effects on the patient's organism are less dangerous. Salvarsan, by killing the spirochetes, sets free a large amount of endotoxins which would be greatly diminished if we used mercury immediately before or right after. Furthermore, the dose of each drug, in order to have its effects, will also be much smaller when used in combination than when each alone is employed.

The best results of our therapy we will naturally expect when a case presents itself in its earliest primary stage. By experiments on animals, according to Neisser, it has been shown that the syphilitic virus circulates free in the blood in the very beginning. Salvarsan, injected into the vein, will meet the enemy in the open field and achieve a great victory; in fact, perhaps the greatest result we could hope for, namely, a complete sterilization of the patient. But to achieve such a brilliant result two important preliminary conditions must be fulfilled. Firstly, we must educate our patients not to hide their venereal diseases and not to go to a friend or a quack for treatment in the beginning; and secondly, we must be able to make an early diagnosis; the old dictum, wait for secondaries before you start treatment, would be considered ignorance and negligence to-day. We have to make our diagnosis at once and start treatment accordingly. Unfortunately, the Wassermann test—in my estimation the greatest of the three discoveries in modern syphilography—fails us here; we rarely get a positive reaction before the sixth week after the infection. Therefore, should we be in the slightest doubt from a macroscopical examination as to the real nature of the chancre, it is our duty to look for confirming evidence and to examine for the spirochete. But we must look for them in the right way. The staining method with India ink, which is becoming rather prevalent in this country on account of its simplicity, is not reliable. The dark field illumination should be the method of choice; here we often find the spirochete at a first glance and in large numbers, while the same specimen

*Read before the Bronx County Medical Society, November 18, 1914.

stained with India ink and examined for a long while does not reveal any at all.

Having thus established our diagnosis we must begin our treatment at once. Now we have the best chance not only to cure the chancre but to cure the disease. The spirochetes are still localized in the primary lesion and perhaps the nearest lymphnodes. A single dose of salvarsan may kill them all or at least paralyze their further development and prevent their further spreading. The result would be Ehrlich's therapia sterilisans magna, which, indeed, is not an impossibility in such an early case. But, unfortunately, so many recurrences have been observed since this dictum of Ehrlich was published that nobody to-day, not even Ehrlich himself, stops at one injection; we give several and use mercury in addition. Should we excise the chancre? A good many authors recommend this operation, if feasible. I myself have never done it and only insist upon a clean surgical dressing, using calomel as a dusting powder.

I start my treatment with from 0.30-0.45 of neosalvarsan, according to sex, weight, and robustness of the patient. I personally use neosalvarsan almost exclusively and believe its effects to be as good as from old salvarsan, although a good many claim to have seen better and more lasting results from the latter. But the easy preparation of neosalvarsan, which dissolves readily in water without any addition, recommends its use more to the general practioner. Besides, it is easier to use neosalvarsan in a concentrated solution, a method which is simple and I think safer than the infusion method. The latter one is undoubtedly known to all of you and I need not describe it in detail. I only wish to draw your attention to the importance of using a straight needle instead of a curved one, which readily becomes impermeable. The so-called concentrated method does away with all cumbersome apparatus. The drug is dissolved in 10 c.c. of freshly distilled and sterilized water, drawn up in a record syringe, and slowly injected in the median vein under aseptic precautions; the mixing of blood with the solution will show that the vein has been correctly entered. This is a very simple procedure and can be readily performed in one's office. I always caution my patients to lie down right after getting home, but I know that even this has been neglected in a good many instances and no ill results have been noticed. I use the direct intravenous method exclusively, except in cases in which, because of a very fat arm or poorly developed veins, an introduction of the needle would be impossible without a dissection of the vein. To avoid this rather objectionable operation, I use the intramuscular method in these cases, either in a watery solution or an oily suspension, both painful compared with the absolute painless intravenous method. After the first injection, I give my patients 4 or 5 more in this way, the second 8 or 10 days after the first, and if the first was well tolerated, a dose of from 0.45 to 0.60, then 2 weeks afterwards from 0.60 to 0.75, and repeated in another 2 or 3 weeks, gradually increasing to 0.9. Immediately after the first injection of neosalvarsan I give weekly injections of 10 minims of a 10 to 20 per cent. emulsion of the salicylate of mercury—10 to 15 in all. This procedure constitutes one course of treatment. About 4 weeks after the last injection I control my results by taking a Wassermann test, and in a good many instances the report will be negative, which means that the patient is apparently cured and his infection has been aborted. Should we stop now with all further treatment and control our patient's future only by subsequent repeated Wassermann examinations? Some syphilographers proceed in this way and report a number of abortive cures in cases observed over a few years which remained serologically and clinically free from symptoms. I have seen such cases abroad, and Fordyce, among others in this country, reports a series of thirty abortive cases—fifteen of them infected as far back as four years ago; some of these patients have even been reported to have acquired a syphilitic reinfection, which, if surely proven, would be a positive evidence of the possibility of an abortive cure.

But in spite of these facts, I rather feel inclined to believe, and I follow here the majority, that it would be safer to extend the treatment even in spite of negative symptoms for a period of about two years, giving two to three courses as described above in the first year and one to two in the following. Now if two years have thus elapsed and the patient has clinically and serologically been free from all symptoms, can we pronounce him absolutely cured and promise him that he will remain well? In all probability yes, but if the patient is very anxious and if he contemplates marriage, we have two more tests which will conclusively prove his status. The first one is a provocative Wassermann test, as proposed by Gennerich and Milian. The patient gets a medium dose of salvarsan, and his blood is examined for two weeks, daily for one week and then on the fourteenth day. If the Wassermann at any time becomes positive again it would prove that there was a latent focus of living spirochetes somewhere, which the salvarsan incited to activity again, proving that the patient had not been cured as yet. The second test is an examination of the cerebrospinal fluid, especially indicated where the patient has at any time shown some cerebrospinal symptoms, as severe headaches and dizziness. Here we examine for the so-called four phases of Nonne, which are a positive blood Wassermann, a positive spinal-fluid Wassermann, a lymphocytosis, and a positive globulin reaction. The details of these reactions belong to the laboratory and do not concern the general practitioner.

Hitherto we have been considering the treatment advised in the primary stage of syphilis. But the great majority of our patients consult us for the first time when the secondaries have developed, usually with a roseola, mucous patches, papules, a general adenopathy, etc., sometimes the induration of the primary lesion being still in evidence. The clinical diagnosis as a rule does not offer much difficulty here, but to corroborate the same we should make a Wassermann test which in a hundred per cent. will be positive now. In this stage the patient is a great menace to society, as his lesions abound in spirochetes and even an innocent infection through contact is not impossible. In salvarsan we have a most powerful agent to achieve a rapid symptomatic cure. But, as explained before, the effects of salvarsan might be too explosive now, as the large number of killed spirochetes may liberate a too large amount of dangerous endotoxins. Therefore, we should prepare the defeat of the spirochetes with one to two injections of the milder acting mercury and then follow with salvarsan in the same way as outlined before. In this stage, we can not expect an abortive cure; the recurrences will be frequent in spite of rational

treatment. An intermittent salvarsan-mercury therapy extending over three to five years and even longer may be necessary, the Wassermann test with all its modifications being our only guide as to a final cure. Heidingsfeld investigated a series of 442 cases being treated *lege artis* for two and a half years and found only 77 per cent. consecutive negative Wassermann reactions, whereas 23 per cent., in spite of all treatment and absence of clinical symptoms, persisted in a positive reaction. What shall be done with these so-called latent cases, where the spirochetes apparently have become salvarsan-fast; should we still persist in treating them? According to the experience of Heidingsfeld the results are better when such cases are left alone for a while, treated only with general tonics or other arsenic preparations like the cacodylate of sodium. Some of those persistent plus Wassermann reactions thus became negative finally.

In the very late forms of syphilis, known as the tertiary stage, where besides the skin and mucous membranes, the bones and viscera also become affected, we should not forget in addition to salvarsan and mercury our old standby potassium iodide, and it should be potassium and not sodium iodide, or any of the modern organic iodine preparations, and only large doses are effective. If the patient does not show any idiosyncrasy to iodine, I very soon run up the dose to 100 grains a day, given either in vichy or milk. Potassium iodide is also very useful in the so-called malignant forms of lues. But here salvarsan has shown its most brilliant effects and has actually been a lifesaver. Lesions which formerly would have led to mutilation or death by causing destruction of bones or other important organs or perforations of large blood-vessels, yield sometimes to one injection of salvarsan, the progress is arrested and eventually a complete cure achieved. In addition to salvarsan we use here the more active calomel injections instead of those of salicylate of mercury, which are also given as an emulsion and in the same strength as the latter.

A routine examination of the spinal fluid has shown that a syphilitic infection of the nervous system is very prevalent. Ravaut in France has shown spinal fluid changes in about 70 per cent. of secondary syphilis. Fordyce concludes in his treatise on the treatment of syphilis of the nervous system that upon the dissemination of the spirochetes throughout the body the nervous system bears the brunt of this general invasion. This may manifest itself as a meningitis with or without clinical signs and with only spinal fluid changes. It has also been shown that the involvement of the nervous system takes place very early. Cerebral syphilis has been seen as early as four months after the infection, and I myself have seen a case of cerebral facial palsy simultaneously with the roseola. Naunyn says that the majority of infections of the nervous system take place during the first year, after which there is a decrease in frequency.

The brilliant discovery by Noguchi of living spirochetes in the nerve tissues of paretics and tabetics proves without a doubt that these cases can no longer be considered as para- or metasyphilitic infections but as true cases of syphilis of the nervous system. In the therapy of these unfortunate conditions salvarsan was tried with great expectations. Unfortunately the results were rather poor; in paresis almost nil, in tabes a little better.

The positive spinal fluid findings in these cases, have therefore recently suggested the method of introducing the remedy directly in the cerebrospinal canal. The rather poor results obtained heretofore are explained by the fact that the salvarsan, because of anatomical conditions, cannot enter through the blood into the spinal fluid, and thus does not come into direct contact with the spirochetes deposited in the nerve tissues. Therefore, Swift and Ellis have advised the injection of the so-called salvarsanized blood-serum directly into the spinal canal. The technique of this is as follows: One hour after an ordinary intravenous dose of salvarsan about 40 c.c. of blood is withdrawn, sufficient to produce 12 c.c. of serum. This serum is heated and diluted to 30 c.c. with decinormal saline solution. This mixture then is injected into the spinal canal after an equal amount of spinal fluid has been withdrawn, after which the patient is kept in bed for 24 hours.* The results obtained by this method are very encouraging, but still too recent to allow of any definite conclusions.

In the treatment of hereditary and acquired syphilis in children, we also use salvarsan along with mercury. The technique here is naturally more difficult. The intravenous method is also the most rational one. If the median vein on the elbow is selected, a dissection will be necessary in most cases; to avoid this the jugular or, according to Holt, one of the veins of the head, especially the postauricular, may be used, as these fill up greatly when the child cries, thus facilitating the entrance of the needle. The dose in infants up to 8 months is about 0.075 of neosalvarsan; in older children about 5 mgr. to each kilogram of bodyweight. As children stand mercury well we use in addition calomel or inunctions of gray ointment, and for infants bichloride baths by putting one ordinary bichloride tablet in 5 gallons of water.

From the foregoing it appears that salvarsan is our foremost drug in the therapy of syphilis today. But we also should know that it is by no means an indifferent drug and before we can safely employ it we should be familiar with its by-effects, contraindications, and possible dangers. We will realize this when we remember that salvarsan contains 34 per cent. of pure arsenic. Chemistry teaches us that arsenic coagulates albumin, and when the cell is overirritated, especially the excretory epithelial cell, its function is impaired or arrested entirely. If the kidney is involved, anuria will set in, the elimination of salvarsan will become impossible, arsenic will accumulate in the body and produce its toxic and fatal effects on the vital centers. Therefore, we must exclude cases in which elimination would be imperfect, as in diseases of the liver, kidneys, and intestines. Severe forms of circulatory disturbances as uncompensated heart lesions, myocarditis, aneurysm, advanced forms of arteriosclerosis, advanced tuberculosis, all cachectic conditions, and alcoholism preclude its use or at least demand very great caution, provided all these conditions have not been directly caused by the patient's syphilitic infection itself.

If these precautions are carefully observed, 99.9 per cent. of all salvarsan injections, according to

*The serum is of additional value, as it may be assumed to contain important antibodies which may also play a large rôle in the result.

Neisser, will be entirely harmless or at least followed only by slight after effects, which are almost negligible, such as a moderate rise in temperature, chilly sensations, some vomiting and diarrhea occurring from 4 to 8 hours after the injection and usually disappearing entirely the following day. According to Wechselmann and a few others these by-effects are not due to the salvarsan at all, but to impurities in the water, containing dead saprophytic bacteria and chemical substances, originating from the glass vessels in use, the so-called "Glass and Wasserfehler." This explanation seems rather very far fetched, and the majority of men to-day consider these phenomena as toxic effects due to the arsenic.

Another phenomenon is the so-called Jarisch-Herxheimer reaction, a vasomotor disturbance, showing itself to a different degree in different organs, whereby the specific lesions assume a more pronounced character; the roseola, for example, appears larger and of a deeper reddish hue, which lasts for a few days. The cause of this seems to lie in a liberation of endotoxins during the killing of the spirochetes, these toxins dilating the capillaries and causing an edema in the adjacent tissues.

Some authors have explained the appearance of the so much feared "neurorecidives" as a late Herxheimer reaction. These neurorecidives are forms of paresis or paralysis of the cerebral nerves, especially the acusticus, opticus and facialis, also meningeal irritations, leading to epileptiform attacks; quite a number of such cases followed the use of salvarsan when it was first introduced. The experience with atoxyl, an arsenic preparation, which led to total blindness and deafness, was still fresh in the memory of the profession and naturally many voices were raised, condemning salvarsan also. But soon other investigators, as Ehrlich, Wechselman, and Neisser, tried to show that it could not be the salvarsan which caused this damage, as the only cure for a neurorecidive was another prompt injection of salvarsan. They believe the cause to be insufficient treatment, whereby some foci of unkilled spirochetes are left behind, especially in the cerebrospinal fluid, where a penetration of the salvarsan by diffusion had not taken place. These remaining foci, thus only irritated, will assume the character of a primary sore, that is, they will produce a severe local inflammatory reaction, causing pressure on the affected nerves, especially where they enter the small foramina in the skull.

In contradiction to this explanation by Ehrlich and his followers, Finger and others claim that salvarsan, because of its neurotropic properties, creates a *locus minoris resistentiæ* in the central nervous system, so that the syphilitic process finds there an easier foothold, or else the infection causes a lessened resistance of the nervous system to the toxic effects of the salvarsan. Others believe that the salvarsan is without influence and that these neurorecidives would have appeared anyway in the natural course of the disease. Whatever the real cause may be, we see these complications much more rarely now since we do not use such large single doses of salvarsan in the beginning and since we use mercury with it.

Fortunately, these neurorecidives are in most cases not fatal, but in spite of all precautions fatalities after the use of salvarsan have occurred and, I fear, will occur in the future, though much more rarely. Mentberger in Strassburg has compiled an analysis of all the salvarsan deaths which had been reported up to 1914 (274 in all), but a more thorough revision by Schmitt in Würzburg brought this number down to 172, showing that 102 of these reported cases could not stand the test. The victims were mostly young individuals between 20 to 40, who, except for their lues, had intact internal organs and an unaffected nervous system. The fatalities occurred in all the stages of syphilis and independent of the dose and number of the salvarsan injections. In a few of these cases we find that the patient died suddenly immediately after the injection. A more frequent type showed a more subacute form coming on in a day or so after the injection. The symptoms were severe headaches, general weakness, vomiting, diarrhea, often incontinence of the sphincters, dyspnea, cyanosis, convulsions, and coma followed by death in three or four days. The autopsy revealed a serous meningitis or punctate hemorrhages in the brain, indicating a hemorrhagic encephalitis. In the third group there was a total of partial suppression of urine with hematuria and convulsions, followed by death, the autopsy showing a severe degeneration of the kidneys and liver, just as is experimentally found in arsenical poisoning. But even in these desperate cases, according to very recent investigations, a promising remedy has seemingly been advised. Ehrlich, discussing, in the *British Medical Journal* in one of the issues of May, 1914, the type of salvarsan deaths apparently caused by hemorrhagic encephalitis, points out that the enormous dilatation of the blood-vessels found in these cases was probably due to the fact that the normal regulator of the vascular system, adrenalin, was not present in sufficient quantity in the blood, this condition being found in cases of Addison's disease and in hypoplastic processes occurring in the suprarenals causing a so-called status thymolymphaticus. Melian in Paris took up this point and has shown that accidents, developing immediately after an injection of salvarsan, characterized by blue-red swelling of the face, lips and eyes, and dyspnea, may be completely avoided if adrenalin is injected previous to the salvarsan. He also showed that severe diarrhea and suppression of urine threatening life was cured by repeated injections of adrenlin. He even has saved an otherwise hopeless case of encephalitis by means of an energetic adrenalin treatment. The same favorable results from adrenalin have been reported by a few other men in similar cases.

But even granted that adrenalin will not be a panacea for all salvarsan fatalities in the future, these few deaths will be offset by the innumerable benefits derived from the millions of successful injections. Chloroform and ether have and will cause deaths, but we have not abandoned these anesthetics for that reason. Therefore we must admit that salvarsan is still our foremost remedy in the treatment of syphilis and to try to get along without it would be, to say the least, irrational.

1872 Washington Avenue.

Milk-Borne Scarlet Fever.—O. R. Eichel reports an epidemic of scarlet fever in Albany, N. Y., traced to a dairyman suffering from this disease. The surprising fact is that none of the families supplied with milk by this dairyman had any cases of scarlet fever. These were found to occur in families supplied by a farm that had been visited by the above-mentioned dairyman. —*Monthly Bulletin, New York State Department of Health.*

UNCONSCIOUS MENTAL PHENOMENA.*

By JOHN INGLIS, A.M., M.D.,
DENVER, COLO.

To know the mind pathologically, we must know the mind psychologically. It is impossible to know pathology without first knowing physiology. Every disease of the human body has its psychological element. No subject is of more general interest among the sciences to-day than is that of psychological phenomena. Knowledge has become diffuse, but this diffuseness has not always led to depth. Our morning paper will talk glibly of psychological facts; the weekly home journal will prate of the subconscious mind; the talk of the drawing room will often take on a certain psychological vocabulary, one fundamental question will reveal the fact that it is vocabulary only. All these things show simply the present day trend of thought. Much of it is an effort to be erudite without traveling the one road that leads to all learning. Psychology appeals to the general reading public because there is a certain mystery around it. Men write psychological articles who have never spent an hour in a psychological laboratory.

Medicine and psychology have much in common. Every physician has seen frequently in his own practice the psychological effect of a medicine. A drug that could not possibly cause emesis suddenly becomes a powerful emetic by association. Likewise I have seen a harmless placebo become a cathartic simply through its psychological effect. These are observations of every day occurrence. Every physician has heard: "Doctor, I can't take" so and so. Only the other day a woman whose case I had scarcely begun to diagnose said: "Whatever you do, don't give me aspirin, it does not agree with me. I can't even take a grain of it." She did take, however, five grain powders of it to saturation, but the prescription called for acetyl-salicylic acid and the powders were colored black with charcoal. Had they been white it would be true she could not have taken this drug. The psychological effect of prescriptions should never be lost sight of in therapeutics. The success of the same line of treatment in the hands of one physician, that has failed in those of another, is often due to an understanding of psychology. No profession has the opportunity of putting psychology into practical use more than the medical, and no profession needs to understand it more. Medically, surgically, obstetrically, psychology will be an aid to the doctor. Crile's Anoci-association in surgery is founded on psychology. The surgeon who carries into the operating room a child or an adult, "frightened to death," and begins the administration of an anesthetic without allaying the mental fear, is guilty of willfully neglecting the use of one of the most powerful influences in establishing resistance.

The foundation of psychology is consciousness. Consciousness may be defined as the one common and abiding form of all mental states; without it, mind is not. It is that without which there is no mind as we know mind. Consciousness itself is not an attribute of the mind or a mental organ. It is the one essential element that characterizes mind as purely mental, apart from its physical manifestations. Unconscious mental phenomena is a term much in use at present to explain certain mental states. To one school these phenomena represent a subconscious mind, a mysterious sort of a second mind which all unknown holds memories and impressions lost to the present consciousness, a sort of substratum mind. To another school they represent simply facts of least consciousness.

What is consciousness? The study of consciousness begins with the infant. It is probable that the beginning of consciousness is a mass of sensations. The first movements of the body are random movements having their origin in nervous sensations. In this early stage of consciousness these movements represent muscular sensations, touch predominating. The development of conciousness depends in great measure on the development of the body. The brain itself grows rapidly in size and complex functions. Gradually the movements of the body take on a purpose. The child moves at first from a sensation of physical discomfort. Then comes the differentiation of sensations. Touch and muscular sense give the baby in time the form of its own body. The infant will reach for the moon or a bright light far beyond its reach because it has not yet learned to place external objects as distinct from itself. In time it learns what is "I" from what is "not I," and from this comes the notion of self-consciousness. In the child, memory and association are weak and indefinite. It requires a strong excitation to amuse them. The first whistle of the fond father causes the child to look in any direction for the sound. Attention at first is very vague but soon becomes definite, the sight and sound are soon associated, the smile follows. Attention is simply active consciousness. Consciousness may be said to be like our view from a mountain top. The object in direct line of vision is most distinct, everything else in sight is seen more or less distinctly in proportion to its distance from the line of vision. So the area of consciousness represents the total presentations at any one time in consciousness distinct or vague. In a paper limited to fifteen minutes it is only possible to outline a subject that, presented in full, would require a volume.

The facts of consciousness compared with unconscious phenomena may be illustrated in this way: We sit in a room like this, papers are being read, we are conscious of the fact. If actively conscious we focus our attention upon them. This becomes to consciousness what the direct point of vision is to the sight. Yet in addition to this, we are vaguely conscious of a hundred other things. We are conscious in an indefinite sort of way that the room has windows and chairs, that some one else is sitting behind us, but to these things we are passive. All these things pass through the mind in kaleidoscopic view. A newsboy rushes past the window shouting "Extra, big battle near Paris!" Instantly attention is transferred thousands of miles away. Those of us who have been in Paris immediately think of her streets and boulevards, her forts, her government, the armies, the battle; and so ideas pass from the outer circle of things subconscious—passively conscious, and suddenly into the bright focus of active consciousness. It is this passing from the outer circle of consciousness to the center that gives rise to the argument for unconscious mental phenomena. Are the sensations upon which this process proceeds unconscious or conscious? The whole problem is involved in the answer to this question.

Those who labor to establish the validity of unconscious mental phenomena argue it, as Prof. Baldwin says, from causation, i.e., if a cause produces a certain effect, part of that cause will pro-

*Read before the Colorado State Medical Society, 1914.

duce part of the effect. As physicians, we know that this argument is not sound. Five grains of strychnine will kill, but 1/20 grain of the same will not kill, it may even save life. If a man drinks a half pint of whiskey, we say he is drunk, but it does not follow that a dram of whiskey makes him 1/64 drunk. We look out over a green field, we have a consciousness of green, but each blade of grass does not reach consciousness in succession but at once. We stand on the seashore, we hear the beating of the waves, we call it the roar of the sea, yet each wave is not producing a mental effect separately—what each wave produces is merely a physical effect. All arguments for unconscious mental states fall into some such line of argument. We are told as an example, that the miller is unconscious that his mill is running. We sit reading in a room alone, the clock is ticking, we are told that this is an unconscious mental phenomenon, that we are unconscious of the clock ticking. We walk and are said to be unconscious of the pavement; yet, let the mill stop running, the miller knows it immediately, the clock stops and soon we are aware of it. We step from the pavement onto the sod and we find we were passively conscious of the pavement. The fact is the miller was conscious of his mill, we were conscious that the clock was ticking. Logically this is no argument for the unconscious at all for, as Mark Baldwin of Johns Hopkins says: "It is contradicted by the conclusion in the case; for if the whole effect is a fact of consciousness the *partial* effect must be a fact of consciousness also"; consequently it is a conscious fact and not an unconscious one.

This brings us to the question of the subconscious mind; what is it? The idea of a subconscious mind has taken a prominent place in recent years in all psychological discussion. It is an effort to give us an hypothesis to account for certain so-called unconscious mental phenomena. It is, it must be remembered, an hypothesis only. That it has a *de facto* existence has not been proven. It is supposed to be a mind beneath our intellect, feeling, and will —a sort of substratum of the soul; a kind of underlying mind that defies all analysis. We feel it but it is never subject to our introspection. A man feels that some great discovery is pent up within him, yet he cannot develop it, or he feels that if only he could express himself, he could produce a "Hamlet" or a "Paradise Lost." These, we are told, are the efforts of the subconscious mind to give expression through the conscious mind. The hypothesis acounts easily for all unconscious mental phenomena by referring them immediately to the subconscious mind. It is the facility with which this is done that has given rise to the idea of the subconscious mind. But it is a well established fact in science that of two explanations of a given phenomenon the simpler explanation is usually correct.

We do not need to suppose or to invent a subconscious mind to account for these phenomena. Degrees of consciousness itself will explain them all. For example, images once in consciousness have fallen below the plane of consciousness, but they will immediately rise into consciousness again when the stimulation of the cerebral centres is sufficient to draw attention to them. There is a point of least consciousness for each sense; a least perceptible touch, a least perceptible taste, a least perceptible sound, etc. If we call unconscious phenomena excitations of less strength, and all states which have been in consciousness as now simply subconscious, and all states which are now present in the mind as conscious, we have simply and fully classified all these phenomena without resort to a subconscious mind. In other words, degrees of consciousness account for all the phenomena the subconscious mind is supposed to be needed to account for them.

Unconscious phenomena are physiological phenomena; phenomena just above the physiological are subconscious. Just beyond the subconscious is the large field of the passively conscious—and that to which our attention is specifically directed is the present active consciousness. As Binet says: "If there be unconscious mental phenomena we know absolutely nothing about them," or to describe the subconscious mind in the words of Howell T. Pershing before a former meeting of this society: "It is a figment of the imagination." Münsterberg says: "The subconscious mind may be described in three words: 'There is none.'"

How, then, are we to account for so-called unconscious mental phenomena? In the first place we must remember that the physical basis of the mind is what we call cerebration and *that* of the whole sensorium. The organism as such, tends to repeat actions already performed. From this fact the mind, as it were, turns over to the body many details which are no longer mental acts of themselves, but purely organic and reflex acts. In other words, what *was* mental *becomes* simply mechanical. Consequently unconscious mental states may be accounted for from the physical side as excitations insufficient to produce a mental effect, and on the mental side as states of least consciousness. They are therefore accounted for, partly as mental and partly as physical facts.

808 Majestic Building.

A NEGLECTED FIELD OF MEDICAL CULTURE.

By T. D. Crothers, M.D.,

Hartford, Conn.

In an article entitled "Voice and Manners in Medical Practice," published in the Medical Record May 16, 1914, special attention was called to the influence of untrained voices and bad manners on the success and failure of medical men.

This paper has attracted much interest and brought out a large correspondence from medical men in all parts of the country, also several requests to take up the subject again with the view of calling attention to this neglected field of culture, and having it materialize in some tangible lectures and studies in medical colleges.

Any general observation of medical students reveals the fact of how closely they reflect manners and conduct of medical teachers and medical practitioners with whom they are associated. Whenever the student decides on medicine as his future work, there is a keen alertness to observe the manners and personalities of medical men. Both consciously and unconsciously they copy after the conduct and manners of physicians in their observation.

In a town in Pennsylvania, a physician with a very large practice was noted for carelessness of dress and general disregard of the proprieties of conventional life. His professional associates in that neighborhood were influenced by him, and in

many ways, imitated his eccentricities. His intellectual ability attracted and while his bad manners and rude conduct repelled, they were unconsciously copied.

It has been noted that quacks and irregulars who are successful in certain communities and who possess cultured manners and smooth tones of voice form a standard which young men copy more or less. Students in colleges are often duplicates of certain professors in manners and range of thought, particularly if the professor has some peculiarities that separate him from the other teachers and practitioners. Medical students of all others have to pick up ethical culture and ideas of manners, voice, and dress, befitting their work. These are things that are not born with the man but must be acquired. Home life and collegiate training do not furnish examples. While they may help to cultivate affable manners, they fail to prepare the young man for the ideal work of a physician in the sickroom and in society.

What is called ethical training in medical colleges consists often in mere formal statements of the relation of physicians to each other, to their patients, and the commercial requirements that call for exactness in certain special lines of duty, but there is no training of how to appear to the best advantage, how to develop the best culture in voice and manners, and how to impress one's patients in the best way and secure their fullest confidence. All this must be gathered from other sources.

Physicians are more carefully studied today by laymen and patients than ever before. They are supposed to represent ideal health and ideal manners, and to possess a knowledge of how to apply these in the most practical way.

Exactly what the opinion of the physician may be is often of minor importance, unless sustained by a personal culture and superiority of voice and manners. The patrons immediately consider one who is blunt, coarse-talking, and untidy in his appearance as one who is defective mentally. Without expressing this the most intelligent and the most ignorant patrons are always attracted and impressed by the kindly, musical voice, superior appearance, good manners, good language, and sympathetic ways. In pauper hospitals, the doctor with attractive dress and manners and a modulated voice is welcomed and watched with the greatest of attention. What he says is remembered longer. Teachers who give lectures at the bedside to students show remarkable variations in their influence on both patients and students. The voice and manners of the teacher often repel the patient and he shrinks and shows his antagonism.

Almost every large hospital furnishes examples of the great difference in visiting physicians, in their influence on the patients. These doctors are very often excellent men and highly trained, and yet some of them have a marked repelling influence on patients. The only explanation is want of culture, bad manners, and harsh voice. These things are not mentioned by the patient, but the hospital authorities realize that certain visiting physicians are not popular. That word is used to describe a great many things which are not expressed in words.

In actual practice, physicians often deplore their failure to retain families and inspire respect among the patients, and are constantly annoyed at being replaced with other, inferior men. In most cases it is their own fault, not their lack of knowledge, but their want of culture and faulty manners. The modern physician of today is judged from his appearance and good health. Thus a physician who is pale and anemic and apparently weak and debilitated, or one who has a bloated, over-fed look with an intensely red face suggesting beer and gormandizing, together with other marks of general debility, repels the patient who reasons that the physician who is unable to keep well himself cannot be trusted to advise on questions of health in others.

If to this is added a low monotonous tone or a high shrill falsetto voice suggesting bronchial and nasal troubles, or a discordant voice in intonations and changes, the aversion is greater. Many physicians have a very rasping inflection of tone, going through the entire scale in ordinary sentences, using words inexactly, slurring phrases, mixed up with expletives, figures, and illustrations that have little or no reference to the subject.

Other physicians use language with a military abruptness and exclamatory, commanding way, without any cause or purpose, or without reference to the subject, and all these create adverse impressions, and while the patient may not consider these other than as weaknesses, they always have an influence detrimental to the respect which the physician should have.

In all medical colleges, knowledge is the great ideal sought for; to be learned in diagnosis, to have a mass of facts and a capacity for reasoning, is considered perfection. The central fact that the physician himself should be in approximate ideal health, that his training should concentrate on himself first, developing mental and physical vigor and superior capacity to others before he can become a teacher and advise on questions that require the clearest and best judgment, is not recognized. If his voice is not cultivated, he is unable to express himself in the manner that will carry conviction.

Exactly how much he may know of the technique of diagnosis, of therapeutics or of surgery, is a secondary matter to the patient compared with his appearance of good health of body and mind, and his recognition of proprieties and requirements for the sick room and the hospital ward. The patient judges from the external appearances, the dress, the manners, the voice and the physician's apparent control of himself and ease with which he adjusts himself to the surroundings. Patients of all classes quickly recognize the departures from the normal, the timidity and weakness of the physician who shows anger, envy, and the coarser emotions, which they themselves are subject to.

Patients quickly realize the range of thought of the physician whose stories of professional life and events reflect on the weakness of human nature, and while they laugh and seem amused, always deplore statements of this kind.

Intelligent and ignorant laymen, even today, recognize that the most wonderful advances of science concerning human life, the treatment of disease, and the diminution of mortality, come from the medical profession; that they, of all others, should illustrate these marvellous changes by a degree of physical culture that is external, showing that they, themselves, have respect for the body, and its clothing, that they know the value of the voice to express the facts and the necessity and need of recognizing all the requirements of society and the sick room. There are a great many physicians who approximate this ideal, but there is a larger number who fall far below it.

The effort to raise the standard of culture in medical colleges is commendable, but fails lamentably when limited to the mass of abstract facts which the student has piled away in his brain. Studies that cannot be applied to make the student a better man physically and mentally and teach him how to use these in the most practical way are almost worthless.

College training that fails to lift the student above the beer drinking, cigarette smoking level of ignorant men, that fails to teach him how to dress with propriety and to talk with culture and clearness is lamentable. The very first elements of clear thinking and comprehension of facts necessary to determine the means for their relief, calls for the best degree of physical vigor. The tobacco and cigarette smoker destroys his voice and ability to express opinions and convince the patient. He is putting out of tune the vocal cords, and cultivating discordant tones that utterly fail to express the real facts.

The gourmand and the beer drinker destroy the nutrition of the body upon which their best efforts depend, they impair the capacity to make practical the real facts. In the same way, the faulty care of the body in loud, unfitting dress, jewelry that resembles the sporting class, and want of cleanliness and adaptability to the position he occupies still farther lower his capacity to express and to teach the facts called for.

Teachers in medical colleges are forced to adopt certain conventional customs in dress and manners, but voice culture is largely an unknown art. As a rule they have given no attention to anything but the specific topics of their lectures, never realizing that their manners, dress, and voice make more of an impression on the student than most of the facts they are teaching.

The clergyman whose training removes him largely from the currents of every day life sets up a certain superiority and spiritual elevation of manners and tone that brings with it a certain respect and reverence that is justifiable. When he gets down to the level of his audience, it is simply to urge one dominant thought of controlling the physical and elevating the spiritual of life. He approximates an iideal, but only in one direction.

The lawyer has another form of culture which concerns the mistakes and follies of human life and their legal correction. He has detective faculties to find out faults and suggest their remedies. This is limited to the external relations of life. He rarely comes into the inner circle of human growth and culture, except as a protector and guide for external relations. On the other side the physician, if his training has been correct and he has amplified it in his own life and presents this in voice, manners, and dress and in sympathy, comes into the closest relations and brings ideals and most helpful influences, not only in the treatment of disease, but in enlarging the range of human life and widening the circle of development and growth.

These facts may be illustrated by innumerable examples. Thus, one day two motors stopped in front of a millionaire's home. From one stepped a great physician who was a teacher and writer, and a most highly respected man. His appearance was that of a very commonplace business man with an air of unrest. His voice was grating and harsh. His hands were uncovered, and he hurried up the steps carrying a soiled bag in an awkward way.

From the other motor stepped a man of about the same age, neatly dressed, erect, the picture of health and serenity. His hat, clothing, gloves and shoes all indicated a professional man, and his melodious request to the driver to return in half an hour was soft and modulated.

To the street observer these two men represented very wide differences. One was a most eminent man, notwithstanding the fact that his manner and appearance were against him. The other man had a pathy to his name, and was without history of training, reputation, or standing. Some members of that family recognized in the pathy a superior man, and of course employed him. The others had doubts, and the really superior man was supplanted. The man who should have been consulted, of all others, had he been the type of good health, combined with culture of manner, dress and voice, was simply tolerated because of his reputation.

Recently a noted foreign professor gave an address to a large audience of physicians which was illustrated by a number of hospital patients. His description of the disease, the technique, and his wealth of clinical facts charmed his hearers, but his coarse treatment of the patients and absence of the little proprieties, such as protecting the patient from needless exposure and his harsh words of command when the patient showed resentment, sent a chill over many in the audience, and marred the first impressions.

Another very eminent physician gave a series of lectures with a most discordant, bronchial tone of voice. His appearance was unkempt and lacking in attractive dress to which he supplemented vague expletives, and slang words which would create a laugh. This absence of culture was so marked as to limit the value of his statements.

A wise business man said, "I always try to have a new doctor dine with me if I ever expect to employ him. I judge from his table manners what his judgment will be in professional questions. I provide a sumptuous table with wines and tobacco. If he eats abstemiously, refuses to take spirits or smoke, I reason that he has strict regard for his own health, first of all, and hence may be trusted to judge of others. If, on the contrary, he partakes of everything offered and shows untrained nutrient habits, I doubt his capacity to be relied upon as a medical adviser."

Recently a medical expert gave a most elaborate statement of the meaning of facts in a jury trial, and yet they were ignored by the verdict. One of the jurors explained that the doctor's voice, his general manners, and coarseness of utterance repelled them and cast a reflection on his honesty. Innumerable examples confirming this sort of skepticism will be recalled by every observer.

Medical students are said to be coarse and rough in their manners. Probably this was more true in the past than at present. One of the reasons most prominent is that they have no ideals that are fixed as to what the real physician should be. Their observations gather around the weakness of medical men and their disregard of the proprieties of actual life, and without training they must form some ideals or conceptions for themselves, always with the uppermost thought that the physician is anomalous and not subject to the law of culture and conventionality. Thus in a medical college, one professor illustrates the extreme styles and fashions of dress. He expresses himself in a harsh, broken voice, in a bombastic, dogmatic way. Another, while more modestly dressed, has a heavy, subdued, cringing tone of voice, uses foreign words and quotes

largely, giving the impression of superiority of knowledge. A third one has marked peculiarities of dress, speaks awkwardly, reads in a singsong way, seems out of touch with the students. A fourth may be a surgeon with a bronchial voice and an air of hurried disregard of dress, abrupt manners, and a commanding way, and so on through the various types of teachers. The student must get an impression of what a medical man should be from these.

From such sources and from his acquaintance with physicians outside, he must form a conception and utilize it in his own personality. No wonder he goes out with the vaguest knowledge of how to make the most of his own acquired abilities and how to appear to the best advantage.

A very large percentage of the teachers of the medical colleges of today are not good types of healthy men. They lack in so many ways and are so faulty in the very essentials of ideal physical culture, good manners and attractive voice that it would seem to be almost impossible for the student to get a very clear conception of what is needed most in actual practice.

Scientific training in literary colleges while broadening the student's conception of life, unless accompanied with teaching as to how it can be made most valuable and available in actual life, is of very little value. Every school should have departments of physical culture and voice training, and this should be considered of equal importance to that of any other department of medicine. Such training cannot be had in any other way, except by direct, illustrated lectures. Thus the voice, which is really one of the most melodious and perfect organs of the human body, should be trained in the best physiological and hygienic way to express the thoughts and will of the person. It should be kept in the most perfect condition and protected from every influence that will mar or destroy its power.

There is no one organ that can do more to command respect, attract attention, and influence persons in every circle of society than a well trained, highly cultivated, modulated voice. With this are associated conceptions of the proper clothing and dress that will not only protect the body, but will add to its attractiveness and give it force and power. From this there will come training of appetite, knowledge of what appetite means, and how it can be made most essential, most valuable for the development of the mind and body. From this follows training of the muscles, the skin, the poise, the general manners and capacity to adapt themselves to the varied conditions that call for ideal impressions and conclusions.

Such lectures would materialize the great mass of facts that are piled up through the four long years of study, and put them at the service of the individual, giving a new power and a new capacity which cannot come from any other source.

It is apparent to everyone that these are the neglected fields from which the bitter experience of failures and disappointments follow in the profession. Many of these facts are very strikingly illustrated in the great surgical clinics, where the most eminent men show the marvelous advances and possibilities of surgical studies. Not unfrequently these experts mar the impression they have made by their broken, harsh tones of voice and little indescribable faults of manners and conduct.

This is farther observed in the medical gatherings where papers are read and discussed. A critical layman remarked, after hearing papers read by most eminent men: "They may be very learned, but they utterly fail to apply this learning in personal manners and powers of expression, and the common cultures that we expect from leaders of the profession."

The specialist of the throat and nose seems unconscious of his failure to apply the principles of health in himself. The nerve specialist who gives minute descriptions of nerve troubles indicates the same failure to apply these principles in his manners and powers of control.

The physician who talks glibly on public health matters and shows in his bloated face and harsh voice signs of profound personal neglect of the principles he is urging, is not an unfrequent example. Almost every city and town in the country furnishes illustrations of the failure of medical men to come up to the level of the science that they are teaching, and their failure to apply it in every day life, and this is an error that should be corrected.

Graduates of the very best colleges with foreign training in addition are chagrined that their attainments are not recognized, and that they are replaced by inferior men. It is simply because they are untrained in the very essentials that would bring out the facts they possess.

The late Dr. Mott is said to have advised a physician who complained of no business and non-recognition in the community where he lived to "go home and train yourself in manners and dress and voice and living, and show them that you are a physician in all that that word means and you will have custom."

If the physician was trained to an ideal standard of personal health and attractive manners, he would be welcomed in innumerable homes, where now he is seldom employed. He would be the ideal counsellor who would bring cheer and courage and suggestion of how to live for which many persons would be glad to remunerate.

A physician on the street with an air of superiority that comes from personal culture and training would be a marked man and welcomed everywhere. If his training was right, he could not remain unknown long, either in the city or country. There would be no long waiting period for practice. He would be wanted at once, and his society would be sought for. There is no medical student or physician living who, if properly trained, with clear ideals of the position he occupies and with personal culture that would show his superiority to the common people, who would fail in the practice of medicine.

It is want of proper ideals, want of culture and profound ignorance of how to apply these principles in his own life that keeps the medical man down on a level with ordinary business men.

Shrewd quacks illustrate this in many ways. Laymen are far beyond the profession in recognizing and rewarding the men who attain this practical position which every new scientific discovery is imposing on the status of medicine.

The claim of a crowded profession is correct, and largely because the vast majority of physicians do not represent in their personal appearance, conduct and manners the priests and teachers of hygeia. They take rank in the community as common people, with all the weaknesses and peculiarities of others, padded with some special knowledge of the body and its diseases, which they attempt to apply in others and fail to use themselves.

The times call for culture of a higher type, for chairs in colleges that shall teach these very essentials and furnish the key to unlock the great capacities and powers of each individual, and make him available for the larger field of medicine that is coming.

This is the demand of the times, and the call that is felt in every town and city in the country.

DEAFNESS FOLLOWING MUMPS.

WITH THE REPORT OF A CASE.

By JOSEPH WEINSTEIN, M.D.,

NEW YORK.

In view of the fact that so few cases of this interesting condition have been reported recently in medical literature, the writer believes the following case which has come under his observation will be of interest to the profession:

J. J., male, 8 years of age. Perfectly well two weeks ago. Hearing perfect. Attended school, making good progress. Developed mumps two weeks ago, and left parotid appearing more swollen than the right. Heard normally for two days during the progress of the mumps and for two days thereafter, when he became partially deaf and said that he heard sounds as if they were very far away. At the end of five days deafness was complete. The otoscopic picture showed that both drums were normal. Functional tests elicited complete deafness. Diagnosis: Labyrinthine deafness following mumps.

The case under discussion is one of those in which the labyrinth is very probably involved in the course of an attack of mumps and in which the process is not suppurative nor due to direct extension of the inflammation from the parotid to the meatus and middle-ear, but apparently to an attack of the disease itself in the labyrinth, terminating in total deafness in one or both ears and, when occurring in infants, in deaf-mutism.

While the condition is not commonly mentioned in literature it would seem to have been frequently met with during the middle of the last century. Toynbee (1860), Dalby (1885), Hinton (1874), and Pearce (1885) having cited several cases. Mygind gives mumps as the cause of deaf-mutism in 0.3 per cent. of the cases occurring in Saxony and 0.5 per cent. in America. Bliss reported one case out of 282 cases examined by him. Hinton places mumps next to scarlet fever as an etiological factor in the impairment of hearing. Buerkner gives mumps as the cause of labyrinthine deafness in 2 per cent. of cases seen by him.

A diversity of opinion prevails among those who have studied the condition as to whether the primary lesion is in the middle-ear or the internal ear. Toynbee located the disease in the labyrinth and reported a case of hemorrhage into the labyrinth as a complication of mumps. Roosa thought that the infection traveled from the parotid gland through the external auditory canal into the tympanic cavity and thence into the labyrinth. Combeau believed it to be part of a general infection manifesting itself in many localizations. Brunner reduced the cause to an inflammatory excitation of the labyrinth, leading to rapid exudation, with no tendency to suppuration. Vogel believed the inflammation to be carried to the internal ear along the course of the facial nerve.

Thomas Barr, writing about 1889, challenges both Roosa and Vogel, saying: "The view which commends itself to my mind is that the mode of extension and the nature of the pathological process are similar to the processes in inflammation of the testicles or of the mammæ which are well-known phenomena in the case of mumps. The possibility is that the morbid poison of mumps which, according to Ollivier, is of the nature of microorganisms (cocci and bacilli) attacks, in certain cases, the labyrinthine circulation, leading to serous or hemorrhagic exudation, or to embolism of the internal auditory artery in its cochlear or vestibular branches and that in many cases the exudations are, after absorption, followed by atrophy of the nerve structures. In short, the parotitis, the orchitis, the labyrinthitis are local expressions of the same morbid condition of the blood and due to the migration of the microorganisms into these several structures."

Pollitzer (1909), citing Lannois, says: "The hypothesis that the deafness in mumps is caused by an acute exudation or metastasis in the labyrinth (similar to affections of the kidneys, ovaries, mammæ, testicles) or by an affection of the acoustic center, is without any anatomical foundation. It is most probable that this form of deafness is due to an infectious disease." Barnhill and Wales (1911) mention the condition, but make no attempt to explain it, the following quotation from their work practically covering the subject: "The tendency of mumps toward a metastatic involvement of the testes, ovaries, and breasts is well known and an explanation of the occurrence of deafness during an attack of parotitis has been made upon similar grounds. Whatever the nature of the virus of mumps may be, in the purely labyrinthine cases of deafness which result from its deposit in the inner ear, the effect seems most often to be upon the auditory nerve itself, and to finally cause more or less complete atrophy of its trunk." Ballenger (1914), speaking of aural conditions associated with "scarlet fever, measles, and kindred diseases," says: "The labyrinth is usually invaded through either the oval or round windows, as has been shown by numerous autopsies by the scar on the membrane. In some cases, however, it appears that the middle ear is not involved, the drum membrane being normal. It is probable in these cases that the infection reached the labyrinth by metastasis." Later, speaking specifically of mumps, Ballinger says: "Mumps being an infectious disease and the site of infection being automatically in close proximity to the labyrinth, the infection may be carried to it by metastasis, or it may be carried through the Glaserian fissure."

The problem still remains as to whether these cases are due to an invasion of the labyrinth by the microorganism of mumps, to metastasis similar to the mammary and testicular complications of mumps, or a toxic neuritis, the latter theory attributing the condition to a paralysis of the auditory nerve due to toxic absorption, the poisons very probably being carried into the labyrinth through the cochlear and vestibular branches of the auditory artery.

The condition has been described as a nonsuppurative process in the labyrinth occurring in the course of an attack of mumps. It is interesting to note that in no process associated with mumps is there a tendency to suppuration, an argument used in favor of the theory of invasion of the labyrinth by the microorganism of the disease itself. It manifests itself without respect to sex or age, cases occurring in patients from eleven to thirty years of age being more prevalent. The time of

onset is from four days before the appearance of the parotid swelling to fifteen days after. The onset is almost invariably rapid and accompanied by vertigo, nausea and vomiting; headache is mentioned in some cases. In a few instances the patient has become suddenly unconscious at the onset, in one case falling to the floor as if struck down. Subjective noises, sometimes very loud and violent, are usually present and the gait is always affected, becoming staggering and uncertain. The majority of cases reported have been unilateral although bilateral cases are not infrequently encountered with this condition. G. W. Boot, in a study of 51 cases, reports 32 unilateral cases and 10 bilateral. The otoscopic picture is, with very few exceptions, normal. The prognosis is bad, the condition being rarely affected favorably by treatment. Yearsley and Jollye each report a case where the patient made a complete recovery under pilocarpine treatment. Alt and Baruich report two cases, one of which recovered by an inhibition of sodium iodide and the other without treatment of any kind being directed to the auditory nerve.

E. A. Crockett (1898-1899) says that treatment has always been unsatisfactory, and expresses himself as believing that "reported cases of improvement in hearing after iodides, mercury, and pilocarpine are more likely cases of inherited or acquired syphilis, both of which frequently give a precisely similar group of symptoms." The fact that a case is rarely presented to the otologist for treatment in its earliest stages, the general practitioner usually treating it as within his province, has been a handicap to a very comprehensive study of this interesting condition. Whether cases seen by the otologist in the earliest stages might be more amenable to treatment is doubtful, the complete climax following so close upon the sudden onset, leaving little time for treatment. The chance of recovery in any pathological condition, however, is rendered more possible by its being recognized at its inception, and for this reason, as well as for the purpose of a more intelligent study of the condition, it is urged upon the general practitioner to be on the alert for an aural complication during the course of an attack of mumps, that abortive treatment may be early inaugurated.

261 Central Park West.

TRANSFUSION OF BLOOD BY THE GRAVITATION METHOD.

By G. A. RUECK, M.D.,

NEW YORK.

When I started the pathological and bacteriological laboratory at St. Francis Hospital in 1911 I did the blood serum tests for syphilis according to Noguchi's method. In the spring of 1912 I compared my results of this method with those obtained by Weil's test in which very weak solutions of cobra venom are used. The first step in the preparation of the red blood cells for this cobra venom test is to use equal parts of blood and of a 2 per cent. sodium citrate solution in order to avoid coagulation of the blood. In the fall of 1912 I began to use Wassermann's original method and for each set of tests I had to get sheep's blood from a slaughter house downtown. The messenger often forgot to shake the jar as ordered and the blood in the jar coagulated. It was then difficult to get enough red blood cells in suspension for the Wassermann test. To prevent coagulation of the blood I put each time into the sterile half-pint fruit jar in which the fresh sheep's blood was to be collected about 50 c.c. of a 2 per cent. sterile sodium citrate solution. Mixed with this solution the blood did not coagulate. I have followed this method of getting sheep's blood from the slaughter house up to the present day. The blood could be kept in the ice box for 24 to 48 hours without undergoing hemolysis.

On December 12, 1913, Dr. Clarence Smith referred to me a patient who suffered with purpura hemorrhagica. I treated her by the hypodermic injection of fresh human blood serum. The bleeding stopped entirely except for a slight oozing from the mucosa of the mouth. She lived on a light diet and felt so well that she was allowed to sit up on Christmas Day, when she rashly ate a hearty meal and much canned spinach which was "not up to the mark." Next day she vomited and felt quite weak. Her anemic condition increased and upon the advice of Dr. Welch she received two blood transfusions, each of one quart of her mother's blood. The transfusions which accelerated the fatal outcome of the case were given by means of record syringes, December 31, 1913, and January 2, 1914. The technique was excellent. But I became convinced that the Lindeman method, although superior to all the older methods, is too expensive on account of the unavoidable breakage of a great number of syringes, and out of the reach of most of the patients who need a blood transfusion, because it requires quick work and a specially trained staff of 3 or 4 men in order to be successful. I decided therefore to use my old sodium citrate solution in order to prevent a rapid clotting of the blood in a flask and to introduce the human blood so treated, at my convenience, into the circulation of patients by means of the simple gravitation apparatus used for the intravenous injection of salvarsan, provided the sodium citrate would not produce any dangerous results. My experiments were the following:

Experiment I.—January 3, 1914. A gray female rabbit, weighing 2053 grams and lying head downward on an inclined warming stage devised by me was bled from the post-auricular vein, 40 c.c. of its blood being collected in 10 c.c. of normal saline solution to which 2 per cent. of sodium citrate had been added. This blood was kept in the ice box. Then the jugular vein was resected. A small cannula connected by means of rubber tubing to a glass funnel tube was introduced into the jugular vein. The rabbit was now in a horizontal position on the warming stage. Into the slightly raised funnel tube 40 c.c. of sodium citrate blood of another rabbit was poured. This second rabbit, "the donor," had been killed 48 hours ago. Its blood had been kept in the ice box 48 hours and was warmed on a water bath to 37½° C. before the transfusion was started. The rabbit died 6 days after the transfusion.

Experiment II.—January 6, 1914. A fox colored female rabbit, weighing 2038 grams was bled from the postauricular vein, 40 c.c. of its blood being collected in 10 c.c. of a normal saline solution containing 2 per cent. sodium citrate and was kept in the ice box for later use. Then the rabbit received a transfusion into the jugular vein of 40 c.c. of the sodium citrate blood obtained from rabbit No. I which had been in the ice box for 24 hours. The rabbit lived.

Experiment III.—January 7, 1914. A gray male rabbit weighing 1850 grams, was put on the warming stage, and bled from the left postauricular vein, 40 c.c. of its blood being collected in 10 c.c. of 2 per cent. sodium citrate in normal saline solution. Then the rabbit received into the right postauricular vein by means of a large syringe an injection of 30 cc. of blood obtained from rabbit II which had been kept in the ice box 18 hours. The rabbit lived. These experiments were encouraging.

To find a solution containing the smallest amount of sodium citrate necessary to prevent the blood from clotting a number of experiments were made, as a result of which it was found that a solution of 0.4 per cent. sodium chloride and 1 per cent. sodium citrate in distilled water was sufficient to prevent coagulation of the blood when 1 part of this solution was mixed with 4 parts of blood.

In case a patient would get a transfusion of 1 liter of such a blood mixture he would receive in it 200 c.c. of the sodium citrate saline solution. To determine the effect of this sodium citrate saline solution on man I injected into a patient who came to my private office 250 c.c of it intravenously, and one-half hour later I gave him an intravenous injection of salvarsan. This experiment was done May 10, 1914, and repeated May 17, 1914. The patient showed no ill effects whatsoever.

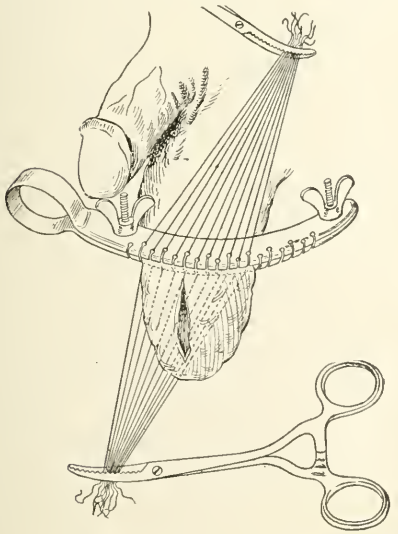
I have been waiting for a chance to try my blood transfusion method on private patients or in a hospital before I should publish it, but the fact that the MEDICAL RECORD in the number of January 23, 1915, contained an article by Dr. Richard Lewisohn, entitled "A New and Greatly Simplified Method of Blood Transfusion," leads me to publish this article now before my experiments have been completed. Since Dr. Lewisohn acknowledges that he has experimented with sodium citrate solutions only for the last few months, since my experiments are of a much older date, and since I explained my method to the staff of St. Francis Hospital and several medical friends last summer I claim to be the originator of this method of blood transfusion.

1070 TIFFANY STREET.

A NEW INCISION FOR VARICOCELE OPERATION WHEN THE SCROTUM IS TO BE AMPUTATED.

BY EDGAR G. BALLENGER, M.D.,
AND OMAR F. ELDER, M.D.,
ATLANTA, GA.

THE operation for varicocele may be done as easily



through an incision low in the scrotum as at the usual site. When the scrotum is to be amputated the incision for the varicocele may be made through the part of the scrotum which is to be removed, thereby making it unnecessary to have more than one skin incision. The same result, of course, could be obtained by amputating the scrotum first and excising the dilated veins after removing the scrotal clamp; the hemorrhage, however, is much greater and more time is required for such an operation. The danger of infection is also decidedly increased by this open operation. The illustration shows the clamp in place ready for the amputation after which the sutures may be tied.

805 HEALEY BUILDING.

Medicolegal Notes.

Malpractice—X-Ray Burn.—Action was brought to recover damages from a physician for the alleged negligent and unskillful use of an *x*-ray machine in taking pictures of the body of the plaintiff, his patient. The machine was used on four occasions, and there subsequently developed, on plaintiff's abdomen, an incurable third degree *x*-ray burn. The defense was that the plaintiff was unusually susceptible to injury from the *x*-ray. It was held not error to instruct the jury that, if the evidence showed that it was proper to use an *x*-ray machine on the plaintiff, and that when such machines are properly used burns do not necessarily result, then the fact that the plaintiff was severely burned could be considered in determining whether the defendant's use of the *x*-ray was negligent, careless, or unskillful. The defendant produced the testimony of a number of physicians, who were *x*-ray operators, which tended to show that a burn would not be expected by the use of an *x*-ray with less than two or three times the amount of exposure actually used in this case, as shown by the testimony. On the other hand, there was evidence that the use made of the *x*-ray machine and current would be expected in ordinary cases to inflict the burn which the plaintiff suffered. Upon such conflicting evidence it was held that it was the special province of the jury (which had found for the plaintiff) to determine the fact. This was a question of science in which the average juryman has no special knowledge to enable him to test the credibility and accuracy of testimony; still it did not follow that the mere number of witnesses on either side determined the preponderance of the evidence, but the general rule must apply that where the jury determined the weight of conflicting evidence, and the trial court approved the verdict and rendered judgment thereon, the Supreme Court will not reverse the judgment, even though it might appear to it that the preponderance was on the other side.—George V. Shannon, Kansas Supreme Court, 142 Pac. 967.

Sufficient Statement of Claim for Physician's Services.—In an action by a physician to recover for professional services a statement of claim was held to be sufficient which averred that between June 2, 1907, and July 24, 1911, at the special instance and request of the defendant, he rendered her certain services as a physician at the times and in the amount of $303, as shown by a true and correct copy of his book of original entry; that in payment thereof he had received from the defendant the sum of $36, leaving a balance of $267; that the charges were reasonable and proper, and the copy of the plaintiff's book of account attached showed the number and respective dates of the plaintiff's professional visits and the sum charged for each.—Paist vs. Spittall, 36 Pa. Superior Ct., 408.

Irregular Visits for Prolonged Period, When a Preferred Claim.—A claim for irregular visits to a decedent by a physician for a period of three years during a progressive disease terminating fatally will, it is held, be allowed as a preferred claim under Section 21 of the Pennsylvania Act of February, 1834, for "medical attendance during the last illness."—Roop's Estate, 22 Pa. Dist. 484.

Opinion Evidence as to Permanency of Injury.—In an action for personal injuries, a physician or surgeon may state his opinion whether the present physical conditions of the plaintiff are apt to be permanent and, if any improvement seems probable, what are the chances for a complete recovery.—Ellis vs. Chicago Railways Co., 187 Ill. App. 461.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, February 27, 1915.

THE FIGHT AGAINST TUBERCULOSIS.

IN a recent issue of the MEDICAL RECORD, Dr. Edward S. McSweeny, writing on the subject of institutional care of tuberculous patients, made the broad statement that the amount of money expended in this way is out of all proportion to the returns, and it cannot be gainsaid that the decline in the death rate from tuberculosis is not nearly so rapid as the increase in the money spent to combat the disease. The reason for this is twofold. In the first place, part of the difficulty is one inherent in every problem of a diminishing death rate and as such cannot be entirely eliminated by any efforts of our own. The second difficulty results from our inability to realize that the problem of prevention has now entered upon its second phase, and requires the application of new principles for its solution. The difficulty inherent in reducing death rates from any cause is one that is not entirely appreciated except by those who have made a special study of vital statistics, and even they are unable to explain it in terms entirely comprehensible to the ordinary mind. In essence it consists in the fact that the nearer the death rate from a given disease reaches the vanishing point the slower is its approach to that point. At first the decrease may assume the geometrical ratio, then become arithmetical, and finally proced by slow and irregular steps to the final goal of complete elimination.

The reason for this slow progress toward the end is well stated by Hoffman when he says, "the residuary obstacles to be overcome are decidedly more resistant to the ordinary methods of disease elimination than the more obvious and general causes chiefly responsible for the excess in the death rate of the past." Applying this principle to the problem of tuberculosis, we see at once that the greatest single influence in the spread of this disease, namely, contagion through ignorance of mode of spread, has been practically eliminated. It was in 1882 that Koch discovered the tubercle bacillus, and the contagiousness of the disease was definitely established. Before that year the decline in the death rate had been irregular and not very persistently downward. Thus, if we take the cities of New York, Boston, and Philadelphia as examples, we find that the mortality from tuberculosis (illustrated by Hoffman in his combined chart of these three cities) stuck closely to 375 per 100,000 population for the fifty years preceding 1885. Then it dropped rapidly, reaching the 225 mark in less than ten years. It is certainly significant that this extremely rapid drop corresponds so exactly with the period when the contagiousness of the disease was definitely established and intelligent people began to use ordinary care in their daily contact with consumptives. Massive foci of infection were beginning to be removed by the mere dissemination of the news that consumptives should sleep alone and not spit indiscriminately. Since 1895 the death rate has still persistently tended downward, though at a much slower pace, having fallen to 147 per 100,000 in 1913. This is primarily because the residual obstacles to be removed are incapable of removal in the way we are attempting the task. Sticking to the main fact that the disease is contagious we forget that we have already accomplished nearly all that can be expected in the way of eliminating massive foci of infection and that the smaller foci cannot be attacked in the same way, because that would involve an entire reconstruction of society.

This brings us to the gist of McSweeny's argument that we not only must recognize the difference between tuberculous infection and tuberculous disease, but must also classify our tuberculous disease patients with reference to their social strata. He points out the fact that an alcoholic tuberculous patient is primarily an alcoholic, and that a vagabond tuberculous patient is primarily a tramp. It is plain that vagabonds and drunkards cannot be expected to be trained into careful, conscientious invalids, and must ever remain a source of danger to the community unless they receive the treatment appropriate for their underlying social delinquency rather than their superimposed disease. It is not fair to the careful, self-respecting consumptive to segregate him in company with this class of social delinquents.

When we boil down the arguments of Hoffman, McSweeny, and all other careful investigators in this field of the further prevention of tuberculosis, we are struck with the fact that the problem has now entered upon its second phase. The first one, that of education, has apparently reached all classes of society which it is capable of reaching. Intellectually and morally normal men or women seldom succumb to the ravages of this disease, provided they are in a financially fit condition to carry out the necessary hygienic regime. The diminution in the death rate so far noted is chiefly, we believe, a diminution among persons in the middle and upper walks of the social strata. The lower or submerged tenth has not been reached. Neither can it be reached by the methods applicable to those of normal intelligence, adequate means, and correct personal habits. The second phase of the problem is squarely upon us, and that is a recognition of the fact that further reduction in the death rate cannot be expected until the problem of tuberculosis is considered as inseparable from the problems of poverty and social delinquency. These are the residuary obstacles which must be overcome before the $20,700,000 spent annually in the antituberculosis campaign can be expected to bring adequate returns.

THE PHTHALEIN TEST FROM THE VIEWPOINT OF THE ABDOMINAL SURGEON.

A METHOD which will accurately determine the functional capacity of the kidneys—one which, applied before operation, will allow one to know with approximate exactness how much deviation from the normal is to be expected after operation—has long been awaited, and is still hopefully looked forward to. Cryoscopy, Bouchard's method of determining the toxicity of the urine, Albarran's method of experimental polyuria, Kutner's methylene blue test, Voelcker and Joseph's indigo-carmine test, the phloridzin method of Casper and Richter, Ambard's method of correlating the amount of urea in the blood and in the urine (Ambard's coefficient), the phenolsulphonephthalein test of Geraghty and Rowntree—the development of these and many other less important tests has come from the demand, particularly on the part of the surgeon, for such knowledge of the actual functional worth of a kidney or kidneys as will allow an intelligent estimate to be made as to what may be expected of the other kidney in contemplated nephrectomy, or of both kidneys when other serious operations are under consideration. Of all these the phthalein test has perhaps come the nearest to fulfilling our expectations, and yet this also falls far short of the hoped for ideal. It was at first enthusiastically taken up by genitourinary surgeons, but they soon found that blind dependence upon its accuracy often resulted disastrously; and that while a valuable aid, it could not be the sole criterion as to the functional worth of the kidneys, but should be supplemented by the use of other methods, the final decision depending upon consideration of all evidence available in the individual case.

One question that has never been decided is the minimum two-hour percentage output with which it might be considered safe to do a major operation. Rowntree himself, in answer to this question, would only say "the greater the output the less the risk." To decide this point, if possible, and also to determine if the test would be of value to the surgeon in his routine work, Stephen E. Tracy (*Surg., Gyn. and Obst.*, Dec., 1914) employed the test in about 300 cases, taking them as they came, with absolutely no selection. In the selection of cases for operation he paid no attention to the functional test reports but decided upon the basis of other data previously used. This paper is based on observations of the first 100 cases, on which 120 tests were made. The dye was injected deep in the lumbar muscles and appeared in the urine in from five to forty-two minutes, the average being ten minutes and eighteen seconds. The total output (for two hours) varied from 21 to 96.5 per cent. The average output for the first hour was 34.27 per cent., for the second 20.83 per cent., and for the two hours 55.1 per cent. In 91.7 per cent. of the tests the output was greater in the first hour; in 8.3 per cent. in the second hour. In 20 per cent. of the tests there was not over 4 per cent. difference between the output in the first and second hours. Five cases with the lowest output in the series (21 to 27.5 per cent.) were considered good surgical risks, were subjected to major operations, one of which was a nephrectomy, and had a normal convalescence. Other cases with a much higher phthalein output died from uremia from five days to something under two months after operation. The output in four of these cases was, respectively, 53, 55, 72, and 87 per cent. In another case in which it was known that the kidneys were not normal the phthalein output was 90 per cent.

Tracy's conclusions are: "It does not seem possible to work out the minimum percentage phthalein output with which it will be safe to undertake surgical operations, nor is it possible from the phthalein test to determine what cases should or should not be subjected to operation. I believe it will never be possible to determine this point by any laboratory test, as the functional activity of the kidney varies under numerous circumstances and at different times. In determining whether or not a patient should be subjected to operation, the history, clinical symptoms and physical examination are of much greater value than any renal functional test yet devised. The phthalein test used in conjunction with the clinical symptoms, history and physical examination is of value. A small percentage output should put the surgeon on his guard and cause him to study the patient most carefully before undertaking an operation. The phthalein test should be used only as one of the many methods of investigation in ascertaining the condition of the patient." These conclusions correspond with those already arrived at by the genitourinary surgeons and not at all with the more sanguine remark of one of the originators of the test, Rowntree, that the greater the output the less the risk. There is no denying the fact that it has a certain value; but it is as a link in the chain of evidence and not as the court of last resort when the functional value of the kidney is under adjudication.

THE ETIOLOGY OF EXOPHTHALMIC GOITER.

MEDICINE offers many attractive fields for speculation, but perhaps none more attractive and surely none more exploited during recent years than the field of the internal secretions. So many plausible theories that are impossible of proof can be advanced that starting from any point in the periphery of this field a logical line of reasoning will carry the theorist straight to the heart of the problem. In fact the test of therapy is the only "acid test" we have for most of these alluring ideas.

A speculative article on Exophthalmic Goiter has recently appeared from the pen of Leonard Williams (*Practitioner* 1915, xciv, 94). He deplores the old name of exophthalmic goiter and with well recognized reasons, but views the newer term of hyperthyroidism as a positive catastrophe. So many cases of this disease exhibit a mixture of hypo- and hyper-thyroidism that, in his opinion, it is unwise to limit the conception of the disease by a narrow terminology. In spite of the obvious objections to eponymic nomenclature, Williams favors the retention of the term Graves' disease as being most suitable until our knowledge is broader on this subject. In many patients he has noted

evidence which points to the derangement of some of the other endocrinic glands. He has seen many of these patients whose eyes slant outward and upward instead of downward, the celestial angle. This is a common finding in Mongolian idiocy and has been considered as one of the stigmata of that disease. He then goes on to say that the victims of Graves' disease are, as a rule, badly balanced or, in other words, degenerate to a greater or lesser degree, and suggests that exophthalmic goiter bears the same relation to mongolism that myxedema does to cretinism. "The one is the delayed, adult, and incomplete manifestation of an intrauterine fault of which the other is an immediate and complete example." The lack of striking resemblance may be analogous to the dissimilarity existing between gigantism and acromegaly. The peculiarity in the development of the bones forming the orbit which is noticeable in Graves' disease suggests that the pituitary plays an important part, while the facial expression of "fright and flight" and the pigmentation of the skin which is rarely absent from complete Graves' disease, indicates the involvement of the suprarenal gland.

Unfortunately all this attractive speculation fails to lead to an equally attractive method of therapy. The subject of internal secretions is in such an unsatisfactory condition and there is such a deplorable lack of competent tests for the function of these mysterious glands that it is impossible to draw reliable conclusions. Williams thinks that the best plan is still to treat the patient and not the disease and emphasizes the difficulties of such a scheme. Marriage is inadvisable "for not only do their vagaries impair their husband's social efficiency, but it is very doubtful whether they are capable of bearing altogether satisfactory children." He does not discuss the infectious theory of the disease.

Such mental gymnastics as these might seem to lead nowhere, and yet it is only by continued exercise that our organs are kept fit and it is more than probable that when the light comes it will be seen first by some worker who is fond of speculation, the happy possessor of a constructive imagination.

Health of the Allied Armies.

It appears that so far the armies in the western zone of fighting have been comparatively free from epidemic disease. Typhoid fever, which generally occurs among masses of men gathered together under conditions peculiar to warfare, according to reports, has not been present on a wide scale. The Belgian troops stationed in and about Calais are said to have suffered to a considerable extent from the disease, but the British army up to the present time has been singularly free from it. *The Lancet* in its Annus Medicus published December 26, 1914, attributes this freedom largely to the action taken to obtain systematic inoculation of the soldiers with antityphoid vaccine. Cholera has been reported to be somewhat widespread among the armies in South Poland and Galicia, but no authentic news has been received with regard to its presence in the West. There has been no notification of smallpox or of any severe prevalence of dysentery in the western field of operations. On the whole, the situation, judging from the somewhat meager reports which have come to hand, is from the health point of view of the allied armies satisfactory. At any rate, it would seem probable that the occurrence and spread of typhoid fever have been checked. This result should augur well for the future, since the conditions of warfare which are going on in the West have not been of such a nature as particularly to favor the prevention of epidemic disease.

Glue in the Prophylaxis and Treatment of Frost Bites.

This old remedy has been revived in the present war, melted carpenter's glue being poured upon the feet, with special reference to the toes. The dried glue forms a superior nonconductor and the soldiers thus provided are able to march for days without the development of frost bite. At a recent meeting of the K. K. Medizinische Gesellschaft zu Wien (*Münchener medizinische Wochenschrift*, January 5) Pribram states that glue may be employed in treating frost bites. Should the feet freeze as a result of unusually severe or prolonged exposure they should be slowly thawed out by massage, a warm bath being next used to remove the dried glue, after which more warm glue is added. The author prefers personally to apply the prophylactic glue upon one side of a bandage as the latter is being applied to the foot. If in spite of all the foot freezes the massage is performed with the dressing undisturbed. Soaking the foot in warm water facilitates the removal of the old dressing which is then replaced with a fresh one.

News of the Week.

For the Relief of Belgian Physicians.—The report of the Treasurer of the Committee of American Physicians for the Aid of the Belgian Profession, for the week ending February 20, 1915, announces the following contributions:

Dr. Sylvester McNamara, Brooklyn, N. Y.	$5.00
Dr. J. Watanabe, Seattle, Wash.	5.00
Anonymous—B., Pittsburgh, Pa.	30.00
The Erie County Medical Society, Erie, Pa.	25.00
Dr. Hugh Cabot, Boston, Mass.	25.00
Dr. E. Evans, La Crosse, Wis.	10.00
Dr. W. J. Herrington, Bad Axe, Mich.	10.00
Otero County Medical Society, La Junta, Colo.	25.00
Vermilion County Medical Society, Danville, Ill.	25.00
Dr. Eva Charlotte Reid, San Francisco, Cal.	5.00
Dr. Howard Carter, Webster Groves, Mo.	5.00
Dr. G. H. Torney, Brookline, Mass.	5.00
Dr. John B. Murphy, Chicago, Ill.	100.00
Dr. D. E. McGillivray, Fort Angeles, Wash.	5.00
Dr. Charles N. Spratt, Minneapolis, Minn.	100.00
Dr. J. M. Thorne, Pittsburgh, Pa.	5.00
Westerly Physician's Association, Westerly, R. I.	10.00
Dr. J. F. Long, Chicago, Ill.	1.00
Dr. Roy Sexton, Streator, Ill.	5.00
Dr. D. E. Cornwall, St. Maries, Idaho	5.00
Aesculapian Club of Buffalo, Buffalo, N. Y.	25.00
Pocatello Medical Society, Pocatello, Idaho	10.00
Dr. A. R. Thomas, West Eaton, N. Y.	5.00
Receipts for week ending Feb. 20	$446.00
Previously reported receipts	3,133.00
Total receipts	$3,579.00
Previously reported disbursements	$3,135.00
Disbursements week ending Feb. 20, 200 boxes food at $2.20 per box	440.00
Total disbursements	$3,575.00
Balance	$4.00

F. F. Simpson, M.D., Treasurer.

The American Hospital in Paris.—Dr. George W. Crile of Cleveland, who returned to this country last Saturday after a stay of six weeks in Paris at the head of a division of the American Ambulance Hospital, is quoted as saying: "From my own observation and from talks with military and pro-

fessional authorities I have no hesitation in saying that the American Ambulance is the finest hospital produced by the war, and this is the unanimous opinion of the authorities with whom I talked. The hospital is known throughout Europe and the great work that is being done there is widely recognized." A meeting of the executive committee of the hospital was held in this city on Tuesday of last week at which it was stated that the total amount of money received thus far has been about $140,000, of which $120,000 was contributed by Americans in Europe. The average number of patients in the hospital is 390 and the average cost of each patient during the months of November, December, and January was 7.88 francs or $1.51 a day. This amount includes all expenses for food, for patients and helpers; heating, lighting, service, drugs, and even for the hospital's automobile trucks. The average daily cost of food for patients and helpers is 2.66 francs or about 50 cents. The hospital has now nearly ninety automobile ambulances in service, the great majority at the front, and this important branch of the work is being extended. The hospital records show a mortality rate of only 8 per cent., although some of the most severely wounded are sent there for treatment.

The American Red Cross sent Dr. Karl B. Downer of Lansing, Mich., to Servia last week to join the Red Cross staff already at work there, and on Saturday it despatched ten additional nurses to join the Red Cross units in France. Dr. Albert Samuel Cooke of Brooklyn, who was in the Servian hospital corps at Valemevo, died there on February 16. He was a graduate of the College of Physicians and Surgeons of this city in the class of 1903.

Typhus Fever in Austria.—A despatch from Berne states that the epidemic of typhus fever is spreading in Vienna, 346 new cases being reported during the week ending February 13. Almost daily a death is reported either of a doctor who attended typhus patients or of a priest who administered extreme unction.

Plague in Havana.—It is stated that the plague has reappeared in Havana, three new cases and two deaths being reported during the week ending February 13.

New York's Death Rate.—During the first seven weeks of this year the death rate in this city was 13.92 per thousand of population as compared with 14.59 per thousand during the same period in 1914.

Suicides.—The U. S. Census Bureau reports that there were 9,988 suicides in the registration area in 1913, the rate being 15.3 per 100,000 population, a slight decrease as compared with 1912, when the rate was 16.

Physicians Drafted in Austria.—A despatch from Rome states that all physicians in Vienna who are under 50 years of age have been ordered by an imperial decree to join the army medical corps.

Scarcity of Women Physicians in England.—According to the warden of the London School of Medicine for Women the demand for women doctors in England far exceeds the supply. In the *British Medical Journal* there appeared recently forty-two advertisements of posts for which medical women would be accepted, and no reply was received.

A Last Warning.—Our readers are warned that the Harrison antinarcotic law goes into effect on March 1, after which it will be unlawful for any physician who has not registered his name and address with the collector of internal revenue of his district and paid the special tax of one dollar a year (the first payment to June 1, the end of the fiscal year, will be 34 cents) to dispense or have in his possession any opium or coca leaves or any derivative or preparation made from them. The physician must also prepare and keep on file an inventory of all such drugs in his possession on March 1. "No special form of inventory is here required, but the inventory made must fully and clearly set forth the quantity of each kind of such drugs, preparations or remedies so held, and must be verified by oath not later than the 5th day of March, 1915." Any unfortunate doctor who fails to comply with all the provisions of this law will be liable to a fine of not over $2,000 or imprisonment for not more than five years, or both, at the discretion of the court.

Physician Arrested for Selling Morphine.—A doctor in Washington, whose two years' jail sentence was commuted to a fine by President Wilson last July after the Court of Appeals sustained his conviction for sending through the mails an offer to perform an illegal operation, was arrested again recently charged with violation of the pharmacy law in selling morphine. The man is the son-in-law of a Senator of prominence in his party.

Overcrowding of the State Hospitals.—The annual report of the New York State Charities Aid Association calls attention to the fact that the State hospitals for the insane are so overcrowded that the health and chances of recovery of the patients are endangered, and makes a plea for the immediate construction of three additional hospitals. The fourteen hospitals in the State now hold 33,358 patients, although they were built to hold only 27,463. The total overcrowding is 5,895, an average of 21.4 per cent., and the Manhattan Hospital, on Ward's Island, has 1,408 more inmates than it should have, an excess of 39 per cent.

Consolidation of Hospital Journals.—*The International Hospital Record* which has been published for eighteen years in Detroit, has been purchased by the *Modern Hospital* Publishing Company of St. Louis and Chicago and will be merged with the latter journal beginning with the March issue.

Hospital News.—The Board of Managers of the Beth Israel Hospital of New York announce that plans are now ready for the erection of a new building in Livingston Place. The new hospital will be from twelve to fifteen stories high and will provide accommodations for 500 patients. During 1914 the hospital treated 47,977 persons, 42,956 of whom were out-patients.

The new memorial hospital, erected at a cost of $40,000, was opened with appropriate ceremonies at Cedar Falls, Iowa, on February 1.

The Montreal Foundling and Baby Hospital was formally opened on January 30. The building is a three-story and basement fireproof structure with accommodations for 120 beds. In the basement is a central milk station from which milk will be supplied to all the city milk stations.

The Zurbrugg Memorial Hospital at Riverside, N. J., was formally opened on February 12. The present building, it is announced, is only the beginning of an enterprise planned by the late T. Zurbrugg, the benefactor of the Hospital. It has accommodations for twelve patients and is provided with an isolation department for contagious diseases, but it is later on to be converted into a nurses' home and to be replaced by a much more commodious structure.

The New York State Hospital Commission has

asked for larger appropriations this year, so that some much needed buildings can be constructed. For the last fifteen years an average of $800,000 a year had been appropriated for construction work, but last year it got nothing and has been forced to cut $200,000 out of the maintenance of the institutions. There are more than 35,000 insane persons in the State institutions which are fitted to house only 30,000.

The British Medical Association will hold no scientific meeting this year, although the statutory annual general meeting and the meeting of the Representative Body will be held as usual. The meeting was to have been held in Cambridge, and it is hoped that events will permit the invitation to meet in that place to be repeated in 1916.

The Missouri Valley Medical Society will hold its spring meeting at Omaha on March 25 and 26, under the presidency of Dr. Granville N. Ryan of Des Moines. The oration in surgery, to be delivered by Dr. F. H. Albee of New York, will be entitled "The Future of the Bone Graft in Surgery." An oration in medicine, entitled "An Experimental Study of Cardiac Overstrain" will be delivered by Dr. C. S. Williamson of Chicago. The secretary of the society is Dr. Charles Wood Fassett of St. Joseph, Mo.

Compulsory Twilight Sleep.—A cheerful idiot, signing himself "Ex-Medicus" (a fortunate thing for the community that he is an *ex*), writes to the *New York Times* suggesting the passage of a law defining the neglect to induce scopolamine-morphine anesthesia in a case of labor as malpractice. He says that this procedure "has been proved to be a success at least in 80 per cent. of the cases where it was employed, and as there are yet no means of determining when it will or will not succeed, it therefore should be tried in all." The most enthusiastic advocates of twilight sleep admit that the method is contraindicated or even dangerous in a certain proportion of cases, but this cautious ex-practitioner would subject all women in childbirth to scopolamine-morphine injections at the hands of experts and inexperts, physicians or midwives, and if the mothers or the babies die, well, they would probably have died anyway, for he says, "the statistics of over 10,000 cases give no greater proportion of unfavorable results than in cases of labor treated in the 'good old-fashioned way.'"

Absinthe Banned.—France has passed a law forbidding the manufacture, sale, or export of absinthe. The defenders in the Chamber of Deputies of the use of absinthe urged that the export of the liquor be permitted and that the suppression of its sale in France be limited to the continuance of the war, but both suggestions were voted down promptly and by a large majority.

Dogs Barred from Food Shops.—The New York City Department of Health has ordered printed signs to be posted in all stores where groceries, meats, fruit, and other foods are displayed for sale, directing attention to the ordinance forbidding the bringing of dogs into such places.

Revoked a Physician's License.—The Ohio State Board of Medical Registration recently revoked the license of a Cincinnati practitioner because of an advertisement he had inserted in the newspapers in which it was alleged he guaranteed to cure cases of tuberculosis inside of 36 days at a charge of $150 for the well-to-do, or a dollar a day for the poor.

Period of Quarantine in Cases of Scarlet Fever.—In accordance with the effort now making to bring the public health regulations and laws in this city into conformity with those of the State Department of Health, the quarantine period in cases of scarlet fever occurring in New York City has been fixed at "thirty days and until discharges have ceased and the disinfection of the person has been carried out," instead of the thirty-five-day period of quarantine previously enforced.

Dr. George E. Ebright of San Francisco has been appointed president of the California State Board of Health to succeed Dr. Martin Regensburger whose term of office has expired.

Dr. Ludwig Loeb has been elected medical director of the Jewish Maternity Hospital of Philadelphia and of the Jewish Seaside Home for Women at Atlantic City, in succession to the late Dr. Isaac Leopold.

Dr. Aaron Brav has been elected ophthalmologist to the Jewish Hospital, in succession to Dr. Isaac Leopold deceased.

Dr. Eduard Jacobi, professor of diseases of the skin and genitourinary organs in the University of Freiburg, died January 9 of pneumonia. He was born January 26, 1862, and was well known to American practitioners through his "Dermochromes" and "Ikonographia Dermatologica" which were republished here with English text. At the period of his death he was with the Upper Rheinish army, in charge of an organized attempt to prevent venereal infection among the troops.

Obituary Notes.—Dr. C. H. VIEHE of Evansville, Ind., a graduate of the Homeopathic Medical College of Missouri, St. Louis, in 1876, and a member of the Indiana State Medical Association and the Vanderburg County Medical Society, died at his home on February 1, aged 78 years.

Dr. PATRICK H. CANEY of Vincennes, Ind., a graduate of the Kentucky School of Medicine, Louisville, in 1892, a member of the American Medical Association, the Indiana State Medical Association, and the Knox County Medical Society, and formerly secretary and a member of the Vincennes Board of Health and coroner of Knox County, died at his home from lobar pneumonia, on January 30, aged 52 years.

Dr. GEORGE B. LITTLE of Burlington, Ia., a graduate of the Rush Medical College, Chicago, in 1873, and a member of the Iowa State and Boone County Medical Societies, died at his home, from paralysis, on January 31, aged 63 years.

Dr. CHARLES F. ADDIS of Rineyville, Ky., a graduate of the Kentucky University Medical Department, Louisville, in 1906, died recently at his home, aged 36 years.

Dr. WILLIAM DUGAN KELLY of Boston, a graduate of the Harvard University Medical School in 1903, a member of the staff of Mount Sinai Hospital, Boston, physician to the Sunnyside Day Nursery, and a member of the Massachusetts Medical Society, the Boston Medical Society, and the New England Pediatric Society, died at the Carney Hospital from blood poisoning following tonsillitis, on February 8, aged 35 years.

Dr. EDMUND A. CHAPOTON of Detroit, Mich., a graduate of the Detroit Medical College in 1875, clinical professor of the practice of medicine in the Detroit College of Medicine, attending physician to St. Mary's Hospital, a former member of the Detroit Board of Health, and a member of the American Medical Association and the Michigan State and Wayne County Medical Societies, died at his home suddenly on February 6, aged 62 years.

Dr. Caleb Winfrey of Kansas City, Mo., a graduate of the Washington University Medical School, St. Louis, in 1847, died at St. Joseph's Hospital, from uremic poisoning, on January 30, aged 92 years.

Dr. Horace M. Julian of St. Louis, Mo., a graduate of the University of Maryland School of Medicine, Baltimore, in 1885, died at his home on January 30, aged 53 years.

Dr. Frank C. Manchester of Grafton, N. H., a graduate of the Dartmouth Medical School, Hanover, in 1885, died at his home, from influenza, after a short illness, on January 28, aged 53 years.

Dr. Truman Coates of Oxford, Pa., a graduate of the Cleveland, O., College of Physicians and Surgeons, in 1888, died at the Polyclinic Hospital, Philadelphia, on February 1, aged 63 years.

Dr. George Howard Hungerford of Philadelphia, a graduate of the University of Pennsylvania, Department of Medicine, in 1909, a medical examiner for the Pennsylvania Railroad, died at the German Hospital, Philadelphia, following an operation for intestinal disease, on February 1, aged 29 years.

Dr. Herman T. J. Howe of Waitsfield, Vt., a graduate of the University of Vermont College of Medicine, Burlington, in 1877, died at his home, after a long illness, on January 22, aged 64 years.

Dr. John J. McFadden died at Philadelphia on February 12 at the age of 56 years. He was graduated from Jefferson Medical College in the class of 1888.

Dr. Samuel Augustus Fisk of Brimfield, Mass., a graduate of the Harvard University Medical School in 1880, and a member of the American Medical Association and the Colorado State Medical Society, died in Boston, on January 18, aged 58 years.

Dr. Lewis C. Hammond of Clarkston, Mich., a graduate of the Michigan College of Medicine, Detroit, in 1883, and a member of the Michigan State and Oakland County Medical Societies, died suddenly from heart disease, on January 12. He was for many years health officer of Bay City, Mich.

Dr. Thomas Hutchinson Ashton of Lincoln, Neb., a graduate of the Medical Department of the University of Nashville, Tenn., in 1865, and a surgeon in the United States Army during the Civil War, died at his home on December 20, aged 73 years.

Dr. William Grant Moore of St. Louis, Mo., a graduate of the Jefferson Medical College, Philadelphia, in 1875, professor of medicine in the St. Louis University School of Medicine, a member of the American Medical Association, of which he was vice-president in 1910, the Missouri State Medical Association, of which he was at one time president, and the St. Louis Medical Society, died at his home from pneumonia, after a short illness, on January 28, aged 61 years.

Dr. Ernest W. Russell of Lewiston, Me., a graduate of the University of Vermont College of Medicine, Burlington, in 1879, and a member of the American Medical Association, the Maine Medical Association, and the Androscoggin County Medical Society died at his home from cerebral hemorrhage, on January 29, aged 56 years.

Dr. Charles W. Johnson of Litchfield, Ill., a graduate of the Jefferson Medical College, Philadelphia, in 1872, and a member of the American Medical Association, and the Illinois State and Montgomery County Medical Societies, died at his home on January 23, aged 67 years.

Correspondence.

UNAUTHORIZED AND PREMATURE PUBLICATIONS IN THE LAY PRESS.

To the Editor of the Medical Record:

Sir:—In view of the statement relating to the treatment of cancer appearing in the *New York Times* of February 19, 1915, will you be kind enough to give a prominent place to the following communication.

On December 15, 1914, the trustees of the General Memorial Hospital of this city adopted the following resolution, a copy of which was sent to each of its members and to the members of its Medical Board. "At a meeting of the Board of Managers, held on December 15, 1914, the action of the Medical Board in appointing an Editorial Committee consisting of Drs. Ewing, Coley, and Weil, 'to look over and pass upon all articles to be published from the wards of the hospital (research and clinical),' was, upon recommendation of the Executive Committee, approved, and it was directed that formal notice be sent to all members of the Board of Managers and the Consulting Staff, informing them of the existence and duties of the Editorial Committee. The appointment of the Editorial Committee was in line with the policy adopted at a meeting of the Executive Committee held May 3, 1914, when the following resolutions were adopted: 'No publication relating to the Medical, Surgical, or Research work done in the hospital shall be made public without the approval and consent of the Medical Board.'"

This resolution is presented here as a reply to the statement above mentioned dealing with the investigation of cancer as carried on at the General Memorial Hospital. An inquiry shows that neither the Medical Board nor any member thereof has made the statements contained in the article. As Dean of the Medical College of Cornell University, which institution has been entrusted by the Board of Managers of the General Memorial Hospital with the investigation of cancer which is there being carried on, I must enter a denial of the claims made in this article for any of the agents presented therein. This I here do.

W. M. Polk, M.D.,
Dean.

New York,
February 20, 1915.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

X-RAYS AND MILITARY SURGERY—TELEPHONE IN DETECTION AND REMOVAL OF BULLETS IN TISSUES—LANTERN SLIDES OF WOUNDS—TOXEMIA OF PREGNANCY—BLACK APPENDIX.

London, February 5, 1915.

The war in some aspect or other intrudes into every conversation, whatever the subject. In last week's meeting of the Medical Society it was prominent. Dr. Ironside Bruce exhibited an *x*-ray director which he had invented for, and read a paper showing it would be found very helpful in, finding and removing bullets and other metallic bodies from the tissues. Sir J. Mackenzie Davidson complimented Dr. Bruce and pronounced his apparatus as accurate as it was ingenious, and Mr. Donald Armour was equally complimentary as to its value and accuracy. Mr. Maynard Smith said he always used an *x*-ray screen during the extraction of foreign

bodies and he thought Dr. Bruce's plan would be a decided improvement on the ordinary method. Sir J. M. Davidson then gave an address on the Telephone Attachment in Surgery. His attention to this matter was first attracted by the attempts to locate by electricity the bullet in the body of President Garfield. Some years later (1887) he had contrived an apparatus and used it for an operation performed by Dr. Ogilvie Will at the Aberdeen Infirmary. He now uses a telephone, preferably with double receivers, connected by an elastic band, so that each ear has its receiver, thus intensifying the sound and shutting off outside sounds. A large carbon plate attached to one pole is placed on the patient's moistened skin. The other end has attached to it a bare wire (silver preferred) disinfected. This wire can be wound round any instrument or a clip can be used to connect it. Under these conditions, when the instrument is introduced into the body it will, on contact with any metal met with, give an unmistakable click carried through the telephone. A needle attached can be run down to a foreign body and kept in position as a guide. So can forceps be used as a probe and then opened to include the foreign body. Sir J. M. Davidson mentioned some cases and suggested that the surgeons should now, instead of trusting his sense of touch be guided by his ears. On the conclusion of Sir J. M. Davidson's address, Mr. Donald Armour described a case in which he had quite easily removed from the orbit by this method a bit of shrapnel 3 mm. wide, which was 12 mm. below the surface.

Afterwards Dr. Howard Humphris exhibited by lantern slides some injuries among the wounded who had reached the Third General Hospital here, *e.g.* bullets which had penetrated and remained in the tissues.

The relation of the toxemia of pregnancy to food and the digestive processes occupied the Irish Academy (obstetrical section) some weeks since. Dr. E. H. Tweedy opened the question by relating a severe case of hyperemesis cured by complete abstinence from all food and the administration of warm alkaline enemata to 4 pints in 24 hours. Some interference with the processes which normally take place between foods and their antibodies must occur and this he thought it reasonable to conclude was connected with the foreign albumin derived from chorionic villi, known to circulate in the blood. He suggested that the effort to neutralize this foreign albumin might cause a diminution in the blood of the normal food antibodies. Morning sickness was an effort to get rid of food which had not combined with its proper antibody. All food, even milk, might cause vomiting or convulsions; injurious effects were not due to irritation, nor to fermentation, but to absorption at the earliest process of digestion. Dr. FitzGibbon thought the toxins of decomposing food brought on the symptoms when superadded to the waste products of pregnancy which already fully taxed the effort to excrete them. By preventing constipation toxemia is prevented, as by purgatives it may be cured. Prof. A. Smith recognized reflex, neurotic, and toxemic cases—the last coming on after the second month. He suggested it might have a fetal origin. He would give distilled water and he condemned the use of soda bicarbonate, but would give simple enemata. Dr. Solomons found the greatest difficulty was to decide when it became necessary to induce premature labor. Dr. Madill suggested that in the later months the condition might be due to absorption from the intestines aided by excessive secretion from the ductless glands which were known to hypertrophy in pregnancy. He agreed as to the bad effect of giving food prematurely and mentioned a case in which a little milk brought on a severe attack. The president, Dr. Gibson, said most cases were hysterical and Dr. Tweedy's treatment satisfactory. He found the best results from terminating the pregnancy when the patients had no reaction towards the usual remedies. It was obvious that food was injurious in severe toxemia, though it was difficult to see why it should be the cause of the condition. Dr. Tweedy, in reply, said he had brought forward the subject to get opinions as to the exact role of food. If it could lend aid to poisoning, how much aid? He admitted hysterical cases, but the toxic effect must precede the hysterical symptoms.

Mr. W. H. Battle of St. Thomas' Hospital has drawn the attention of the surgical section of the Royal Society of Medicine to the condition he calls black, or pigmented, appendix. It is characterized by a very unusual amount of pigmentation of the mucous membrane of the appendix which he found after its removal for disease. He related four cases in the *Lancet* (July 19, 1913), and now he reports two additional ones to the society. In all six cases there was "extensive brownish-black pigmentation" —not limited to the appendix but extending an unknown distance beyond. All the patients were females with chronic constipation, in more than one reported as stasis. Microscopic examination showed a fine deposit both in and between the cells of the mucous membrane which on chemical analysis proved to be some compound of iron. Mr. Battle has little doubt that this is derived from the wheat flour and that from the iron rollers used in milling. He found these rollers are fluted and the fluting wears down rather rapidly. Grinding with iron rollers had to be given up for paints on account of brown patches appearing on walls after painting with those ground with them. The rollers wear away more quickly with wheat, which is very hard. Chemical examination of the best flour detects an abnormal quantity of iron, though it is not separable by a magnet. He suggests that constipation, said to be increased of late, may be due to the consumption of this flour, so, too, stasis and concretions. He submitted some of these to a chemist with a negative result. The quantity must be minute. The influence of roller milling in reference to appendicitis has interested him for some years and facts are accumulating to show it is a serious factor. He has little doubt that enough "iron dust" is given out to cause in some instances blackening of the living membrane over a considerable part of the large bowel, a coloring more extensive than could be produced by extravasated blood and is besides more uniformly diffused. This blackening is of course in addition to the localized ulceration of the membrane sometimes caused by the sharp particles in the iron dust resulting from the disintegration of the fluting of the rollers.

The Chemotherapy of Malta Fever. — G. Izar has found that in experimental infection of the mouse, cat, and rabbit with the *Micrococcus melitensis*, the use of ethylhydrocuprein is capable of arresting the infection in 68 per cent. of the cases provided that this drug is injected no later than the ninth day of the disease.—*Pathologica.*

Progress of Medical Science.

Boston Medical and Surgical Journal

February 11, 1915.

1. Venereal Disease and Prostitution. W. D. Bieberbach.
2. Differential Diagnosis and Indications for Treatment of Tumors of the Neck. O. C. Smith.
3. Renal Infections. W. H. Robey, Jr.
4. A Case of Human Rabies. H. Linenthal.

1. Venereal Disease and Prostitution.—W. D. Bieberbach points out the antiquity of both venereal disease and prostitution. He believes that the German method of supervising the latter has tended materially to check the former. He advocates the system of municipal quarantine of the highly infective patients that do not submit to proper treatment. Venereal hospitals or venereal wards in connection with all general hospitals should be established in all cities, and dispensaries should be well equipped for the care of ambulatory cases.

3. Renal Infections.—W. H. Robey, Jr., states that renal infection is a disease which the general practitioner should have constantly in mind since it may be mistaken for tuberculosis, typhoid fever, malaria, appendicitis, or any other febrile disease. If the urine contains considerable pus, the diagnosis of cystitis may be made and the patient fruitlessly treated for this symptom month in and month out. Cystitis is generally a symptom, and unless the diagnosis has been confirmed by cystoscopic examination should be classed with such meaningless terms as "indigestion" and "rheumatism," and should not be accepted as a disease any more readily than pain in the abdomen, headache, or irregular pulse. Cases of pyelitis of tuberculous origin should not be allowed to continue until the bladder is involved. Renal infection must be considered in the differential diagnosis of every febrile affection. The urine may show much or little according to the degree of intrarenal pressure and drainage and the condition of the ureter, so that frequent and thorough examinations of the sediment are necessary. The two most constant signs are pus in the urine and some degree of tenderness in the kidney by bimanual palpation.

4. Human Rabies.—H. Linenthal reports a case of rabies in which the patient received a full course of intensive Pasteur treatment without developing an immunity. The treatment with quinine and urea hydrochlorate intravenously injected (as tried by Harris with success in one case) was resorted to without avail. Salvarsanized serum was used intraspinally, but with no success.

New York Medical Journal.

February 13, 1915.

1. The Shockless Operation. W. F. Campbell.
2. Diseases of the Epididymis and Testicle. H. M. Morton.
3. The Results of Transvesical Prostatectomy. F. M. Pilcher.
4. A Study of Twilight Sleep. J. O. Polak.
5. Gynecological Operations upon the Insane. G. Gibson.
6. Fracture of the Lower End of the Humerus, with Displacement. J. S. Wight.
7. The Personal Factor in Infant Feeding. LeG. Kerr.
8. Pelvic Abscess Following the Fowler Position in Appendicitis. H. Beeckman Delatour.
9. The Control of Hemorrhage in Suprapubic Prostatectomy. R. S. Fowler.
10. The Etiology and Treatment of Colonospasm. D. Roberts.
11. Standardization of the Preparation of Patients for Abdominal Operations. H. F. Graham.
12. Alcohol and Iodine as Germicides. A. Comstock.
13. Chorea Mollis with Muscular Atrophy. J. M. Wallfield.
14. The Menace of Antimedical Legislation. W. J. Cruikshank.

1. The Shockless Operation.—W. F. Campbell notes that the happy results of anoci-association are nowhere demonstrated to better advantage than in abdominal operations. The complete relaxation of the abdominal wall, the painless postoperative wound, the absence of intestinal paresis and gas pains, the speedy convalescence, are the indisputable facts which attest the beneficence of the anoci method. The method takes time and careful attention to detail. It individualizes the patient; it necessitates the intelligent cooperation of every member of the hospital staff; but it pays, and the returns are shown in a marked reduction in the mortality rate and the postoperative morbidity.

4. Twilight Sleep.—J. O. Polak believes that the scopolamine-morphine analgesia is particularly indicated in nervous women of the physically unfit type in their first labor, for it is in this type of women that labor has most often, in ordinary practice, to be terminated artificially, owing to the physical exhaustion so common at the end of the first stage, before cervical dilatation is complete, or in the second stage, when no more force can be brought upon the uterus by the abdominal muscles. The usual obstetrical interference by forceps in unprepared soft parts results in a permanent morbidity and is the largest contributing cause to the collection of chronic invalids. Used in conjunction with the colpeurynter scopolamine-morphine analgesia materially shortens the dilatation stage in dry labors, when the uterine contractions are active.

5. Gynecological Operations upon the Insane.—G. Gibson reports the results in a series of cases, which results show that something may be gained by correcting pelvic conditions in women who have certain forms of insanity. This is particularly so in the case of mania depressive insanity.

8. Pelvic Abscess Following Fowler Position in Appendicitis.—By H. Beeckman Delatour. (See MEDICAL RECORD, Vol. 86, page 1029.)

9. Control of Hemorrhage in Suprapubic Prostatectomy.—R. S. Fowler recommends the following method: The tip of a tube of a suction apparatus with a direct inflow for hot solution is placed in the cavity from which the prostate has been removed. The inflow tube is connected with an irrigator containing boiling water. The sucking portion of the apparatus is connected with the vacuum bottle in which a vacuum is maintained in the usal manner by flowing water. The apparatus, before its introduction, is tested, for it is important that suction be perfect. Introduced into the cavity with the inflow tube shut off, all blood is sucked out, and while this suction is continued the boiling water is allowed to flow through the inflow tube into the cavity. The inflow is regulated so that the suction does not allow the boiling solution to come in contact with any but the raw tissues. This is readily accomplished. After two minutes' application of the boiling solution hemostasis is complete, and the surrounding parts have not been injured.

Journal of the American Medical Association.

February 13, 1915.

1. Pyorrhea Dentalis and Alveolaris. Specific Causes and Treatment. C. C. Bass and F. M. Johns.
2. The Use of Skin Grafts in the Ambulatory Treatment of Ulcers. Report of Fifty Cases. J. S. Davis
3. Vertigo. J. G. Wilson and F. H. Pike.
4. The Chemical Examination of Duodenal Contents as a Means of Diagnosis in Conditions of Jaundice. B. B. Crohn.
5. Gastrointestinal Studies. VI. The Impossibility of Interpreting the Findings Obtained by the Customary Examination of the Test Meal. M. E. Rehfuss.
6. The Therapeutic Value of Organic Phosphorus Compounds. E. K. Marshall, Jr.
7. Albumin in the Sputum as a Diagnostic Aid. C. B. Lockwood.
8. Infective Lymphoid Growths of the Laryngopharynx, Secondary to Sinus Suppuration. A Previously Unlifferentiated Type of Lymphoid Hyperplasia. W. E. Casselberry.
9. Sciatica a Symptom of Appendicitis. B. M. Randolph.
10. Soft Tumor of the Urinary Bladder. E. G. Ballenger and O. F. Elder.
11. A Case of Obstruction of Meckel's Diverticulum. C. M. Watson.
12. Chancre of the Finger. A. J. Gilmour.
13. A New Method of Syringe Transfusion. L. J. Unger.
14. A Device for Holding Solution Bottles in Operating Rooms. D. C. Balfour.
15. Laboratory Suggestions. C. L. Cummer.
16. A Procedure Minimizing the Difficulties of Transplantations of a Gonococcus Culture. A. P. Ohlmacher.

17. Interrupted Cast for Compound Fractures. F. P. Corrigan.
18. Convenient Splint for Fracture of Metacarpals. C. Auer.

1. Specific Cause of Pyorrhea Alveolaris. — C. C. Bass and F. M. Johns conclude from their investigations that (1) Pyorrhea dentalis and alveolaris is practically a universal disease, which leads to the loss of the teeth by a long suppurating process. All people have it sooner or later. It begins in early adult life or earlier. (2) The specific cause of the disease is *Endameba buccalis* and possibly other species, which infect and destroy the peridental membrane. The pyorrhea results largely from the secondary infection. (3) The demonstrable endamebas can be destroyed by giving one-half grain of emetine hydrochloride hypodermically for three to six successive days. (4) The lesions require variable lengths of time to heal, but many could not reasonably be expected to heal in less than several weeks or months. (5) The treatment must be repeated from time to time until the lesions all heal, on account of relapse, or probably reinfection of the lesions as a result of the great prevalence of the infection. (6) Injecting ipecac or emetine into the worst lesions ought to be of service and can be carried out by patients in many instances. (7) Rinsing the mouth thoroughly with a solution of fluid extract of ipecac is believed to protect to some extent against reinfection, and actually cures the disease in its earliest stage in some instances.

2. Skin Grafts in Ambulatory Treatment of Ulcers. —J. S. Davis bases his report upon fifty cases of ulcers treated by skin grafts in the Johns Hopkins Dispensary. The grafts were kept in position by placing overlapping strips of rubber protective or a sheet of paraffin mesh, and securing this and the overlying gauze dressing with numerous strips of adhesive plaster. Over this is placed again more gauze and a snug gauze bandage and finally a muslin or crinoline bandage. Sometimes with these, thin strips of splint wood were incorporated with the dressings, so as to insure the perfect rest required, and still allow the patient to go about his daily occupation. All the grafts were autografts, small deep grafts being generally used. When placed close together sometimes the ulcers were covered with epithelium within a week. Sometimes when a partial grafting was done or when only a few of the grafts were successful, a second grafting was required. In some cases, several successive graftings were ineffective, but several of these cases were subsequently successfully grafted as hospital patients. The failures were mostly confined to the feet and legs, and no case of actual recurrence has been observed on the same site in patients successfully grafted.

8. Lymphoid Growths of the Laryngopharynx.—W. E. Casselberry states that the lymphoid follicles on the rim of the larnyx undergo an immense hyperplasia, developing into tumor-like growths which occupy the space of the laryngopharynx, being heretofore of unknown origin, and only vaguely described under the mistaken term "lymphoma." It is this tumor-like formation in the laryngopharynx which the author has found definitely in two cases, by cultural, microscopic and vaccine methods, to be of microbic origin, having found also the infiltrating type of hyperplasia at the eustachian orifice to partake of the same nature. A fair inference from these findings, considering clinical similarity, points to the hyperplasia at the other sites named as of like infective origin. Leukemia was excluded by the absence of any involvement of the lymphatic glands, and malignancy was negatived by the microscopic test which showed, in each instance, a simple hyperplasia of lymphoid tissue similar to that of the tonsils.

9. Sciatica and Appendicitis.—B. M. Randolph is convinced that the initial attack of right-sided sciatica in his patient was really an attack of acute appendicitis with peripheral pain in the sciatic nerve due to the proximity of the inflammatory foci to its fibers. From the examination of the specimen, there had evidently been an intraappendicular abscess of long standing, causing a tension in its lumen. The removal of this tension by discharge of pus and inflammatory exudates left behind very little trace of the earlier acute inflammation.

The Lancet.

February 6, 1915.

1. Immunity against Infectious Disease, with special reference to Antityphoid Inoculation. E. J. McWeeny.
2. Embalment of Septic Wounds in Cases of Grave Disorganization of Limbs caused by Rifle or Shrapnel Bullets or Shell Fragments. L. Mencière.
3. The Prevention of Frostbites. S. Delepine.
4. Radium and Its Efficacy in Cancer of the Vulva. Sir Thomas Oliver.
5. Note on a Successful Method for the Extermination of Vermin Infecting Troops. S. Monckton Copeman.
6. A Simple Method of Administering Drugs under War and other Strenuous Conditions. F. W. Tunnicliffe.
7. The Treatment of Persistent Diphtheria Infection by Means of Diphtheria Endotoxin. R. Tanner Hewlett.
8. An X-Ray Director for the Removal of Foreign Bodies in the Tissues. W. Ironside Bruce.

6. A Simple Method of Administering Drugs.—F. W. Tunnicliffe advocates the use of the following method which he has employed, and which is capable of wide application, particularly under war and other strenuous conditions. The drug is given in a semi-solid aromatic base and the mass is enclosed in a collapsible tube such as is generally used to contain remedies for external application. The base must be sufficiently viscid to enable a continuous semi-solid jet of substance to be exuded from the nozzle by pressure at the bottom of the tube. By varying the composition of the base in glycerine, bismuth base, agar-agar, &c., all climatic conditions can be allowed for. There are many kinds of collapsible tubes on the market; those are specially to be recommended in which the screw cap is permanently attached to the neck of the tube; in these the cap cannot be lost. With a given base the weight of a given length of jet is practically constant, and by this means an accurate dosage can be obtained. The medicinal creams which the author has had made so far all have the same dose—viz., 1 linear inch of the exuded jet. An inch can easily be measured against the last joint of the thumb, and indeed can practically always be guessed.

7. Treatment of Persistent Diphtheria Infection.—R. Tanner Hewlett reports additional cases showing the value of treating persistent diphtheria infections by means of one or more injections of diphtheria endotoxin prepared by the MacFayden method. Up to date 24 cases of persistent diphtheria infection have been treated with endotoxin. Of these cases, in 17 the bacilli disappeared within a reasonable time after the use of the endotoxin; in one the bacilli did not appear until 17 days after the last dose of endotoxin, and in 6 the treatment was unsuccessful. As regards the last named, it is noted that some of them were those first treated, and the doses were smaller than the author now employs. The treatment recommended is to give doses of .5 c.c., 1.0 c.c., and (if required) 1.5 c.c. at intervals of about seven days. In no case has any untoward effect been noticed. The endotoxin is injected into the muscle of the upper arm or back, and gives rise to some pain, tenderness, and swelling, lasting a day or two, at the site of injection, and occasionally to some malaise, rash, and rise of temperature. Thus in 75 per cent. of the cases the use of the endotoxin has been followed by the disappearance of diphtheria bacilli, and the results are such as to warrant an extended trial of the endotoxin in the treatment of these troublesome cases of persistent diphtheria infection.

British Medical Journal.

January 30, 1915.

1. Cerebrospinal Fever in Camps and Barracks. Sir William Osler.
2. Surgical Experiences at the 1st Southern General Hospital, Birmingham. G. Barling.
3. The Diagnosis and Treatment of Parenchymatous Syphilis. F. W. Mott.
4. Observations on the Spread of Asiatic Schistosomiasis. R. T. Leiper and E. L. Atkinson, R.N. With a Note on *Katayama nosophora* by G. C. Robson.
5. On the Alleged Responsibility of the Medical Profession for the Reintroduction of the Rum Ration into the British Army. Sir Victor Horsley.
6. Baths for Wounded Soldiers. R. Fortesque Fox.

3. Parenchymatous Syphilis.—F. W. Mott presents the evidence which apparently favors the view that there may be a biological difference between the spirochetes of general paralysis and tabes and those of primary syphilis. The successful innoculation experiments of Noguchi, Berger, and Steiner with a long incubation period supports this conclusion. No one has been innoculated by handling brain material of general paralysis, and the unsuccessful attempts to infect monkeys, even when the material has been obtained from the living body and immediately introduced into the body of the animal, shows that the organism has undergone a biological change.

5. The Army Rum Ration. — Sir Victor Horsley makes a vigorous protest against the recent reintroduction into the English Army of the old rum ration. He notes that the following physiological effects have been observed by military and naval officers to follow from the issue of the rum ration: (1) Decadence of morale. Causation of grousing, friction and disorder. (2) Drunkenness. Punishments. Degradations in rank. (3) Decadence of observation and judgment. Causation of errors and accidents. (4) Loss of endurance and diminution of physical vigor. Causation of fatigue, falling out, and slackness. (5) Loss of resistance to cold. Causation of chilliness, misery, and frostbite. (6) Loss of resistance to diseases (particularly those occurring under conditions of wet and cold), namely, pneumonia, dysentery, typhoid fever. (7) Loss of efficiency in shooting. (Half the rum ration causes a loss of 40 to 50 per cent. in rifle shooting. The naval rum ration causes a loss of 30 per cent. in gunnery shooting.)

British Medical Journal.

February 6, 1915.

1. A Report on the Employment of Ether in Surgical Therapeusis. With Special Reference to its Use in Septic Peritonitis, Pyogenic Arthritis, and Gunshot Wounds. H. F. Waterhouse.
2. The Action of Ether on Certain Microorganisms. W. W. C. Topley.
3. The Biochemistry of Immunity Reactions. C. H. Browning.
4. On the Therapeutics of Organic Extracts. I.—D. Noel Paton. II.—O. Grünbaum. III.—A. Hertz.
5. Shrapnel Wound of the Spine, with Exceptionally Low Temperature. M. W. B. Oliver and F. B. Winfield.
6. Note on a Successful Method for the Extermination of Vermin Infesting Troops. S. Monckton Copeman.

1. Use of Ether in Surgical Therapeusis. — H. F. Waterhouse calls attention to the potency of ether in the treatment of grossly infected wounds. It is particularly valuable as an antiseptic agent, in the following three conditions: (1) Infections of the peritoneal cavity and cases in which, in the course of an abdominal operation, soiling of the peritoneum has, or may have, occurred. (2) Cases of acute arthritis proved or presumed to be secondary to a pyogenic focus existing in the body prior to the onset of the joint affection. (3) Severe, septic gunshot wounds.

2. Action of Ether on Certain Microorganisms.—W. W. C. Topley states that experiments made *in vitro* show that ether and its vapor have a definite bactericidal action, but it would be difficult to imagine anything in the nature of a complete sterilization of an infected peritoneum taking place, and both the clinical and experimental results indicate that nothing of the kind occurs. The nature of the effusions produced by the injection of ether does not lend any support to the idea that an increase in the local leucocytosis is an important factor, since the cells are always scanty. The various immune bodies which may be supposed to be present in the exudate are possibly more important, but it seems doubtful whether the ether would greatly increase the hyperemia already present in an acutely inflamed serous membrane or the amount of exudate in the corresponding serous sac. Some recent investigations carried out by Gardner have an important bearing on this subject. He examined a large number of peritoneal exudates for the presence of aggressins. He concluded that the aggressive action of such exudates increases proportionately with the multiplication and breakdown of bacteria, and suggests that such substances as ether and colloidal silver may act by killing the bacteria or inhibiting their growth, and thus lessening the output of aggressins. Possibly a large proportion of the bacteria are directly killed by the ether and its vapor, possibly also organisms which have been modified but not killed are more easily destroyed by the tissues, and it should be noted that all the evidence seems to indicate that the toxicity of the ether to he body tissue is very slight. In this way the mass of infection would be greatly reduced, and this is probably a point of no small importance. These factors, combined possibly with some stimulant action, would in many cases turn the balance in favor of the tissues and against the bacteria. Any possible action of the ether on the various remote body organs has not of course been considered.

Berliner klinische Wochenschrift.

January 11, 1915.

Sexual Life and Warfare.—Touton continues his interesting study of this subject, with special reference in this number to the present war. From 7 to 8 million men sexually mature are living the soldiers' life in time of war with all that this implies. The overwhelming majority of these men have been addicted to sexual intercourse, legal or illegal. First what becomes of the women with whom they held these relations? The reputable wives are suddenly thrown into a condition of absolute continence, which must have certain consequences which are not parallel to anything in the lives of unmarried girls, old maids, and those long widowed. But to many naturally frigid wives, abstinence is the very reverse of a hardship; and this holds true of many others worn out by too frequent childbirth or its pathological results. But wives in their thirties, when the sexual impulse is strongest, often suffer from the sudden cutting off of sexual relations, and react as neurasthenics or hysterical, irrespective of the mental state which follows the cruelties of war. In diverting themselves in time of war certain women who plunge into charitable activities, volunteer nursing, etc., wish merely to be thrown into the company of the soldiers and are then led to form relationships with them. Recently in Berlin women who were nurses or at least posed as such were found to have been infected venereally by soldiers. The author takes pains to state that this sort of argument in no wise applies to strong women with a well-developed ethical sense, and he breaks off abruptly to consider the relationship between soldiers and prostitutes. At present the female camp follower has become impossible. What then becomes of her? Naturally they emigrate to the neutral countries if they can, but it is not easy for them to obtain passports. If they stay at home their activity is greatly

restricted. Forced into other callings they are likely to become criminals. Perhaps many starve to death. The better class of women engaged in prostitution become degraded and diseased. The author has no doubt that they lead many poor but decent girls astray, despite the lack of male demand. As already stated war is to some extent an unaphrodisiac for the soldiers, for fornication usually accompanies high living and idleness. The hardships of the present war, with its trench digging and trench life, were much less in evidence in the old-time warfare. But as in old days both prolonged siege and conquest change the conditions materially, although sieges are no longer matters of waiting but of permanent offensive. Conquest of large cities as in Belgium and France floods them with soldiers who flock to the bars and amusement places. The suppressed sexual impulses are soon aroused and the men form relations with the native women and patronize the prostitutes. Meanwhile the troops who have not been called to the front lead a relatively idle life in the large cities and behave like any soldiers in time of peace. In regard to outrages or harsh treatment of the women of the conquered the author is at much pains to introduce a sadistic element to explain them. The latter is believed to be always latent in normal sexual relations. Lust is heightened if pain and humiliation can be inflicted upon the women. War calls forth the latent sadistic impulses. Sadism is less marked in women, but in warfare mutilations are practised on the invading soldiers which in times of peace would be reserved for faithless lovers. The author's only surprise is that in this immense war so few sadistic practices have come to light, and believes that good as well as bad impulses assert themselves under stress. The article will be continued.

Warfare and the Problem of Feeding the People.—Oppenheimer admits freely that immense quantities of food supplies have been cut off from Germany and cannot be made good. This privation includes fodder and fertilizer. He then proceeds to enumerate German resources which can be drawn upon from home markets and friendly contiguous countries. He calls attention to the fearful waste of food over body requirements. The actual requirement of the German people is over 56 billions of calories per annum, not including 1.6 million tons of utilizable protein. The amount actually consumed before the war, however, was far in excess of these requirements. The number of milliards of calories consumed per year was 88,649, the excess of protein over 600,000 tons, etc. A large amount of these excessive food values were imported—perhaps on an average 25 per cent. The original demand for calories can draw upon a 20 per cent. reserve, although for protein there is a deficit of about 3 per cent. of the natural demand.

Münchener medizinische Wochenschrift.

January 12, 1915.

The Possibility of the Appearance of Exotic Affections During the War.—Mayer begins with a reference to the auxiliary troops of the allies—Senegalese, Turcos, Hindoos, East Siberians and Caucasians—and the possibility of the introduction into Europe of some of the maladies of normal incidence in their countries. In Senegal these comprise tuberculosis, lepra, bubonic plague, trypanosomiasis, beriberi, craw-craw, guinea worm, filariasis, bilharziasis, ankylostomiasis, sand fleas, yellow fever. The Algerians suffer from trachoma and Malta fever. The Hindoos are liable to kala azar, the East Siberians and Caucasians to relapsing fever. More or less common in all these countries are malaria, dysentery and intestinal parasites. Taking the most serious of these affections in order, leprosy is hardly likely to be smuggled into Germany, provided all prisoners are closely examined. Bubonic plague on the contrary can readily enter ports like Marseilles through infected ship rats. The pneumonia form of plague can hardly visit Germay unless Russia is first attacked. In regard to trypanosomiasis it is enough to state that cases of imported sleeping sickness have been found among the Belgians. This affection can hardly arise *de novo* in Europe as it is spread almost wholly by native flies. The colored troops who have been made prisoners suffer alarmingly with ankylostomiasis. In theory the latter could infect Europeans through the stools but the condition is readily controlled with thymol. The dangers from bilharziasis and filariasis are largely theoretical thus far, no cases of either being cited. Since kala azar attacks Hindoo adults, cases may be present among these troops. The method of propagation has never been determined. Malta fever, common in North Africa and India, is already known in France in isolated foci. Trachoma is especially common in North Africa. In the other diseases as in those already enumerated, the dangers of importation are thus far chiefly theoretical.

Biology of and Warfare Against the Clothes Louse.—No less an authority than von Prowazek has occupied himself with this subject. Since we have no cure for the louse-borne disease exanthematous typhus, too much pains cannot be spent in ascertaining the best methods for rapid and thorough disinfection of clothes and premises as well as the person. The author found that sexually mature individuals are less resistant than the younger lice. Steam disinfection and the use of benzine are hardly practicable among troops. An ideal remedy must be handy, must not be injurious to the clothing, must not be inflammable. Hence the ethereal oils and notably oil of anise are the remedies which can fill these indications. That the oils destroy the pests slowly is not a drawback. From the very outset they attack them and interfere with all their activities. The author suggests for the destruction of the lice from 30 to 40 parts pure anise or fennel oil to 70 or 60 parts of 96 per cent alcohol. This lotion is prescribed only for surface frictions. The technique of disinfection of clothing and linen is not mentioned, etc., hence no doubt the methods already in use answer very well. No doubt the author believes that cutaneous frictions with the above lotion will paralyze the activities of the lice in the underwear and eventually destroy them.

Diagnostic Points in the Exanthemata.—U. Mariotti states that measles, scarlet fever, and variola may sometimes be confused with one another. The eruption of measles may be confluent, and the typical eruption of smallpox may be preceded by a scarlatiniform rash. Of the three diseases scarlet fever has the shortest period of invasion. In this disease the eruption begins on the trunk or extremities and extends to the face and neck. In measles and scarlet fever the eruption begins on the face and neck and extends to the trunk and extremities. In variola the temperature decreases with the development of the eruption, while in scarlet fever the maximum of temperature corresponds to the maximum of the eruption. In measles there is no such close connection between the temperature and the rash. In some cases in which the temperature has been high from the beginning of the invasion, it may recede upon or even before the appearance of the rash, whereas in other cases the temperature continues to rise with the development of the rash.—*Il Policlinico.*

Insurance Medicine.

Can Insurance Experience Be Applied to Lengthen Life?—Arthur Hunter, Chairman Central Bureau Medico-Actuarial Mortality Investigation, and Actuary New York Life Insurance Company, answers this question in the affirmative. Forty-three life insurance companies in the United States and Canada agreed in 1909 to prepare their collective experience on many different classes of insured. The investigation was put into the hands of the Actuarial Society of America and the Association of Life Insurance Medical Directors. Records were supplied on about 2,000,000 lives, covering a period of twenty-five years. The object was to determine from past experience the types of lives among which the companies had a higher mortality than the average. It has taken the Central Bureau about three and a half years of continuous labor to produce results. The insured were divided into classes, of which the following are the chief groups: (1) Those who were in occupations involving hazard; (2) those who had a family history of consumption; (3) those who had a defect in their personal history, as appendicitis, rheumatism, etc.; (4) those whose physical condition was not normal, as high pulse, albumin in urine, etc.; (5) those who were distinctly overweight or underweight. In order to determine the relative mortality a standard was prepared, representing average mortality among insured lives, based upon the experience of the forty-three companies among all their insured.

Occupation.—There were ninety-seven different occupations in which the relative mortality was determined. Only three are given here.

The mortality is high among railroad men. Among locomotive engineers it was 60 per cent. in excess of that experienced among the insured as a whole, which is equivalent to five years' reduction in the average lifetime. If these engineers had been in a non-hazardous occupation there would have been about 337 deaths, and there actually were 541 among them. Such a death rate can be and has been reduced, as is proved by the splendid efforts of some of the railroads to educate their employees to assist in keeping down the accident and death rates.

In the mining industry the mortality (in all underground metal mines) was more than double that among other insured lives. This is equivalent to an average reduction of fully nine years in their lifetime. Pneumonia and tuberculosis cause a very high death rate among miners, and this could be prevented through systematic education.

Among saloon proprietors, whether they attended to the bar or not, there was an extra mortality of 70 per cent.; and the causes of death indicated that a free use of alcoholic beverages had been responsible for many of the deaths. The mortality among those connected with breweries was about one-third above the normal. The wholesale liquor dealers had an extra mortality of about one-fifth. In the fourteen subdivisions of the trades connected with the manufacture or sale of alcohol, there was only one class which had a normal mortality, which was the distillery proprietors.

Defects in Personal or Family History.—There were forty-nine classes under this head. Only one or two are given here.

It has generally been assumed that syphilis increases the death rate but no facts relating to this country have been published heretofore showing the serious effect of that disease on mortality. Only the better types of cases have been accepted by the companies. The same results have been found in other countries. All of the cases insured had received medical treatment before application for insurance; and one class had had one year's freedom from any symptoms, yet the excess mortality was 80 per cent.—a decreased lifetime of about six years.

Among men who had taken alcohol occasionally to excess in the past, but at the time of their insurance had been considered satisfactory, the extra mortality was over 50 per cent., or a reduction in the average life of these men of over four years. Men who used alcoholic beverages daily but not to excess were divided into two groups: (*a*) those who took two glasses of beer, or a glass of whiskey, or their equivalent, a day; (*b*) those who took more than the above, but were not considered by the companies to drink to excess. The mortality in the second group was found to be fully 50 per cent. greater than in the first—due probably to their gradual increase in daily consumption after having applied for insurance. Among the men who were formerly intemperate but who had reformed for at least two years prior to their acceptance by the companies, the extra mortality was fully 30 per cent., or a reduction in their average lifetime by about three years.

The deaths from tuberculosis of the lungs among those who had had pleurisy within five years prior to insurance were three times the average number. Care should be taken to guard against infection from tuberculosis after an attack of pleurisy.

Overweight and Underweight.—It may be said in general that, except at young ages, the longevity of persons above the average weight is not affected by a family history of a parent or a brother or sister dead from tuberculosis. It has been indicated, however, that where there is a predisposition to light weight with a family history of tuberculosis, there is found a condition favorable to the development of this disease. Among young risks insured when at least 25 pounds under the average weight, and having lost a parent or brother or sister from this disease, five out of every ten deaths were due to tuberculosis. Among risks with the same family history but insured at slightly overweight, three out of every ten deaths occurred from this trouble; while among those distinctly heavy one out of every ten deaths was from tuberculosis. Among those who had no family history of tuberculosis, but were very light in weight, the death rate from this disease was high. A sufficiency of nourishment, with sane precaution against contagion, leaves little to fear from tuberculosis.

There is no doubt that marked overweight has a material effect in decreasing length of life, especially at the middle and older ages. Among men forty pounds above the average weight the lifetime of those who entered the companies at age forty-five was about four years less than that of men of normal weight. The public should understand that marked overweight is a serious handicap to length of life. The adage, "Laugh and grow fat," is not good advice for the man or woman who is inclined to be heavy. Diabetes, Bright's disease, heart disease, and apoplexy cause a large proportion of the deaths among the overweights. While the overeater does not exert such a bad social influence as the excessive drinker, the former is also shortening his life by lack of moderation.—Association of Life Insurance Presidents, December 10, 1914.

Book Reviews.

MEDICAL JURISPRUDENCE—A Statement of the Law of Forensic Medicine. By ELMER D. BROTHERS, B.S., LL.D., Member of the Chicago Bar; Lecturer on Jurisprudence in the Medical and Dental Departments of the University of Illinois, and in John Marshall Law School. Price $3.00. St. Louis: C. V. Mosby Co., 1914.

THIS volume contains the substance of the lectures delivered by the author to medical, dental, and law students. It will be valuable, chiefly, to those who are attending the author's lectures. Other readers will find in it a brief description of the many legal matters which either concern the physician or overlap the study of medicine. The author is at his best in the purely legal aspect of his subject; when trenching on medical ground he is apt to slip, as when he speaks of a *fracture of the submaxillary*. The sections on wounds and on poisoning are too brief to serve any useful purpose, and there is nothing at all on deaths from violence, personal identity, signs of death, and presumption of death, and of survivorship. We do not know whether the author or the printer is responsible for "*de minimus non curat lex*—the law does not concern itself with triflers," on page 173.

LOCAL ANESTHESIA; ITS SCIENTIFIC BASIS AND PRACTICAL USE. By Prof. Dr. HEINRICH BRAUN, Obermedizinalrat and Director of the Kgl. Hospital at Zwickau, Germany. Translated and edited by PERCY SHIELDS, M.D., F.A.C.S., Cincinnati, Ohio. From the third revised German edition. Octavo, 399 pages, with 215 illustrations in black and colors. Price, cloth, $4.25 net. Philadelphia and New York: Lea & Febiger, 1914.

LOCAL anesthesia, considered of use in but a very limited field a decade ago, has recently been widely employed and seems to be continually gaining adherents. With many surgeons it is now the method of choice in operating for hernia, goiter, and many other conditions where general anesthesia is customarily used. The credit for such perfection in technique as to allow its use in major operations cannot be ascribed to any one man—it has been a gradual development from the work of Corning, Reclus, Schleich, Cushing, Kocher, Crile, Braun, and a host of others; but Braun's work has been of such preeminent value in establishing local anesthesia on its present basis that we must agree with the statement in the translator's preface that Braun "has justly been called 'the father of local anesthesia.'" This is the first English translation of Braun's work, and the translator and publishers deserve the thanks of that host of English and American surgeons who are interested in local anesthesia, and who lack a reading knowledge of German. In this work the entire subject is covered. Starting with an historical sketch, giving an outline of attempts at local anesthesia from the earliest recorded times to the discovery of cocaine, Braun proceeds with the discussion of sensation and pain, anesthesia and anesthetic methods, the pain-relieving action of nerve compression and anemia, anesthesia by means of cold, general properties, and the methods of using local anesthetic agents; the value, indications, and general technique for local anesthesia, and numerous other topics whose understanding is essential for the intelligent use and further development of local anesthesia. The description of the technique in the anesthetization of all the various tissues and regions of the body in which local anesthesia is available is found in the second half of the book. In all the recent works on local anesthesia Braun is extensively quoted. Here we have the entire subject presented by this indefatigable worker, a most valuable guide for all who appreciate the wide range of applicability and comparative safety of this method.

ACUTE GENERAL MILIARY TUBERCULOSIS. By Prof. Dr. G. CORNET, Berlin. Translated by Dr. F. S. TINKER. Liverpool. Price, $1.50 net. New York: Paul B. Hoeber.

THIS little volume by Cornet, one of the greatest students of tuberculosis, well translated by Dr. Tinker of Liverpool, gives an excellent résumé of our present knowledge of the most serious of tuberculous invasions. Cornet believes in the causal relationship of the vascular tubercle to miliary tuberculosis. He very aptly says "to explain the sudden inundation of the blood with bacilli otherwise than by a massive invasion or a rupture into the vessel itself is scarcely imaginable." The origin of vascular tuberculosis, he explains, is in bacilli from a nodule lying in the periphery of a vessel which by continuous growth gets into the interior of the vessel wall. The pathological consequences of such a rupture and subsequent invasion of the various organs are carefully described and the conditions favoring a miliary invasion are enumerated. According to this author, any irritations, mechanical or otherwise, which affect the tuberculous focus, favor the development of miliary tuberculosis. Trauma, pregnancy, and typhoid fever are mentioned as predisposing causes. In the chapter on pathology the very frequent occurrence of the tubercles in the choroid and in the thyroid glands are mentioned. The rest of the pathological description does not offer anything new. Emphasis is laid upon the frequency with which one finds a mixed infection in miliary tuberculosis (*Bacillus pyocyaneus* and *Bacillus pyogenes*). The well known symptomatology and physical signs necessary to make a positive diagnosis of miliary tuberculosis are clearly described.

Rather pathetic is the fact that out of the 100 pages of the volume, including 10 pages of bibliography, hardly a page and a half is devoted to prophylaxis and therapy. When the author says "the only rational prophylaxis of miliary tuberculosis depends on the prophylaxis of tuberculosis in general," he is right, but since he himself acknowledges that a cure of miliary tuberculosis is not absolutely impossible, it would seem that a little more space might have been devoted to the therapeutic aspect of the disease. The reviewer fails to see mentioned a most valuable remedy in miliary tuberculosis, which is tannic acid, or, better yet, gallic acid. Of judicious aerotherapy, valuable even in miliary tuberculosis, no mention is made. Two cases of cures are reported, one treated with iodide of potassium in large doses, the other with Marmoreck serum. The book deserves a careful study and the translator is to be congratulated on having given this excellent monograph to the English speaking medical profession.

DIETETICS, OR FOOD IN HEALTH AND DISEASE. By WILLIAM TIBBLES, LL.D., M.D. (Hon. Censor), Chicago; L.R.C.P., Edinburgh; M.R.C.S., England; L.S.A., London; Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc.; Author of "Food and Hygiene," "Foods: Their Origin, Manufacture, and Composition," "Diet in Dyspepsia," "The Theory of Ions," etc. Price, $4.00. Philadelphia and New York: Lea & Febiger, 1914.

DR. TIBBLES is well known as an authority upon diet and as the author of several standard works on the subject. There is no doubt but that diet is an important, perhaps the most important, factor in the obtaining and conservation of good health. As the author points out, the value of the diet is generally very much underestimated and remarkable results can and are being achieved every day by this very easy therapeutic method. Also diet is almost as much a part of preventive medicine as of therapeutics and *pari passu* advances with them. Dr. Tibbles' new work comprises all that is new in our knowledge of dietetics, including a consideration of the enzymes, of the lipoids, of the salts, and of the vitamines. The book is well written and arranged, and should hold a prominent place among works of a like nature.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. By EDWIN O. JORDAN, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Fourth Edition. Price, $3.00 net. Philadelphia and London: W. B. Saunders Company, 1914.

THIS fourth edition of Jordan's text-book has been revised sufficiently to bring the matter up to date. A new chapter on Filterable Viruses has been added and the sections on Streptococcus Sore Throat, Whooping Cough and Poliomyelitis have been largely rewritten. The style of the book is admirable so that it makes fascinating reading. The subject matter is naturally condensed in a book of this size but it includes all that it is essential for a student to know and there are numerous references to aid the seeker after further and more complete information. The importance of the disease and the work which has been done on its bacteriology would seem to render Pertussis worthy of a place in the regular text rather than in the appendix. The chapters on diseases of plants and the bacteriology of the soil, air, water, and several industries make interesting reading. The book can be highly recommended.

With Sabre and Scalpel—The Autobiography of a Soldier and Surgeon. By John Allan Wyeth, M.D., LL.D. Illustrated; $3.00 net. New York and London: Harper & Brothers, 1914.

This book is almost unique in one respect, in that it tells of the career of a man who played several parts in the battle of life and finally made a success of the practice of medicine after abandoning it for some years. As the title indicates, the first part of the book deals largely with war, and Dr. Wyeth, who as a loyal Southerner fought in the Confederate Army until he was taken prisoner, gives an extremely interesting and instructive history of the great American war as he saw it from the ranks. But the author states that the chief purpose of the volume was to record from personal observations something of the social, economic, and political conditions, which prevailed in the South before, during, and immediately after the Civil War. This object has been fulfilled to the letter, and his tales of the South in the periods referred to are worthy of close attention, being the result of the observations of an acute student of men and affairs. Moreover, it is written in a breezy, expressive style and provides really fascinating reading.

As for the part treating of his professional life little need be said, as probably every medical practitioner in this country is aware of the author's accomplishments in this direction. The founding of the New York Polyclinic Medical School has been Dr. Wyeth's "summum opus" and will remain to keep his memory green. Whoever wishes to read the record of a stirring, versatile and successful career told in an interesting manner cannot do better than open the pages of "With Sabre and Scalpel."

Anoci-Association. By George W. Crile, M.D., professor of surgery, School of Medicine, Western Reserve University; visiting surgeon to the Lakeside Hospital, Cleveland; and William E. Lower, M.D., associate professor of genito-urinary surgery, School of Medicine, Western Reserve University; associate surgeon to the Lakeside Hospital, Cleveland. Edited by Amy F. Rowland. Original illustrations. Price, $3.00 net. Philadelphia and London: W. B. Saunders Company, 1914.

This small volume of 260 pages contains a good deal more than its title suggests. Part I reports an experimental study of some phases of the kinetic theory of shock; Part II covers the subject of the practical prevention of surgical shock; and the appendix contains chapters on the administration of nitrous-oxide-oxygen anesthesia, the detailed technique of special operations, the relation of anoci-association to the preoperative and postoperative care of patients, and a description of an apparatus for the manufacture of nitrous oxide gas. This last section is purely technical and need not hold our attention further. The experimental studies of the senior author on shock and its prevention have contributed a great deal to our understanding of this important surgical condition and have unquestionably placed in the hands of the operator a means of preventing, to a certain degree at least, severe postoperative reactions. Many surgeons have expressed their opinion that the blocking of centripetal stimuli by anesthetizing the main nerve trunks leading from the operative field has reduced the mortality in primary operations after crushing injuries. Nevertheless, statistics on the subject are still insufficient to warrant too strong a statement as to the value of the method, especially as operative results without nerve blocking have greatly improved under the modern methods of giving anesthesia. There is unquestionably a great advantage in limiting preoperative shock to patients, especially those suffering from diseases in which the nervous system is affected, as in exophthalmic goiter, and here perhaps will be the chief value of what Crile has termed anoci-association. Great stress is laid upon the rate of heart beat before and after operation, as indicating the value of the method, but patients differ so much in this regard that it is not as yet possible to draw conclusions. The question of extensive infiltration with local anesthesia is also not finally settled. Some surgeons claim that the sum total of pain suffered by the patient after the infiltration anesthesia has passed is just as great as without it, and that the pain comes at a period when the effects of the ether anesthesia have worn off, necessitating larger doses of some sedative to avoid bad results. Whether there is a reduction of tissue vitality by such infiltration has also not yet been decided; but it is believed by some that the danger of infection is increased. In prostatectomies, for example, when by the suprapubic method the operation can be done in one or two minutes under primary anesthesia, it would seem that nothing could be gained by extensive infiltration; and it is to be doubted whether the operative results in this class of cases would be improved by local blocking. Whether the attempt to place the phenomena of shock on a morphologic basis by the study of minute changes in the nerve cells will succeed is very doubtful. We know too little of the structure of normal nerve cells, even after years of study, to be able to draw such far-reaching conclusions as are drawn in the first chapter of this work. The illustrations are not convincing. The chapter on the technique of nitrous-oxide-oxygen anesthesia is excellent, but we note with interest the statement that the patient is never touched or restrained until he is quite asleep. In the last operation which the reviewer saw at Dr. Crile's clinic the patient was held on the table by an orderly and two nurses in quite the old-fashioned pre-anoci way, and at no time was consciousness of the pain of operation lost. While the book is written in a rather high and optimistic key, there is no question that not only the experimental work but the clinical results tabulated also are extremely suggestive and contain a considerable portion of matter which will ultimately become a permanent part of surgical technique. No one who is doing surgery can afford to neglect many of the suggestions which it contains.

A Manual of Physiology with Practical Exercises. By G. N. Stewart, M.A., D.Sc., M.D., Edin., D.P.H., Camb., professor of experimental medicine in Western Reserve University, clinical physiologist to Lakeside Hospital, Cleveland; formerly professor of physiology in the University of Chicago; professor of physiology in the Western Reserve University; George Henry Lewes, student; examiner in physiology in the University of Aberdeen; senior demonstrator of physiology in the Owens College, Victoria University, etc. With colored plate and 467 other illustrations. Seventh edition. Price, $4.00 net. New York: William Wood and Company, 1914.

The seventh edition of this well known manual shows a great deal of revision with the introduction of new matter, though the book still remains within the limit of some eleven hundred pages. Its particular value lies in the intimate combination of theoretical material and practical directions for experimental work. The chief novelties are naturally embodied in the chemical portions, as physiological research has lately been concentrated along that line. Even Abel's recently devised apparatus for obtaining diffusible substances from the blood is described. The chapter on vision and methods of eye testing is the most practical in any physiological textbook known to the reviewer. It is unfortunate that the Franklin color vision theory has been omitted; certainly it is as useful in explaining color blindness as either the Young-Helmholtz or Hering theory. It is also to be regretted that the author does not give references to original papers of which he occasionally quotes the authors' names. It is not always possible to find the originals of such articles except by prolonged searching and more familiarity with bibliographical methods than the average student possesses. The only criticism from the mechanical side is that the paper is rather thin so that the print and cuts often show through, making the reading of the text somewhat difficult.

Cunningham's Manual of Practical Anatomy. Revised and edited by Arthur Robinson, Professor of Anatomy in the University of Edinburgh. Sixth edition. Volume First: Superior Extremity; Inferior Extremity; Abdomen. Volume Second: Thorax; Head and Neck; with 249 illustrations in the text and 22 plates, six of which are in colors. Price, $5.50 net per set. New York: William Wood and Company, 1914.

Six editions of this work have been published within a period of eighteen years, and during this time it has maintained an enviable record as a student's guide for the dissecting room. The present edition shows evidence of careful revision of the text, with new illustrations added and older ones omitted. One of the noteworthy features in the series of radiographs of parts of the normal body, which enable the student to compare the results of his dissections with the radiographic appearances of these parts. The terminology used is that of the Basle Anatomical Nomenclature, but the older terms are used side by side with the newer ones.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held January 21, 1915.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Neurology and Psychiatry.

The Cerebrospinal Fluid in Health and Disease.—DR. CHARLES H. FRAZIER of Philadelphia, Pa., presented this communication. He said that the time would be spent in taking stock, as it were, of our present knowledge of the cerebrospinal fluid in the light of modern interpretation. The original conception of the cerebrospinal fluid as a transudate had long since been discarded. A study of the choroid plexus left little room for doubting that the cerebrospinal fluid was a secretory output. This view was based upon a study of the structure of the plexus in different classes of vertebrates and upon the histological changes in the gland following the administration of substances with a hypersecretory effect. As still further proof of the secretory theory stood the intra vitam staining experiments of Goldmann and his demonstration of the permeability of the choroid plexus. When foreign toxic substances were injected into the circulation the choroid plexus acted as an impermeable filter and prevented their entrance into the cerebrospinal fluid; on the other hand, when the dye was injected into the subarachnoid space the brain and cord were at once stained. This phenomenon threw a side light on salvarsan therapy. It was well known that after salvarsan was injected intravenously, only an infinitesimal amount, if any, could be recovered from the spinal fluid. Might this not be due to the character of the choroid plexus? Thus it would seem more rational to inject salvarsan directly into the ventricles or subarachnoid space in cerebrospinal lues. The production of artificial hydrocephalus was also a suggestive bit of testimony in favor of the choroid plexus as the source of the cerebrospinal fluid, as was also the fact that a decided increase in the rate of flow had been observed after the injection of the extract of choroid; and, furthermore, if the pressure of the cerebrospinal fluid was the same as that of the capillaries there could be no escape of fluid from the capillaries in the form of a filtrate or transudate. In considering the question whether the cerebrospinal fluid had more than one source, Dr. Frazier stated that there were a number of observers, with whom he was disposed to agree, who conceded that the greater part of the fluid was derived from the choroid plexus, but who held that some was derived from the perivascular system of the nervous tissues. The probability of a dual supply brought up the question whether the cerebrospinal fluid could be in part a true secretory product, and in part an effusion or an infiltrate. They had approached this problem from the laboratory viewpoint and were attempting to eliminate the choroid plexus altogether, so that a differentiation between these fluids of dual origin might be possible. As to the functions of the cerebrospinal fluid aside from those of a purely physical nature such as the maintenance of uniform pressure, it performed functions analogous to those of the lymph node. It might be said that it brought oxygen and glycogen to the tissues and carried away carbon dioxide and the products of brain metabolism, normal and pathological. Dr. Frazier stated that he attached a great deal of importance to high cerebrospinal pressure, both in matters of diagnosis and in the plan of treatment. There was considerable difficulty, however, in any attempt to formulate standards or gauges, or to make comparative studies of the pressure, and hence it was desirable that clinicians in this country should adopt a standard instrument and that certain regulations be formulated under which observations should be made. He had found a small mercury manometer the most convenient for all practical purposes. It seemed commonplace to call attention to the fact that in every disease in which there was a departure from the normal in the quantity of cerebrospinal fluid, it was in the direction of increase and not decrease. They had also found that coincident with the increased flow there was a fall of blood pressure and that just as soon as the blood pressure returned to normal the flow would begin to slow down. The question to be solved here was "What were the factors which so disturbed the balance between secretion and absorption as to be accompanied by a superabundance of fluid, and could the one or the other be controlled?" In their endeavor to solve this problem many experiments were made as to the effect of different substances, but the result of all was hyperactivity. At length they discovered in thyroid extract a substance which of itself had a specific inhibitory effect upon the action of the choroid plexus. Alcoholic extracts of thyroid gland were practically inert. Diiodotyrosin, a synthetic product identical with that found in the thyroid, had the same retarding influence upon the output of cerebrospinal fluid, although not in the same degree as the thyroid tissue itself. With the substances which acted as cerebral lymphagogues must be included those which caused a deficient oxygenation with the resulting accumulation of carbon dioxide in the blood. In this group were pilocarpine, amyl nitrite, anesthetics, and narcotics. The rate of the flow of the cerebrospinal fluid was practically uninfluenced by the ligation of the common carotid arteries. The companion problem to secretion was that of absorption, and upon this much light had been shed by recent investigations. The general statement might be accepted that the major part of the cerebrospinal fluid left the subarachnoid space *via* the venous channels rather than *via* the lymphatics. Fluid did escape by the nerve sheaths and into the lymphatic system, but only very slowly and in comparatively small quantities. The system of absorption was an extremely elastic one. The author stated that if he might express an opinion based largely on clinical, but partly on laboratory observation, he would say very definitely that the amount and rapidity of absorption was in proportion to the total area of subarachnoid space available. Before the problem of absorption could be solved they must know more of the pathological factors which retarded the process and which of the various factors might prevail in a given condition. What was the pathological factor in hydrocephalus, in epilepsy, in brain tumor? The author finally considered the clinical conditions in which the cerebrospinal fluid was an important factor. In all forms of meningitis, apart from lumbar puncture to relieve tension, there were no measures to be considered other than the use of specific sera when available. He stated that he had yet to see a case of tuberculous meningitis of acute type recover when pressure was relieved by decompression; nor had he heard of any case of suppurative meningitis which had been cured by drainage of the cisterna magna. Serous or aseptic meningitis presented very positive indications for relief of pressure by such operative measures as subtemporal or suboccipital decompression. Increased intracranial tension in brain tumors was the result of a secondary hydrocephalus, whether the tumor was cortical, subcortical or basal, large or small, malignant or benign. Tumors, irrespective of their size or seat, might exist without signs of tension. Palliative treatment in brain tumors resolved itself largely into the problem of dealing with the associated hydrocephalus, and, therefore, accompanying decompression or preceding it, puncture of the corpus callosum should always be thought of. In discussing the subject of hydrocephalus the author said that in the production of artificial hydrocephalus in their experimental work they had found it possible to differentiate types of hydrocephalus, that was, whether it was of an obstructive or a non-obstructive type. In the obstructive type the chief pathogenic factor was delayed absorption, and the treatment, therefore, became a problem of drainage. Of the non-obstructive type he could not speak so dogmatically, although by deduction one would ascribe it to a state of hypersecretion, and if this were true treatment should be aimed at the secreting organ, the choroid gland. In one of several cases of hydrocephalus now under treatment with thyroid extract the child at last report seemed apparently normal. This was mentioned that others might be encouraged to apply this treatment in suitable cases in order to determine its efficiency.

Professor PIKE of Columbia University said that his attention had been called to the subject under discussion because of a series of experiments he had made in collaboration with Dr. J. Gordon Wilson upon the labyrinth to determine if possible some mechanism in the patients who were afflicted with vertigo. There were some things brought out which led him to believe that the pressure of the cerebrospinal fluid was one of the agencies in the causation of vertigo. He thought that perhaps it would be better in discussing the subject of the cerebrospinal fluid if he would say a few things which might serve as a biological, or rather physiological, background for what Dr. Frazier had told them. The question has arisen whether the cerebrospinal fluid

was a product of secretion of certain gland cells or merely the product of dialysis from the blood vessels. In general it might be considered that the formation of the body fluids by mere filtration through the blood vessels, subject to variation in quantity with every variation of pressure in the blood vessels, would not be a good arrangement. Tigerstedt has pointed out that, although the endothelial cells of the blood vessels might be extremely thin, that in itself was not to be considered as evidence that they might not restrain very efficiently those things which should not pass through. Stefani stated some years ago that carbon dioxide would produce at first a dilatation of the blood vessels in the region in which it was allowed to accumulate. There was now a considerable body of fact tending to show that the variations in the caliber of blood vessels going to particular organs were sometimes brought about by the products of metabolism of these organs without any necessary direct effect upon the central vasomotor mechanism. It is possible that the varying needs of the tissues in general are met by the changes in blood and lymph supply occurring in response to the local action of these products of metabolism. The peculiar conditions of the cerebral circulation are of interest in connection with the formation of cerebrospinal fluid. There was (1) a rigid brain case, (2) an incompressible brain substance occupying most of the space, and (3) incompressible fluids filling up all the remaining space. No more material, fluid or otherwise, could be introduced without crowding out something else that was already present. Increase in arterial flow could be accomplished only at the expense of decrease in volume (1) of venous blood or (2) of cerebrospinal fluid if the cerebral arteries dilated. The flow of blood through the brain might possibly be increased without change in volume of the vessels, if the systemic blood pressure rose, either appreciably or considerably. There was no good evidence, if one accepted Cushing's view, of a vasomotor system in the cerebral vessels which acted in harmony with the systemic vasomotor nerves. The nerve cells of the central system might be considered to be protected from sudden changes in blood supply through these peculiar general conditions of the cerebral circulation. Nor did the possibility of sudden variations in blood supply to a particular part of the brain through the agency of cerebral vasomotor nerves seem a likely one. One must consider what other possibility of variation in nutrition with changes in activity existed for a central nerve cell. Such a possibility existed in the cerebrospinal fluid if it was regarded as a nutritive fluid. Not only did the choroid plexus secrete the greater part of the cerebrospinal fluid, but extracts of the choroid plexus when injected subcutaneously increased the flow of the fluid. Brain extracts also gave an increased flow of cerebrospinal fluid, and normal cerebrospinal fluid gave an increased flow when injected. Pathological fluid may act differently. Cerebrospinal fluid from patients suffering from general paralysis, with positive Wassermann reactions, gave increased flow (Dixon and Halliburton). If they imagined that the brain cells produced during metabolism certain substances which in their turn acted upon the cells of the choroid plexus to produce a greater flow of cerebrospinal fluid, they have a mechanism by which the varying needs of the brain cells might be met. The seat of formation of this fluid and its course through the subarachnoid spaces to the cerebral cortex as well as to the surface of the spinal cord fits in with the view that the cerebrospinal fluid was a nutritive fluid. Thus absorption after spreading out on the surface of the cerebrum became a necessity if the nutrition of the cells of the central nervous system was adequately to be provided for. Such a view seemed plausible in the light of their present knowledge, but one could not say that it was demonstrated. The difficulties in the way of studying the manner of formation of the cerebrospinal fluid were very great—much greater in many ways than those encountered in the study of the salivary glands, and they were not able as yet to answer all of the questions concerning the secretion of saliva. Dr. Pike said he should not close without expressing the appreciation of a laboratory man of the work of a surgeon who had applied the experimental methods of the physiological laboratory to the solution of problems in clinical surgery as Dr. Frazier had done.

Dr. David M. Kaplan said that he believed from the title of Dr. Frazier's excellent paper that he was expected to speak of the cerebrospinal fluid, not only in reference to hydrocephalus, but also of the findings in other pathological states. It was not so long ago that the entire subject of cerebrospinal fluid in health and disease could have been covered very conveniently in one session but to-day so much information had been gathered that a full consideration of the subject would require many such meetings. Aside from the infections in which one found the responsible microorganisms, the cerebrospinal fluid also showed changes due to such general disturbances as diabetes, eclampsia, nephritis, and jaundice. In diabetes the presence of acetone was frequently a forerunner of a diabetic coma. In eclampsia, besides the increase in chlorides, appreciable quantities of lactic acid had been demonstrated. In nephritis only those forms of the disease gave rise to uremic states that showed the accumulation of urea in the cerebrospinal fluid. Where the renal impermeability was a mineral one, causing a retention of chlorides, and clinically shown by anasarca, uremia, as a rule, did not develop. The physiological limits of urea in the cerebrospinal fluid as stated by Mestrezat was 1 per cent. A fluid showing 3 per cent. or more was of very grave significance. In icteric states one found one or the other constituents of bile. In the experience of the speaker such fluids would occasionally show a positive Wassermann reaction, although no evidence of lues could be obtained during life or at the post mortem. In fact, a definite quantity of ox-gall added to a normal serum would give rise to a positive Wassermann reaction. Although this was not a discussion of the Wassermann reaction, it must be stated that the real biological meaning of the positive Wassermann reaction still remained the "will-o'-the-wisp" of the serologist. The very interesting contribution on the spinal fluid in anterior poliomyelitis by Drs. Peabody, Draper, Dochez, and others showed that the acute stage in this disease was invariably accompanied by a polynucleosis in the cerebrospinal fluid, which reached its height in the preparalytic stage. The more chronic forms of the disease showing the paralyses were more often accompanied by an excess of protein matter and a variable pleocytosis. In the clinical picture known as "combined sclerosis," where the sensory and motor tracts were simultaneously involved, one frequently, though not always, found a marked excess of protein which was as a rule unaccompanied by a pleocytosis. In cord compression in general one usually found in the spinal fluid a mass of coagulation of protein matter which showed no pleocytosis and was frequently discolored yellow, known as xanthochromia. These yellow fluids sometimes gave the iron reaction and at others did not, and hence they must be considered as having more than one origin. The discolorations and the peculiarly absent copper reducing substance was more often met with in endotheliomata than in glioses of the cord. A clinical entity described by Drs. Elsberg and Kennedy in which the disease affected the spinal cord or the medullary conus also showed this paradoxical reaction of a cell-free fluid rich in protein matter. In the various diseases of the nervous system caused by syphilis, neurologists who made extensive use of the information gathered from the study of the cerebrospinal fluid tended to consider syphilis and general paresis as the two extremes from the diagnostic, therapeutic, and prognostic point of view, and assigned to tabes an intermediary position. There were certain unmistakable features that characterized the great majority of fluids of the two extremes, namely, cerebrospinal syphilis and general paresis, which peculiarities were only occasionally to be found in tabes. They found in cerebrospinal syphilis the highest and in general paresis the lowest cell counts, of course barring fluids that must be thought of as exceptional. A fluid from a case of general paresis would always reduce copper, so much so that when this reduction was absent one was justified in excluding the diagnosis of general paresis. In offering diagnostic suggestions from an analysis of the cerebrospinal fluid one never depended upon that feature alone, but correlated all the abnormal phenomena. In general paresis the characteristic precipitation of colloidal gold was a very striking and very constant feature. This reaction, together with a positive Wassermann reaction, a low cell count, and protein excess, meant only one thing, despite the fact that these findings would occasionally be obtained in patients who presented very few symptoms suggestive of general paresis. From the few remarks offered regarding lues of the nervous system, it was evident that in selecting fluids the serologist was permitted to give a diagnostic opinion; in the greater majority of instances, however, such advice should only be offered together with the clinical facts in the case. From the proper study of

the cerebrospinal fluid one obtained not only diagnostic hints, but also valuable therapeutic and prognostic suggestions.

Dr. T. Stuart Hart remarked that it had been said all so-called surgeons could be divided into two classes—carpenters and real surgeons; it was needless to point out the class to which the speaker of the evening belonged. Dr. Frazier's careful and brilliant work had added much to our slender stock of knowledge in this important field. His success had been in a large part due to the fact that for the moment he had allowed the relief of the pathological condition to occupy a secondary place. He had used the pathological condition to solve the problems of physiology. Some day it might be possible for a carpenter to cure a case of hydrocephalus; but if this ever came true it would be because a real surgeon has preceded him with work such as has been presented to us this evening. The real surgeon, in addition to his special knowledge, possessed many of the best qualities of the pathologist, the neurologist, and the internist. Dr. Frazier had told them much of the *quantitative* changes in the spinal fluid induced by changes in blood pressure, the injection of drugs, extracts of organs, etc., and he wished to ask whether he had had an opportunity to study the *qualitative* changes under these conditions, and if so, if he would point out a few of the more important.

Dr. B. Sachs said that the cerebrospinal fluid was a peculiar one and seemed to differ from other serous fluids of the body. He could not help feeling, however, that it quite closely resembled other serous fluids in the body. Dr. Frazier's experiments had shown that the cerebrospinal fluid could be introduced into the thoracic cavity without damage being done, and it had been shown that there was a close resemblance between the two fluids. Dr. Sachs could see no objection to considering this fluid as having a nutritional value and at the same time having a mechanical function to perform. These qualities could be attributed to other fluids of the body and the cerebrospinal fluid was not an exception to the rule. With regard to the manner of secretion, that the choroid plexus played a very important rôle and had an important relation thereto, there was little doubt. If one reflected and considered how the cerebrospinal fluid differed from other fluids he would learn that there was a remarkable rapidity of secretion under certain conditions. They all had had that experience in the service in all their hospitals. In cases of central nervous diseases, particularly tabes and central lues, the patients had been made comfortable after lumbar puncture. When the fluid pressure was measured and found to be high it was remarkable how it would come down after lumbar puncture had been performed; but in a few hours there would appear evidences of almost the same quantity. These facts regarding the cerebrospinal fluid were of great importance and of great physiological interest. Another point Dr. Sachs had observed, which was of interest regarding the cerebrospinal fluid not only for therapeutic reasons but from a diagnostic standpoint as well, was the signal failure in the detection of cellular contents of the cerebrospinal fluid in cases of neoplasm in and around the spinal cord.

Dr. David John Kaliski said that there had been few facts added in the discussion, either substantiative or contradictory, to their knowledge of the cerebrospinal fluid as outlined by Dr. Frazier in his authoritative paper. Regarding the excretion of drugs by the choroid plexus some examinations by Sachs, Straus and Kaliski of the spinal fluids had been made by Professor Benedict in the laboratory of Cornell University, and they had been surprised to find that arsenic introduced intravenously had been excreted within twenty-four hours by the choroid plexus and had been detected in the cerebrospinal fluid. This was rather contradictory to others' findings and to the usual views. These facts were of great importance in the treatment of syphilitic diseases of the nervous system and should lead one to pause and not make dogmatic statements regarding the absence of secretion from the choroid plexus after intravenous medication. It was rather far fetched, in view of the rapid absorption of the spinal fluid, to look upon intraspinous medication (salvarsanized serum) as a means of curing parenchymatous diseases of the central nervous system such, for example, as paresis. He could not substantiate the statement of Kaplan of the presence of bile in the cerebrospinal fluid or of its effect upon the Wassermann reaction. He had never been able to find that the presence of bile in the serum ever caused the reaction to become positive in a normal case.

Dr. Edward D. Fisher said that the investigations of Dr. Frazier were of great interest whether considered in the light of hydrocephalus or in their bearing on the treatment of diseases of the nervous system, especially syphilis. Our knowledge of the cerebral spinal fluid, whether as to its being a secretion of the choroid plexus, which the speaker regarded as a secreting gland or in part at least due to the vascular system, had always been uncertain. Whether again it was nutritional in function or only a protective buffer against shock had not been proven. It certainly in disease showed that it was a receptacle for some of the products of disease. The laboratory work done, Dr. Fisher said, he could not discuss, but it would seem to show the reason for the successful treatment of cerebrospinal syphilis by intravenous injection, as probably very little salvarsan entered into the cerebrospinal fluid, but was stopped at the choroid plexus. It was in such disease conditions, which Head called syphilis meningo-vascularis, that we had our best results, while in syphilis centralis (Head) where there was disease of the cells of the central nervous system (parenchymatous disease), the results were very doubtful, tabes and general paresis not responding, except in so far as the vascular lesion was affected. As has been said by Head, it was doubtful whether when intraspinal injections were used the arsenic reached the pericellular spaces, and whether if it reached the cell it did so in large enough amounts to affect the spirochetes. Another question arose as to whether if that were possible it would not be destructive to the cell itself. The question, therefore, of a possible cure in central syphilis or parasyphilis, to use the old name, was still in doubt. This did not do away with the fact that improvement took place, many symptoms being relieved, but it gave an explanation why one got this improvement in the vascular and meningeal manifestations and in those only.

Dr. Louis C. Ager said he was much interested in Dr. Frazier's findings in regard to the action of thyroid in checking the secretion of cerebrospinal fluid, and would like to report briefly a case of hydrocephalus treated in that way. A male infant, eight months old, had an attack of cerebrospinal meningitis in September. He entirely recovered from the acute attack under treatment with Flexner serum. Two weeks later he began to show symptoms of cerebral irritation, and a bulging fontanelle. Thyroid was given by mouth, beginning with a quarter of a grain twice a day and increased in a few days to two and a half grains a day. There was a very pronounced improvement almost at once, but it was merely temporary. Convulsions and vomiting ceased, the appetite improved, and there was a return to normal mentality. In a few weeks, however, the pressure again returned and the circumference of the head increased five centimeters in eight weeks. Practically no fluid could be obtained on spinal puncture, and an attempt was made to tap the ventricles, but the child died on the table.

Dr. Isador Abrahamson believed that while all three factors were concerned in the production of internal hydrocephalus, faulty absorption, in his experience, was the most common and the most important factor. Most often, in increased intracranial pressure, there was a free communication between the cranial and spinal cavities, the intraspinal pressure being directly proportionate to the intracranial. Here, naturally, obstruction as a factor was out of question. Secretory faults could also be excluded in most of these cases, partly because frequent lumbar punctures, while of temporary benefit as in pleuritic effusions, failed to cure these states. In such cases like one now under his care, of luetic serous meningitis, it was a question of failure of the required absorption due to disease of the meninges. Dr. Abrahamson said he would like to put two questions: First—Had Dr. Frazier injected a sufficient amount of choroid plexus substance into animals to evoke an acute internal hydrocephalus, *i.e.* choked discs, vomiting, etc.? Second—Had Dr. Frazier studied the phenomenon of cerebral edema? Both of these problems were in intimate relationship to the question of the causation of internal hydrocephalus.

Dr. Foster Kennedy said that the question of the cerebrospinal fluid having a nutritive value, as was brought up by Dr. Frazier and others, was of interest, and while agreeing with Professor Pike's remarks yet it would appear that potentially it had a high nutritive value. Dr. Kennedy said he had had an opportunity of seeing cases where the cerebrospinal fluid was being lost in streams, in some instances for as long as three or four months. Except in cases of prolonged diarrhea and vomiting in infants, and complete inanition in

adults, he had never seen such extraordinary marasmatic conditions as had thus resulted. Dr. Israel Strauss also had had similar experience in cases of leakage from the cerebrospinal pond. There was one question that Dr. Kennedy thought very important: Dr. Frazier had found that the administration of thyroid gland was capable of producing a reduction in the quantity of the cerebrospinal fluid to one-third the normal flow. A non-alcoholic extract of the gland had been capable in animals and the human patient of curing hydrocephalus due to an increased fluid production. It would be important to know the amount of the gland dosage and the method of administration. If these results could be confirmed in an adequate series of cases there would be opened up therapeutic possibilities in a field heretofore depressingly sterile.

Dr. Frazier, in closing, said he felt well repaid by the lengthy and diversified discussion which the paper had provoked. He was indebted especially to those who in their discussion had suggested so many interesting problems for future investigation and for the new advance of thought which these had opened up. Of particular interest to him was the problem of producing experimentally an artificial hydrocephalus by the injection of choroid plexus, an investigation which he had in prospect. He could not speak in figures as to the relative frequency of the various types of hydrocephalus, according to his classification, *i.e.* the obstructive, the nonobstructive, and the hypersecretory, although he had gained the impression that the purely obstructive was in the minority. Dr. Frazier expressed the hope that their knowledge of the inhibitory effect of thyroid extract upon the choroid plexus would be applied to the treatment of selected cases of hydrocephalus, and the results carefully noted. He was of the opinion that a continuation of the intensive study of the cerebrospinal fluid from the viewpoint of its normal and morbid physiology would lead to a solution of some of the clinical problems in which the cerebrospinal fluid was the dominant factor.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held November 16, 1914.

The President, Dr. Thomas S. Southworth, in the Chair.

Modernized Proctology.—Dr. Samuel G. Gant, in this paper, first gave a résumé of the history of proctology from ancient times, and then referred to some of the important points concerning modern methods of examining for and diagnosticating anorectal diseases, preparing the patient for operation, and carrying out the postoperative treatment. As to the examination, he said there was no excuse for not diagnosticating anorectal affections to-day, because they could be directly inspected by means of the proctoscope and sigmoidoscope, the character of the feces could be accurately determined by macroscopic and microscopic examination, and the extent of such affections, as well as their connection with neighboring organs, could be defined by digital exploration and bimanual palpation. Improved diagnostic technique, largely brought about by proctologists, had also been of great service in clearing up the etiology and pathology of colonic diseases. *Preparation of Patient*—The common practice of older and many modern surgeons of purging patients and deluging their colons the night before and just previous to operation courted annoyance and infection. For hemorrhoidal, polypoidal, fissure, fistula, and other minor operations but a few moments were required to prepare the patient, which was done by the injection of a glassful of soapsuds followed by the mopping of the mucosa with hydrogen peroxide or other antiseptic. Where the bowel was to be amputated or resected for rectal procidentia, stricture, tuberculosis, or malignant disease the patient was kept in the hospital for three or four days and the gastrointestinal tract was at first thoroughly cleansed by catharsis and colonic irrigations with 1 per cent. ichthyol, and then tied up with an opiate or a strong astringent which insured a dry operation field. The parts were never shaved except where sutures were to be used. *Anesthesia*—Local anesthesia was dependable and indicated in about 75 per cent. of all operations, but was contraindicated in complicated cases and in cases where the surgeon was unable to determine beforehand what was required to be done. Personally he had successfully operated upon several thousand rectal patients under eucaine and sterile water local anesthesia, and could say, in comparing the two, that the preliminary injection pain was less with the former, while postoperative pain and bleeding followed eucaine very much more frequently than water anesthesia. Quinine and urea solutions prevented temporary postoperative pain, but this advantage was counterbalanced by the sloughing which occasionally, and the retarded healing of the wound which frequently, followed their employment. He did not employ adrenalin with any local anesthetic, for while it at first caused contraction this was followed by relaxation of the tissues. *Postoperative Treatment*—Both purging the patient and tying up the bowel for several days with opiates were to be condemned. It was his custom to keep his patients on a practically normal diet and not to order a laxative unless the stools showed a tendency toward hardness, when he prescribed mineral oil or small doses of a fruit or other laxative to soften but not liquefy the feces. *Simplification of Treatment*—Proctologists had recently simplified the treatment of lesions and wounds in the lower rectum, and thereby greatly diminished the patient's suffering. The practice of universally cauterizing wounds no longer obtained nor were they packed; pernicious measures often responsible for unhealed sores and fecal incontinence. Instead they were drained, and in cleansing the wound the swab and cotton moistened with water or an antiseptic solution had been substituted for annoying copious irrigations. When healing was tardy it could be satisfactorily stimulated by leaving in the wound a gauze pledget moistened with a solution of silver nitrate (6 per cent.), ichthyol (10 per cent.), or balsam of Peru (20 per cent.); but where the tissues were irritable and rebelled against stimulation methylene blue (10 per cent.) was usually effective. Pain from topical applications could be slightly diminished by the local use of 10 per cent. eucaine or cocaine, but in very sensitive individuals all suffering could be prevented by injecting a solution of eucaine (one-eighth of 1 per cent.) beneath the lesion to be treated. The speaker had long maintained that about 75 per cent. of all anorectal diseases could be cured in the office or by operation performed under local anesthesia and without a lengthy postoperative treatment at home or in the hospital. *Changes in the Treatment of Individual Affections Effected by Modern Proctology: Stricture*—Formerly stenoses, wherever located, had been treated by divulsion, but this very dangerous practice had now been abandoned except when the constriction was within three inches from the anus. The rational treatment of strictures to-day consisted in their division under local anesthesia when low down and, when they were higher up, excising the affected gut or performing colostomy in inoperable cases. *Fistulæ*—Formerly it was held that the curing of a fistula was followed by skin eruptions or lung complications, owing to the arrest of the discharge; but this was now known to be without foundation in fact. By some, even to-day, nearly all fistulæ were thought to be tuberculous, and were therefore not operated upon; yet proctologists knew that tuberculous fistulæ were rare, and when there were such recognized that the patient's vitality should determine whether it was advisable to operate. When the general condition was good, an operation was indicated, because the fistula could then be cured, and the sufferer, thus having one less destructive process to contend with, would stand a better chance of recovering. Many unnecessary deaths had followed operations upon fistula patients with irritative or tuberculous lung lesions owing to their being soaked with ether and retained in the hospital for a prolonged after-treatment. All such deaths could be avoided by doing the operation in the office, under local or gas anesthesia, and permitting the patient, during convalescence, to spend his time in the fresh air. Failure to cure fistula often had been, and still was, due to the fact that the surgeon did not incise all sinuses or was afraid to divide the sphincter. Where the latter was done the patient had frequently suffered from fecal incontinence because of an improper operation or faulty post-operative treatment. Modern proctologists prevented such incontinence by dividing the anal muscle at a right angle, by draining, instead of packing, the wound, and by trimming off the mucous membrance or skin edges which might serve to prevent union of the sphincter borders. *Fissure*—Fissures associated with sphincteralgia did not heal because of the irritable condition of the anal muscle. Recent rents were sometimes healed by keeping the feces of a semi-solid consistence, cleansing the part with moistened cotton, and mild applications of silver nitrate, ichthyol,

or balsam of Peru. When fissures were fully developed and prolonged painful contractions followed defecation, operative measures, and not the old procedure of cauterization, were indicated. For years Dr. Gant had promptly cured all cases of fissure by splitting the anal canal under eucaine, a method which put the muscle at rest, widened the rectal outlet, relieved constipation and straining at stool, and forestalled further trouble. He had abandoned divulsion in aggravated cases because the muscle regained its tonicity before the rent had healed, and the procedure did not insure against recurrence; neither did he excise fissure, since this might be followed by infection and had no advantage over division of the sphincter and anal canal. *Ulcers*—Chronic ulcers near the anus, irrespective of their cause, like fissures, did not heal unless the sphincter muscle were put to rest by divulsion or, preferably, division, and they were treated by curetting and the application of moderately strong solutions of the drugs previously mentioned by means of gauze daily placed in contact with them. Ulcers of the upper rectum were usually associated with some form of colitis, and were to be treated, in connection with the lesions in the colon, by daily medicated colonic irrigations of sufficient strength, introduced by way of the anus or through an appendicostomy or cecostomy opening. The modern treatment of intestinal ulcers was superior to the older method because it aimed at healing the lesion through direct application of the remedy instead of internal medication. *Pruritus Ani*—Ball's operation for the relief of this by severing the nerves of the part from their connection with the skin, which was an elaborate procedure and left extensive wounds requiring weeks to heal when infection occurred, had recently been modified by Lynch and himself, so that it could now be quickly performed under local anesthesia and necessitated no lengthy convalescence. *Hemorrhoids*—Hemorrhoidal operations had been considered serious in former times, and were by no means simple, at least from the patient's viewpoint, as performed by the average surgeon to-day. Under local anesthesia, however, uncomplicated thrombotic hemorrhoids could be laid open, cutaneous ones excised, and internal ones radically operated upon by the clamp and cautery, ligature, or modified excision procedures. Marked improvement had also been made in the technique of operations indicated for the more serious diseases of the lower bowel, such as complex fistula, peri- and pelvi-rectal abscess, malformations of anorectal region, sacrococcygeal affections involving the bowel, stricture, and benign and malignant neoplasms.

Dr. JEROME M. LYNCH said that if every patient passing blood and mucus, or suffering from diarrhea alternating with constipation, were thoroughly examined, we would be able to make an early diagnosis of cancer in a majority of instances. Other symptoms of importance in this condition were the desire to defecate frequently, with a feeling of unfinished stool. These movements were usually explosive in character, and the amount of fecal matter passed small and mixed with mucus or with mucus and blood. In his experience about 25 per cent. of patients suffering from cancer of the bowel had been previously operated on for hemorrhoids. In some cases the diagnosis was made after the patient was under anesthesia, but in the majority much later, and in a great many only when the case had passed the operative stage. When the carcinoma was situated close to the anus the first symptom noted by the patient was the passage of a little blood. Indeed this might be the only symptom present at any time, and such cases had come under his observation. There were other pathological conditions, such as stricture and amebic dysentery, which might give rise to similar symptoms, but by examination of the feces, or even proctoscopic examination, these could easily be differentiated from cancer. The diagnosis of fissure was usually simple, though there were cases in which the patient was more troubled by the secondary complication, sciatica, than by the primary lesion. Such cases were generally treated for the sciatica, when a rectal examination would have revealed the cause of the trouble and a simple operation would have relieved it. Cryptitis was a condition which was frequently overlooked, the patient being usually treated for neuralgia, and after stretching and local applications had failed to relieve he was commonly classified as a neurasthenic. With a bent probe the ulcerated pocket could easily be reached and the correct diagnosis thus be made. The speaker said that he had recently seen a patient who had suffered for four years without getting relief, yet when the little pocket which was the source of his trouble had been opened he received almost instantaneous benefit.

Dr. FRANK C. YEOMANS said that in cases of fistula the essential principles of treatment were to find the pathological opening into the rectum and to lay open the tract. There was no danger in cutting the overlying parts except where the fistula was tuberculous. In this event it was essential to use the actual cautery in order to prevent dissemination of the infection, especially to the lungs. Fistulæ were usually complicated, and on this account it was advisable not to depend upon local anesthesia, except for the simple subcutaneous and submucous types, but to employ a general anesthetic. In the case of tuberculous patients gas and oxygen anesthesia could be used without danger. Clinically speaking, strictures were of two kinds chiefly. Those of the first variety were traumatic or congenital, and were rather rare; the second kind, inflammatory strictures, were comparatively common and were almost invariably of syphilitic origin. Syphilitic strictures were very difficult to treat, and the best method was the employment of gradual dilatation by means of soft rubber (Wales) bougies. If operation became necessary on account of obstruction, temporary colostomy, with subsequent dilatation and local treatment, was advisable. Antisyphilitic treatment, guided by the Wassermann reaction, was, of course, essential, as this would help to place the patient in better general condition, but of itself would not markedly improve the stricture. Amebic dysentery was a condition which should be borne in mind, for personally during the past two years he had treated eleven sufferers from this infection, a number of whom had never been away from New York City. This disease could therefore no longer be considered a purely tropical one. Emetin hydrochloride was the specific for it, and by the hypodermic administration of this drug amebiasis could be controlled or cured in ten days. The course of treatment with it should, however, be repeated for from three to five times, at intervals of a month, to prevent recurrence. In coccygodynia the seat of pain had been originally located in the coccyx itself by Sir James Y. Simpson, who recommended subcutaneous division of all the muscles and ligaments connected with the sides and tip of the coccyx in order to prevent traction. Later, excision of the coccyx had been resorted to, but with unsatisfactory results, except when the bone itself was diseased or deformed by injury. Dr. Yeomans' present opinion was that the affection is a neuralgia or neuritis of the coccygeal plexus of nerves. If this were the case he had conceived the idea that it ought to be possible to relieve the symptoms by injections in and about the nerves of 80 per cent. alcohol, in the same manner as had proved so successful in trigeminal neuralgia. He had now employed the alcohol injections with success in seven cases of coccygodynia.

Dr. GANT, in closing, said that the thing which ought to be emphasized was the diagnosis. Only to-day he had operated on a case of carcinoma in which the patient had been operated on for piles twice during the past year. The trouble was that practitioners did not make an examination of the upper rectum, even when their patients were under ether. The usual history of these cancer patients was slight constipation, pronounced constipation, and constipation alternating with diarrhea, and then severe diarrhea, together with pus and blood in the stools. When, with such symptoms there was progressive loss in weight, one could scarcely make a mistake. He had been glad to hear amebic dysentery referred to. In his opinion the term dysentery should now be dropped altogether, and, looking at the matter from the etiological standpoint, we should speak of amebic colitis, bacillary colitis, etc. Coccygodynia might sometimes be due to neuralgia, but not infrequently we had to deal with a fractured or bent coccyx. In such cases the condition was easily corrected by removal of the bone. He had been asked whether the diagnosis of cancer of the rectum was possible by means of the *x*-ray, and would say that such diagnosis could not be made by the *x*-ray alone. In fact he did not believe that a positive diagnosis of any condition whatever could be made solely with this. Additional evidence was always required, though the *x*-ray was of great service in the way of confirmatory proof.

Diagnosis of Thyroid Disease as Related to Surgical Treatment.—Dr. MARTIN B. TINKER of Ithaca, N. Y., said it had been a matter of surprise to him that it had taken so long for the profession to manifest an interest in the subject of thyroid disease. It was not his inten-

tion to take up the matter of treatment except incidentally. The question of operative or nonoperative treatment was one of great importance and interest, requiring the most careful consideration. Each case should be studied individually and, except where the condition was urgent, sufficient time be allowed to afford the opportunity to judge whether surgical interference would be advisable or not. During the past year, up to a few weeks since, he had seen some three hundred cases. Of these about sixty patients had been advised to wait and see what could be done for them by medical treatment, but it was his conviction that a considerable number of them would eventually come to operation. As to the character of operative procedure to be adopted, he did not believe that ligation alone would give cures. After operation it was certainly true that in certain instances fresh trouble developed, but in many of these this was due to the lack of proper after-care. Prolonged rest was of the utmost importance, and without this the surgical operation would not effect much. Postoperative care should really be maintained for from six months to a year, and results reported from three to ten years after treatment had shown in the vast majority of instances that the patients were doing well. When recurrences did take place, one of the best things to be done was to remove some more of the thyroid, and there was, he believed, very little risk of taking away too much. As to the heart changes occurring in hyperthyroidism, he had strong hopes that the electrocardiograph would yet prove of material service in the determination of these. Regarding the eye conditions, the careful study of a large group of cases would undoubtedly prove of great interest and practical value.

Dr. Walter L. Niles said that his viewpoint, as a result of his experience as an internist, was quite different from that of Dr. Tinker, a surgeon. In looking over the records of the Cornell University Medical College Dispensary, where a number of patients suffering from thyroid disease had been treated during the past eight years, he had been interested to find that about half of them gave as their chief complaint a "nervous heart," an expression no doubt obtained from their physician. Where the heart was unduly irritable one should always think of hyperthyroidism. In his experience there were three conditions from which thyroid disease had to be especially differentiated, namely, pulmonary tuberculosis, bacterial endocarditis, and neurasthenia. In the first the differential diagnosis was frequently difficult, and one might not be able to diagnosticate tuberculosis positively unless the physical signs were unequivocal. In such cases the *x*-ray was often of great value in localizing and determining suspicious areas. Another factor which made diagnosis difficult was the great sensitiveness of patients with hyperthyroidism to tuberculin. Bacterial endocarditis was not uncommon and was very frequently overlooked. Of special importance in the diagnosis were the fine pin-point petechiæ, most often apearing over the front and upper part of the chest. Of course, the demonstration of a bacteriemia was of great service, and for this repeated cultures were frequently necessary. Bacterial endocarditis might also be mistaken for tuberculosis. Neurasthenia, it was well to remember, was simply a complex produced by a great variety of conditions, a not uncommon one being hyperthyroidism. In considering the treatment of hyperthyroidism we found the greatest diversity of opinion, many surgeons inclining to operative interference, while most internists advised conservative measures. Excellent results had been reported by both, and hence the proper course must be a medium between these extremes. The difficult question was to decide which case should be operated on. The Beebe serum, a specific remedy, was of service in a very large proportion of instances. Personally, he believed that only those cases in which severe local pressure was produced, or which showed a tendency to malignant degeneration, should be operated upon. The most important point in any form of treatment was rest, and by this means alone a great many patients would be cured. In considering the advisability of operation we should always think of the end-results. A great objection to surgical procedure was that in many instances the symptoms returned, and in many others a mixed form, showing both hyper- and hypothyroidism developed. This was a most serious condition, for which little could be done, the patients usually dying in the course of a few years.

Dr. Harry Miles Imboden said that when formerly at an institution with Dr. Tinker he had seen quite a large percentage of nervous cases which appeared to be instances of exophthalmic goiter. In the diagnosis the *x*-ray was found very useful, especially where the goiter was intrathoracic. This would demonstrate the depth of penetration into the chest and the relation to the trachea. It showed the pressure of the thyroid on the trachea and it was of great service as well in differentiating it from a persistent thymus, aneurysm, or other mediastinal growth. In the substernal or intrathoracic form of goiter the thyroid was seen to be bilateral, cupshaped, and with the convexity pointing downward. A persistent thymus was triangular in outline, lower down than the thyroid, and with the base down. The appearance of an aneurysm was quite different from that of the thyroid. It was unilateral and the edges were sharply defined, and usually one could get pulsation.

Dr. Isaac Hartshorne said that regarding the eye symptoms in hyperthyroidism we were all familiar with the classical signs, namely, widening of the palpebral slit, failure of the upper lid to follow the eyeball when turned downward, the lack of convergence, and the sluggish reaction of the pupils in accommodation; also the epiphora and frequent weeping. The peculiarity of the eye symptoms was that they were not present in any definite regularity or any definite association with each other. Thus, some symptoms would be present in one case and others in another, while in a third there might be none. Probably epiphora was one of the earliest symptoms to appear, being due to pressure from the closely following exophthalmos. That we found exophthalmos in only from 20 to 25 per cent. of hyperthyroid cases was probably because we got the cases early in the course of the disease, and, as Dr. Tinker had said, the symptoms appeared late. The cause of the exophthalmos was still very uncertain. Most internists, he believed, held Müller's muscle, that small group of rudimentary muscle fibers spread out between the sphenomaxillary fissure and the supraorbital groove, responsible for this kind of exophthalmos. The theory of exophthalmos from irritation of Müller's muscle was, however, hardly tenable in these cases, since, as all other muscular tissue was in them weak and deficient in tone, it was scarcely reasonable to explain any one symptom as due to irritable contraction of muscular tissue. More likely the exophthalmos was due to an engorgement of arteries and capillaries in the orbit back of the globe. Exophthalmos of long standing was very obstinate to any kind of treatment, but was usually reduced by treatment of the goiter, medical or surgical. In early instances Dr. Tinker had reported one or two cases in which, after operation on one side of the neck, the eye on that side receded, while the other eye continued to bulge until the other side of the neck had been operated upon, when it also receded to an equal extent. Since, according to Dr. Tinker, convergence was lacking or deficient in 12 per cent., and the pupils sluggish in accommodation in 14 per cent. of these cases, and since we recognized a normal and definite relation between convergence, pupil activity, and accommodation, we should expect to find subnormal accommodation in hyperthyroidism. So far as he knew, this matter had never been worked up, and it would make an interesting study—of course, after careful cyclopegic refraction and also, as far as possible, eliminating presbyopia. There were usually no changes in the media, except scars from corneal ulcer, or in the fundus, other than an enlargement of the retinal arteries, which also could be seen to pulsate. Vessel pulsation in the eye was commonly venous, but in these cases was chiefly arterial. There were no signs of intracranial pressure. The inflammatory lesions appearing with exophthalmos, namely, chronic conjunctivitis and corneal ulcer, were due to exposure of the globe, and should be treated in the same way as when occurring under other circumstances. Corneal ulcers could easily become infected, and proceed to perforation and panophthalmitis, with destruction of the eye, or they might injure vision simply by diffuse or multiple opacities. A careful cyclopegic correction of refractive error was usually of great advantage to these patients. It would be well to refract with care all hyperthyroid subjects, not with the primary idea of lessening thyroid secretion, but for the purpose of stopping the leakage of nerve force through refractive error. The speaker said he was a firm believer in the conservation of nerve energy by the removal, so far as possible, of all sources of irritation, and it should be extremely helpful to these patients to conserve, by the removal of such sources of irritation as refractive error, that much more energy to combat the primary process. If the patient were to undergo thyroid operation, however,

it would be better to wait till after the operation to correct the refractive error. He understood that the Mayos were doing this in connection with and at the same time as the regular thyroid resection. As to their actual success, report would have to be made later. Osteoplastic resection of the outer wall of the orbit might be performed by either the method of Kronenlein or of Kocher, the latter's operation being less likely to injure the facial nerve and leaving a less noticeable scar. Simple tarsorrhaphy at the external canthus might also be done to diminish the abnormally wide palpebral slit. The fundamental significance of eye symptoms in hypothyroidism had yet been thoroughly worked out, as far as he knew, and he agreed with Dr. Tinker that an ocular study of a large group of these cases would bring out results of interest both to ophthalmology and to general medicine.

Dr. Alfred E. Cohn gave an account of a patient of Dr. Tinker who had been under the observation of Dr. Robinson at the Hospital of the Rockefeller Institute both before and after operation, the observation after operation lasting for about six months. Before the operation the area of cardiac dulness had extended to the right and left for a centimeter more than after it. Before operation the systolic blood-pressure was 135, and the diastolic 80, while the pulse-rate varied between 100 and 130. After the operation the systolic pressure gradually declined until it reached about 120, where it remained, but the diastolic pressure continued unchanged at 80. The pulse-rate also fell, and now varied between 80 and 95. Both before and after operation electrocardiograms were made, but these had yielded no information which could be regarded as useful. A larger experience, however, might prove of great interest. In order to reduce the pulse-rate in patients suffering from exophthalmic goiter Dr. Robinson had investigated the action of digitalis and of tincture of aconite. The doses of the latter employed were at first those usually recommended, but later he gave doses far in excess of these. It might be said, in general, that both these drugs failed to show any influence on heart-rate. Experiments were then conducted with the tincture of aconite in order to test its potency, and a detailed report of these would later be made by Dr. Robinson. Dr. James Mackenzie believed that the rapid rate of the heart in exophthalmic goiter depends upon the fact that the area of the peripheral circulation is enormously dilated. It was apparent, if this theory were correct, that an agent must be found which would aid in reducing the area of peripheral blood-vessels to normal limits. Should this be accomplished, one might expect the rate of the heart to become reduced.

Dr. Frank C. Raynor said that from his experience thus far he could not say that he had observed any relation between thyroid disease and affections of the throat. While many cases of such disease were associated with disease of the lymphoid tissue in the pharynx, equally as many were not. In one case of enlarged thyroid with pronounced tachycardia, in a girl of sixteen, very great improvement had followed the removal of adenoids and hypertrophied tonsils. He had also seen but few cases in which pressure symptoms had resulted from the growth. In one case there had been considerable mucus in the throat, but this he considered secondary to the circulatory disturbances. As to the use of drugs in goiter the red iodide of mercury, applied locally, and arsenic bromide, given internally, had seemed to him to be of some service. At a recent meeting in Brooklyn quinine hydrobromide had been highly spoken of, but he had not yet had the opportunity of giving it a trial.

State Medical Licensing Boards.

STATE BOARD EXAMINATIONS AND QUESTIONS.

Board of Medical Examiners of Maryland.

June, 1914.

ANATOMY.

1. Describe the gall-bladder and the biliary ducts.
2. Define synarthrodial, amphiarthrodial, diarthrodial joints, and give three examples of the latter.
3. Give the origin and distribution of great sciatic nerve.
4. Name structures contained in cross-section of thigh on a level with the beginning of Hunter's canal.
5. Give attachments, action and nerve supply of these muscles: Digastric, peroneus longus, biceps femoris, superior oblique (oculi) and pronator radii teres.
6. Name varieties of cartilage and state where each variety is found.
7. Give brief description of the lymphatic system.
8. General description of thymus body.
9. Practical examination.
10. Practical examination.

PHYSIOLOGY.

1. Name the forces concerned in the circulation of the blood, and describe how each acts.
2. Define protoplasm, and give properties of living protoplasm.
3. Describe the effects of starvation on the various body tissues.
4. (*a*) Give functions of the medulla oblongata. (*b*) Give functions of the cerebellum. (*c*) Give functions of the spinal cord.
5. Describe the functions of the skin, mucous membranes and serous membranes.
6. Describe the formation and functions of lymph and the properties and functions of bile.
7. Describe the muscular mechanism of digestion.
8. State what you know of the sources and distribution of the heat of the body.
9. Define secretion, excretion, absorption, nutrition, and state difference between external and internal secretion and give examples.
10. Give a general classification of foodstuffs and give examples of each.

ANSWERS.

ANATOMY.

1. The gall-bladder and bile-ducts. The *gall-bladder* is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage.

The *hepatic duct*, formed by union of ducts from right and left lobes, issues from the liver at the bottom of the transverse fissure. It passes downward and to the right in the layers of gastrohepatic omentum, having the vena porta behind and the hepatic artery on the left. It joins the cystic duct, the two forming the common bile-duct.

The *cystic duct* passes from the neck to the gall-bladder downward, backward, and to the left, to join the preceding.

The *ductus communis choledochus* or *common bile-duct* is the result of the union of the hepatic and cystic ducts. It passes behind the first part of the duodenum, in front of the vena portæ, with the hepatic artery on the left, between the layers of the gastrohepatic omentum, and, passing between the pancreas and second part of the duodenum, enters the small intestine obliquely a little below the middle of the descending part of the duodenum by an opening common to it and the pancreatic duct.—(From *Aids to Anatomy.*)

2. *Synarthrodial joints* are articulations which do not allow of any appreciable movement.

Amphiarthrodial joints allow of limited movement.

Diarthrodial joints allow of free movement; *examples:* elbow, shoulder, knee.

3. The *great sciatic nerve* arises from the first, second, and third sacral nerves of the lumbosacral cord. It supplies the hip joint and the biceps, semitendinosus, semimembranosus, and adductor magnus muscles.

4. *Structures contained in cross-section of thigh on a level with the beginning of Hunter's canal:* Skin, fascia, tensor vaginæ femoris, femoral artery and vein, profunda femoris, external circumflex vessels, superficial obturator nerve, external cutaneous nerce, anterior crural nerve, deep obturator nerve, small and great sciatic nerves, adductor longus, sartorius, gracilis, pectineus, rectus femoris, adductor brevis, adductor magnus, semimembranosus, semitendinosus, crureus, vastus internus, vastus externus, biceps femoris, and the femur.

5. Digastric. The posterior belly arises from the digastric groove on the internal surface of the mastoid process of the temporal bone; the anterior belly, from a depression on the inner surface of the lower

border of the inferior maxilla, near the symphysis. These two bellies are connected by a central tendon which perforates the stylohyoid, and is bound down to the greater cornu of the hyoid bone by a process of fascia. *Action.*—It raises the hyoid bone and depresses the lower jaw. *Nerve supply.*—The posterior belly is supplied by the facial; the anterior belly by the mylohyoid branch of the inferior dental.

PERONEUS LONGUS. *Origin:* Upper two-thirds of outer surface of fibula, and external tuberosity of tibia. *Insertion:* Internal cuneiform and first metatarsal bone. *Nerve supply:* Peroneal. *Action:* It extends and everts the foot.

BICEPS FEMORIS. *Origin:* Tuberosity of ischium, great sacrosciatic ligament, and linea aspera. *Insertion:* Outer side of head of fibula. *Action:* It flexes the leg on the thigh, and rotates the leg slightly outwards. *Nerve supply:* The great sciatic.

SUPERIOR OBLIQUE (OCULI). *Origin:* From inner margin of optic foramen. *Insertion:* Into sclerotic. *Action:* Rotates the eyeball on its axis. *Nerve supply:* The fourth crainal or patheticus.

PRONATOR RADII TERES. *Origin:* Humerus, just above the internal condyle, and from inner side of the coronoid process of the ulna. *Insertion:* Middle of outer surface of shaft of radius. *Action:* It rotates the radius upon the ulna, and assists in flexing the forearm. *Nerve supply:* Median nerve.

6. *Hyaline cartilage* is found in the nose, larynx, trachea, bronchi, synchondroses, symphyses, costal cartilages and articular cartilages. *Elastic cartilage* is found in the epiglottis and cartilages of the larynx.

Fibro-cartilage is found in interarticular cartilages, symphysis pubis, between the vertebræ, around the margin of the acetabulum and the glenoid cavity of the shoulder.

7. "The LYMPHATIC SYSTEM includes the lymphatic vessels and glands and the lacteals, and forms an important accessory to the blood-vascular system, collecting the transuded, unappropriated fluids of the body and the nutritive material derived from the food and conveying it into the venous system. It consists of two main trunks: The thoracic duct, and the right lymphatic duct; and five smaller trunks: The jugular lymphatic trunk, subclavian lymphatic trunk, broncho-mediastinal lymphatic trunk, lumbar lymphatic trunk, intestinal lymphatic trunk.

"Lymphatics have been found in nearly every organ and texture in the body except the brain, the spinal cord, cartilage, tendon, eyeball, placenta, umbilical cord, membranes of the ovum, hair, cutis, and the labyrinth of the ear. They appear to originate as fine capillary nets interwoven among the blood-vessels and proper elements of the tissues, or, more minutely, in the lymph, perivascular, and perineural spaces. In the villi they commence as closed, club-like tubes.

"The *lymphatic capillaries* are somewhat larger than the vascular capillaries and destitute of valves. Their main trunks pass through lymphatic glands lying in their course, before doing which, however, they divide into afferent vessels, which, on emerging, unite into a smaller number of larger vessels, the efferent.

"In structure, they are composed of three coats—the external fibro-areolar, middle muscular, and internal or endothelial and elastic.

"The *lymphatic glands* are generally situated in the course of the blood-vessels, lymphatic vessels, or lacteal vessels, being accumulated together in certain localities, as the neck, abdomen, axilla, etc. The lymphatic glands and vessels are named from the regions they occupy or the vessels they accompany, and consist usually of a superficial and deep set. Thus, we have cervical, axillary, mediastinal, lumbar, inguinal, etc., and the lymphatic vessels corresponding.

"The *lacteals*, or chyliferous vessels, are the lymphatic vessels of the small intestine, and differ only from the others in carrying chyle during digestion from the intestines to the thoracic duct."—(Young's *Handbook of Anatomy.*)

8. "The *thymus gland* attains its full size at two years, after which it gradually shrinks away. It is situated partly in the anterior mediastinum, and partly in the neck, reaching from level of 4th costal cartilage upward on trachea as high as lower border of thyroid gland. It consists of two lateral lobes with occasionally a middle connecting one. *Relations of each lobe in early life.—Anterior:* Sternum as low as 4th costal cartilage, origins of sterno-hyoid and sterno-thyroid muscles. *Posterior:* Trachea, pericardium, and great thoracic vessels. *Base:* Pericardium. *Laterally:* Pleura, sheath of carotid. *Medially:* Opposite lobe and side of trachea."—(*Aids to Anatomy.*)

PHYSIOLOGY.

1. The circulation of the blood is regulated in (a) *the arteries* by: (1) The elasticity and tone of the arteries, (2) the force and frequency of the cardiac contractions, (3) the resistance in the capillaries; (b) in the *capillaries* it is regulated by (1) the action of the heart, (2) the action of the arteries; (c) in the *veins* it is regulated by (1) the action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) slightly by the valves in the veins.

2. *Protoplasm* is the matter of which cells are made; it is the physiological basis of life, and consists of water, protein, lecithin, cholesterin, phosphates, chlorides, and other substances. Its constitution is unknown. *Properties of living protoplasm:* Irritability, or power of responding to a stimulus; power of movement; power of assimilation; power of growth; power of excretion; power of reproduction.

3. During *starvation*, the body loses weight, the various functions gradually become weaker, the body temperature first rises then falls, and death supervenes after the loss of about 40 per cent. of the body weight. The loss is not equally distributed among the various tissues, as the muscles and fat lose the most, then the bones, skin and liver, and (least of all) the heart and brain and spinal cord.

4. The *functions of the medulla oblongata* are: (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of co-ordinating impulses from the cerebellum to the cord; (2) it contains collections of gray matter which serve as special nerve centers for the following functions or actions: respiration, salivary secretion, mastication, sucking, deglutition, speech production, facial expression; it also contains the cardiac and vasomotor centers.

The *functions of the cerebellum* are: Co-ordination of muscular movements, and maintenance of equilibrium.

The *functions of the spinal cord* are: (1) Conduction of nerve impulses; (2) reflex action; (3) co-ordination; it also contains special centers which preside over definite functions.

5. The *functions of the skin* are: Protection, secretion, excretion, regulation of body temperature, special sense of touch, general sensation, absorption and respiration.

Mucous membranes secrete mucin; and *serous membranes* provide a lubricating surface to prevent friction.

6. *Formation of lymph:* There are three main theories: (1) Ludwig's theory, or the filtration theory, coupled with osmotic changes between the lymph and blood; (2) Heidenhain's theory of lymphagogues; and (3) Starling's theory of the permeability of the capillary walls. The subject is summed up by F. A. Bainbridge as follows: "Lymph formation is not a secretory process, but is brought about by purely physical processes, namely, filtration and osmosis; and the factors concerned in its production are (1) the capillary pressure, (2) the degree of permeability of the capillary walls, and (3) the metabolic activity of the tissues. There is no reason to suppose that in health the permeability of the capillaries alters, and therefore the formation of lymph is increased chiefly by variations in the first and third of these factors." The origin and composition of lymph, its situation and relation to the tissue cells indicate that its *function* is to provide the tissue cells with those nutritive materials necessary to their growth, repair and functional activities, and to receive from the tissue cells their waste products prior to their removal by the blood and lymph-vessels.

Properties of bile: Bile is a transparent, viscid fluid, bitter, with an aromatic odor, and an alkaline reaction; the specific gravity is about 1010 or 1011 for fistula bile, and about 1025 to 1030 for gall-bladder bile. It contains water and solids. The latter are bile salts (sodium taurocholate and sodium glycocholate), mucin, bile pigments (bilirubin and biliverdin), cholesterin, lecithin, neutral fats, and inorganic salts (NaCl, KCl, and phosphates).

The functions of the bile are: (1) to assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neu-

tralizes the acid chyme from the stomach and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

7. "The *movements of the stomach* are most conveniently studied by direct observation with the aid of Roentgen rays after the administration of a meal mixed with a quantity of oxychloride of bismuth. In these circumstances the organ is seen to consist of two parts, the axis of the larger portion being nearly vertical, and forming an angle with the smaller pyloric portion, which is again subdivided by a constriction into two parts, the pyloric vestibule and the pyloric canal. After the ingestion of a meal, the muscular walls of the body and fundus become tonically contracted. Waves of contraction occur in the pyloric portion, beginning about the middle of the stomach and traveling at the rate of about three a minute towards the pylorus. The stomach contents are propelled by these waves towards the pylorus, and if the opening is kept closed by the contraction of the sphincter, they return by an axial stream towards the body of the stomach. In this way complete mixture with the gastric juice is effected. As digestion proceeds and the food is brought into a more fluid state, the sphincter undergoes periodic relaxation, opening every few minutes to allow the passage of the semiliquid material into the duodenum. By the tonic contraction of the fundus and body, the food is little by little subjected to the action of the pyloric mill, and subsequently passed on to the duodenum; and as the contents of the stomach are thus gradually diminished in quantity, the organ becomes more tubular in shape, until finally, four or five hours after the commencement of digestion, the process is complete. The precise mechanism by which the movements of the stomach are originated and carried out has not been definitely ascertained. It is still an open question whether these contractions are myogenic in origin, or are due to a local reflex through the plexus in the muscular coat. In any case, the movements may be considered to be under a certain degree of control by the vagi and the sympathetic, the former having on the whole a motor and the latter an inhibitory effect.

"The *intestinal contents* are slowly propelled along the gut towards the colon, and at the same time they are subjected to a continuous mixing process. The onward movement is effected by waves of contraction which sweep along the muscular coat of the bowel, and constitute what is known as peristalsis. The mixing of the material in the intestine is brought about by ring-like or segmental contractions, which are not progressive in character. These movements may be observed in the living animal or person by the aid of Roentgen rays after the administration of a bismuth meal. They can also be observed directly, if the abdomen is opened in an animal immediately after it has been killed.

"The *peristaltic movements.*—Any mechanical stimulus, such as pinching the intestine, will set up a peristaltic wave. The normal stimulus is a bolus in the lumen of the gut, and it is for this reason that the indigestible material of vegetable food is of value in promoting peristalsis. There are two features characteristic of the peristaltic wave: First, it is preceded by a wave of relaxation which begins below the point of stimulation, the contraction wave itself beginning above that point. Second, it always travels in the aboral direction. If a segment of the intestine be excised and again stitched in position in a reversed direction, the peristaltic waves in the reversed segment will be opposed to those of the rest of the intestine, and partial obstruction to the passage of the intestinal contents will result. Peristalsis still occurs when all connections with the central nervous system have been divided, but it is abolished by painting the gut with nicotine or cocaine. We may conclude, therefore, that it is effected by a local reflex mechanism connected with Auerbach's plexus (the myenteric plexus) in the muscular coat, the stimulus arising from the presence of a bolus in the intestine, and depending upon either the stretching of the intestinal wall or the irritation of nerve endings in the mucous membrane.

"The *segmental contractions.*—These differ from the peristaltic waves in occurring regularly and rhythmically. When they are recorded by means of a balloon in the intestinal lumen, they are found to be most marked at the middle of the balloon where the tension is greatest. The result of such contractions is to subdivide any bolus over which the contraction takes place, and thus to bring about a thorough admixture of the intestinal contents. Both layers of the muscular coat take part in these contractions, as well as in the peristaltic waves, and as a result the bowel exhibits pendular or swaying movements. The segmental contractions have no influence in promoting the onward movement of the intestinal contents."—(Bainbridge and Menzies' *Essentials of Physiology.*)

8. The normal body temperature is *regulated* and *maintained* by the thermotactic centers in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost.

Heat is produced in the body by: (1) Muscular action; (2) the action of the glands, chiefly of the liver; (3) the food and drink ingested; (4) the brain; (5) the heart; and (6) the thermogenetic centers in the brain, pons, medulla, and spinal cord.

Heat is given off from the body by: (1) The skin, through evaporation, radiation, and conduction; (2) the expired air: (3) the excretions—urine and feces.

9. *Secretions* are materials separated from the blood by special cells, and which serve some further purpose.

Excretions are materials which are separated from the blood by cell activity and discharged from the body, and are harmful if retained, or at least are useless.

Absorption is the process by which the food, after it has been digested, is taken from the intestines to the blood, so that it may be available for the nourishment of the tissues.

Nutrition is the series of processes by which the normal conditions of structure and function are preserved to the body; it is the balance between digestion, absorption and assimilation on the one hand and excretion on the other hand.

External secretions pass from the organ where they are secreted directly by a duct to the surface of the body or into the digestive tract.

Internal secretions have no duct to convey them, but they pass directly into the blood stream or lymph channels.

10. *Foods are divided into:*

I. Inorganic. { Water. / Salts.

II. Organic. { Non-nitrogenous. { Carbohydrates. / Fats. / Nitrogenous—Proteids.

Examples of each: *Carbohydrate*, sugar and starches; *Fat*, fat of meat, and butter; *Proteid*, flesh of animals, and white of eggs; *Salt*, sodium chloride, and calcium phosphate.

(*To be continued.*)

The Chondrosomes and Phosphorus Poisoning.—Azzo Azzi has made an important contribution to the study of cytopathology in the discovery of distinct changes in the so-called chondrosomes or thread-granules of the cells of the liver, heart, and striated muscles under the influence of phosphorus poisoning. In the fatty degeneration of the liver cells the chondrosomes undergo a change in contour and a loss in the capacity to take a stain. In the case of the heart and of the striated muscles there is a gradual disappearance of the chondrosomes synchronous with the deposition of fat droplets.—*Archivio per le Scienze Mediche.*

Schamberg's Disease.—E. G. G. Little reports the case of a patient aged 56 who had never lived out of Great Britain. He enjoyed good general health. He had no venereal disease; no varicose veins. His family history was unimportant; the only skin detail was that his father was said to suffer from psoriasis. The condition began twenty-five to thirty years ago with the patch on the left leg. On the right leg, where the patch was actually larger than on the left, the disease only showed itself about eight or ten years ago. Within the last few months the small isolated punctate lesions in the neighborhood of the larger patches began to appear. There was no lesion elsewhere than on the legs. The affected areas were moderately itchy, but showed no other abnormal sensations. Below the knee on each leg on the anterior surface there were large patches, 3 by 5 inches in area, of cayenne-pepper-like punctate deposits of pigment, so closely aggregated as to produce plaques of pigmentation, forming curiously angular shapes with sharply linear and sometimes serpiginous outlines. The general effect was that of a buff-colored tattooing of the skin. There was in addition to the pigmentation a slight degree of scaling.—*Proceedings of the Royal Society of Medicine.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 10.
Whole No. 2313.

NEW YORK, MARCH 6, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

UTERINE FIBROIDS, MENORRHAGIA, AND RADIUM.

BY ROBERT ABBE, M.D.,

NEW YORK.

SENIOR SURGEON, ST. LUKE'S HOSPITAL.

UTERINE fibroids, associated with unusual or profuse and exhausting hemorrhage (menorrhagia), are of the submucous and mural varieties.

The immediate source of bleeding is from the hypertrophied endometrium, which is spongy and highly vascular, or from the open-mouthed vessels whose lumen can be seen to be open on the thinned out musoca spread over the rounded surface of a tumor which bulges into the cavity of the uterus. These are easily demonstrated when a fresh section of the uterus and tumors is made immediatcly after hysterectomy. A little pressure squeezes out blood from the open mouths of one or more vessels. Often times thorough curettage removes the weak vessels, hemorrhage ceases and sometimes does not recur.

More often hysterectomy has been needed to insure a cure. Medication is of not much avail, though internal administration of gallic acid, or local intrauterine swabbing, with a mixture of antipyrin and salol, often arrests severe hemorrhage.

It is a pleasure to add an agent so simple and powerful as radium for the control of this serious

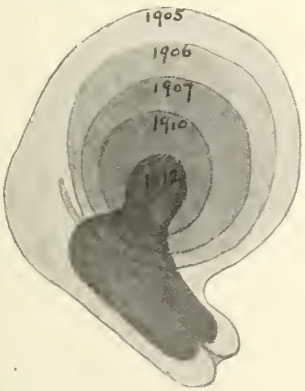


FIG. 1.—Case 1, Progressive reduction of fibroid tumor after the use of radium in the uterus; side view.

malady. But, best of all is the demonstrated greater effect of its reducing power and frequent cure of the tumor itself. It is quite probable that when the exact dosage of radium and its best method of application can be certified, it will be found to be a uniformly curative agent for fibroid tumors.

No simpler treatment can be conceived of than to introduce a thin, smooth, aseptic tube containing radium into the uterine cavity, leave it for one or

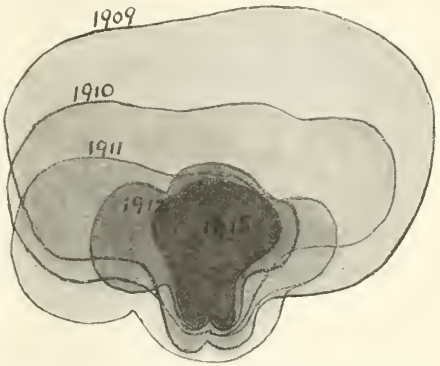


FIG. 2.—Case 11, Progressive reduction of fibroid tumors after exposure for four hours to 60 mg. radium in the uterus; front view.

two hours and watch improvement. Many patients are reduced to grave anemia, with waxy pallor, by prolonged hemorrhage, and the physician hesitates to offer the usual surgical procedure, especially when anesthesia is called for. In such types the radium treatment is a boon.

Its earliest known application was in 1905 for bleeding fibroids in one of my own cases.* My experience of the previous two years in using strong radium in many surgical conditions and in highly vascular naevi showed the truth of the claims of Wickham that obliterative endarteritis followed its use, and led me to hope that intrauterine vascularity would be altered by it.

In December, 1905, I was confronted by a case of extreme anemia from fibroid menorrhagia in which it seemed unwise to operate. The patient, a physician's wife, was forty-four years old. Under ether I curetted, and introduced a glass tube containing fifty milligrams of pure radium bromide for ten minutes. This would have produced a sharp reaction upon the skin. She progressively improved, menstruated normally, and recovered her health. In one year the tumor was perceptibly smaller. I again applied radium, sixty milligrams for fifteen minutes. During the following year I applied it again, on one occasion forty-five minutes and on another ten minutes, thus feeling my way along carefully to ascertain the safe and efficient

*Referred to in an address before the American Medical Association. See reports, 1906. Successful results reported by the author.—London *Lancet*, August 23, 1913.

dosage. The flow had ceased wholly and the tumor slowly reduced to an insignificant remnant. The patient has remained in perfect health ten years. The illustration (Fig. 1) is an exact reproduction of drawings from my note-book.

I ventured now to apply it for a longer period,

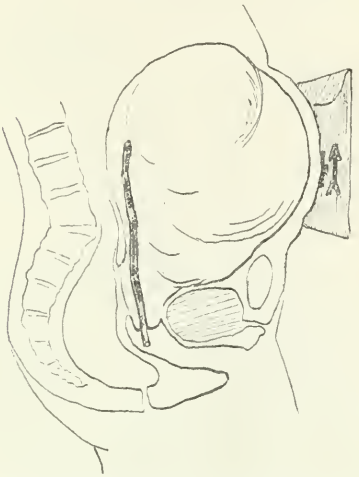


Fig. 3.—To illustrate radium radiation through large uterine fibroids. Photograph plate with lead devices external to the abdomen. Exhausting hemorrhage promptly arrested without curetting. Reduction of tumor follows slowly.

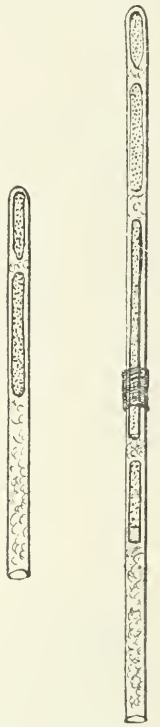
hoping to get quicker results. A lady of forty-nine years had refused operative treatment for growing fibroids which at last had caused increasingly severe hemorrhages, lasting sometimes three weeks. In June, 1909, I introduced into the uterine cavity sixty milligrams of pure radium bromide (forty radium element) and left it two hours without filter. On the following day I again introduced it farther than before so that it reached the fundus, the canal being a deep one. The tumor formed a broad mass extending from one iliac spine to the other, so that a finger could not be pressed down between it and the

Fig. 4.—Radiogram after 2 hours' exposure to 100 mg. radium element in utero, taken through 12 inches of uterine tumor and abdominal wall.

bone. The flow diminished and stopped in three months. A short flow came again, and I made one more application of one hour. In one year there was a marked reduction in the mass of tumor. The flow had stopped entirely. Each year the mass grew smaller until it became wholly insignificant. The patient meanwhile enjoyed perfect health, and a recent examination shows the tumor practically gone. The case is illustrated from accurate notes (Fig. 2).

Before speaking of later cases it is of interest to note the enthusiasm with which Drs. Kelly and Burnham have recently adopted this method in a recent report of twenty-one myoma patients.

It will surprise only those who have not witnessed the energetic action of radium to know that so small a tube of this powerful agent can exert a restraining and alterative force. The beauty of its application to so deep a cavity, unapproachable from within by *x*-rays, is manifest. But that its



A B

Fig. 5.—A, 55 mg. radium element in celluloid holder; B, 100 mg. in two holders joined together.

action resembles that of a Röntgen tube is worth a moment's explanation.

It has been recently demonstrated by Kroenig and Gauss that an intense, costly and almost dangerous use of penetrating *x*-rays from without, is capable of arresting menorrhagia and causing absorption of a fibroid tumor.

The gamma rays from radium, as also from the *x*-ray tube, are the deep penetrating force, but in themselves they do not effect the repression of tumor cells. This is brought about by the beta rays only. These are generated in the tissues through impact of gamma rays with all substances through which they are passing. The liberated beta electrons are immediately brought into action. These have been proved to be the efficient agent. (See Medical Record, Nov. 28, 1914.)

In addition to the intense far-reaching gamma radiation, we have also from radium an immense local exhibition of beta radiation close to the tube, which is absent in *x*-ray tube treatment. This has the tremendous advantage of local effect on the bleeding lining of the uterus. Its effect on the hypertrophied tissue is, to speedily bring about vascular blockade, lymph infiltration and cell retrograde, followed by restoration to healthy conditions.

To illustrate this great penetration, I have frequently placed upon the abdomen a photograph plate in dark paper envelopes, between which and the skin are fixed some lead devices which will be photographed by the radium resting in the uterus. To illustrate this effectively, the annexed sketch (Fig. 3) shows a recent large fibroid in a thick walled abdomen, on which was laid such a plate with lead devices stuck to it. The radium was left two hours in utero. Penetration of tumor and flesh was twelve inches. The picture on the photograph plate is shown (Fig. 4) and leaves no doubt of the all-pervading penetration of the gamma rays.

For years I have applied radium which is contained in very thin glass tubes, confining it in either vulcanite, silver, lead or gold holding tubes, to filter

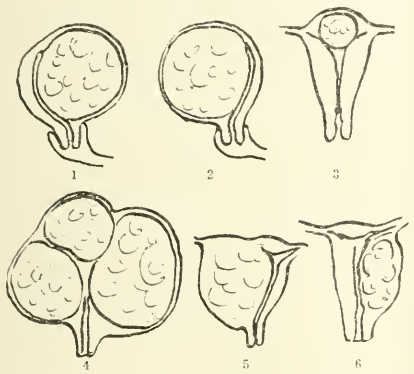


Fig. 6.—Types of uterine fibroid in which radium is curative. 1, Anterior; 2, posterior; 3, fundus; 4, general. 5 and 6, lateral.

out somewhat the soft beta rays, which are restrained by one-tenth of a millimeter of lead. But, better than all, are celluloid holders of the size and thickness of an ordinary goose quill. These offer little barrier to the passage of the beta rays, protect the radium, and can be sterilized. I have had them made for me by the thousand at slight cost, and do not use them twice. The length is ten centimeters, but two can be joined by wrapping adjoining ends with three or four turns of chiffon sealed by collodion (Fig. 5). Thus, in a deep uterine canal purified radium tubes can be held in contact with every part. It can be easily inserted in a tortuous canal where a straight silver holder might do damage. It is only necessary to compress the celluloid tube between the contained radium tubes and a jointed tube is formed adapted to the bends in the canal and can be safely pushed in.

In the case illustrated (Fig. 3) profound anemia from almost continuous hemorrhage was exhausting the patient. Without anesthesia, the cervix was purified by iodine, and a sound passed six inches into the cavity, which bled four ounces from the probing. This was at once checked by the smooth, long radium tube, containing fifty milligrams radium element, kept in two and a half hours. It was followed in four days by one hundred milligrams radium element in a very long tube which remained in for two hours.

This method seems to me to afford the maximum benefit with the maximum simplicity.

In the early intrauterine use of radium for fibroids, I felt the need of great caution and used moderate treatments at long intervals. Every new case treated has given me greater confidence in the use of larger doses and less frequent application. From my experience to date, I am of the opinion that speedy and wonderful results can be obtained by using from fifty to one hundred milligrams (radium element) in concentrated form in tubes placed in thin, smooth applicators without filter for one application of two hours. If, after two months, hemorrhage recurs, that may be repeated. The first concern is to stop bleeding. Incidental benefit comes from slow shrinkage of the tumor. Every six months examination will reveal its diminution. In some cases entire disappearance follows.

Thus far one may say that ten years' experience has demonstrated to me the persistence of good effect in menorrhagia of fibroids. The uniform reduction of tumors follows the prompt and permanent arrest of hemorrhage. I am inclined to think it wiser to obtain slow reduction by treatment as above indicated rather than by any more intense radiumization looking for extremely rapid disappearance. This caution may favor the preservation of a healthy uterine mucous lining which, to a woman desiring maternity, would be better than to risk cicatricial tissue which might replace a too violently altered membrane.

During twelve years my radium work has been divided in interest in all fields of surgery, and I have continued to offer myomectomy or hysterectomy to the greater number of cases presenting themselves, but I am now convinced of the efficacy and brilliant results of this painless and innocent use of radium in such cases as are here illustrated from my note books (Fig. 6). I regard it as the procedure of choice in all cases except pedunculated fibroids.

In all I have followed twelve typical and severe cases with the results demonstrated in this paper, and am satisfied the treatment of fibroids and menorrhagia has entered upon a new era.

13 West Fiftieth Street.

RADIOCHEMICOTHERAPY; THE INTERNAL THERAPEUTICS OF THE RADIO-ELEMENTS.

By WILLIAM JAMES MORTON, M.D.,

NEW YORK.

FORMERLY PROFESSOR OF THE DISEASES OF THE MIND AND NERVOUS SYSTEM AND OF ELECTROTHERAPEUTICS IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

In so far as the science of medicine relies upon the principles of radioenergy, the therapeutics of light, heat, and electricity, including the Roentgen ray, are fairly well established. But the therapeutics of the radioelements as relates exclusively to their internal administration as medicines offers a comparatively new and fertile field for exploration. Of these elements, thirty or more in number, radium, the most striking in its characteristics, has thus far claimed predominant attention. But radium is but one of the long uranium series and there remains

the collateral series of actinium and the thorium series in which mesothorium already rivals radium. Potassium and rubidium also are both fairly radioactive, though along lines not yet understood.

To this internal use of the radioelements the writer would apply the term *radiochemicotherapy* and would propose in the interest of an advanced therapeutics a brief survey of some of the medical and surgical possibilities inherent in them. To that end it will be useful to present them in tabulated form together with their types of rays and their period of half decay.

RADIOACTIVE SUBSTANCES.

TABLE I—URANIUM FAMILY OF RADIOELEMENTS.

Element	Rays	Period of Half Decay
Uranium I	Alpha	About 5,000,000,000 years
Uranium X_1	Beta, Gamma	24 6 days
Uranium X_2	Beta	1.5 days
Uranium II	Alpha	1,000,000 years
Ionium	Alpha	Greater than 200,000 years
Radium	Alpha, Slow Beta	1,690 years
Emanation	Alpha	3.85 days
Radium A	Alpha	3 minutes
Radium B	Beta, Gamma	26.8 minutes
Radium C	Alpha, Beta, Gamma	19.5 minutes
Radium D (radio lead)	Slow Beta	16.5 years
Radium E	Beta, Gamma	5 days
Radium F (Polonium)	Alpha	136 days
Actinium	No rays	?
Radio-actinium	Alpha, Beta	19.5 days
Actinium X	Alpha	10.5 days
Emanation	Alpha	3.9 seconds
Actinium A	Alpha	.002 seconds
Actinium B	Slow Beta	26 minutes
Actinium C	Alpha	2.1 minutes
Actinium D	Beta, Gamma	3 47 minutes
Actinium E	?	?

TABLE II—THORIUM FAMILY OF RADIOELEMENTS.

Element	Rays	Period of Half Decay
Thorium	Alpha	1,300,000,000 years
Mesothorium 1	Rayless	5.5 years
Mesothorium 2	Beta, Gamma	6.2 hours
Radiothorium	Alpha	2 years
Thorium X	Alpha	3.64 days
Thorium Emanation	Alpha	54 seconds
Thorium A	Alpha	0.14 seconds
Thorium B	Beta, Gamma	10.6 hours
Thorium C1	Alpha	60 minutes
Thorium C2	Alpha	Very short life
Thorium D	Beta, Gamma	3 1 minutes

TABLE III—OTHER RADIOELEMENTS.

Potassium Rubidium	Beta rays, 1-1000 of the activity of the beta rays due to an equal weight of uraoium.

Chemically, all the above radioactive substances are independent elements. They differ, however, from the other known elements in that their atoms undergo a continuous spontaneous disintegration by reason of a loss, in fixed ratio to each atom, of a part of its substance projected at great velocity—and termed a "ray." The residue, after loss of the radiated particle, becomes a new element, of new atomic weight, and new chemical and physical properties. It may be gaseous or solid. The rays are termed alpha, beta, and gamma, and possess individual properties of their own. Their discovery is due to the work of Becquerel, Lenard and Roentgen.

These facts are mentioned to point out that we must extend our horizon as regards the radioelements and must take into account not alone (1) the properties of the radioelement as a source of radiation, but also (2) its properties as a chemical.

These two properties are essentially dissimilar. They may act conjointly as when the element is used as a drug, which then exhibits its characteristic rays, or they may act apart as when the rays alone are utilized, as for example the application externally of the gamma rays of radium C or those of mesothorium.

The conjoint action, for which I am now asking consideration, we may well, as above said, term radiochemicotherapy, a new aspect of medical science forced upon our attention by reason of the discovery of the radioelements. I regard it as quite probable that ultimately radiochemicotherapy, namely, the internal use of the radioelements as medicinal drugs, will, by reason of its greater scope of general applicability, surpass in value anything now gained by the use of the rays from the exterior. For, employed internally, namely, as a drug, the element behaves, first, chemically by making the usual combinations in the various tissues, and second, when thus localized, even for a short time, exhibits at that point its effects due to its radiation. It is evident that, thus fixed within or in immediate contact with cells, by reason of nearness of action a small force may produce an effect as profound as, if not more profound than, a much larger force acting at a relatively greater distance. If the radioactive chemical has at the same time selective action for a given tissue or tissues, as have, for instance, the heavy metals, quinine, arsenic, iodine, etc., the chances for selective radioaction are much enhanced.

The writer of this article some years since conceived the idea so to fix and localize a metallic or other radioelement in cancer tissue as to obtain both the chemical and the radiation effects at the same time, thus supplanting and perhaps excelling the results obtained by the external use of the rays. To carry out this plan this paper serves both as an introduction and to lay the foundations for a practice in which he can already claim a very considerable success based upon a long series of chemical and physiological experiments still in progress.

External Use of the Rays.—As regards radium (radium C), available quantity and improved technique are slowly but surely demonstrating the transcendent value of this radioelement for the treatment of cancer. No means hitherto known except the closely related Roentgen ray has ever proved to be selectively deterrent or annihilating to the cancer cell's proliferation and life. Massive dosage and filtration of undesired beta and secondary rays insure successes not hitherto attained.

For external use, also, mesothorium is quite the equal of radium C as a source of beta and gamma rays. In the final triumph of external radium therapy it is no small gratification to the writer to recall that in 1907 in a comprehensive article[1] based upon some years of actual work in radium therapy, he published technique and results which may as well have been written today so far as regards success and detail except as to the point of filtration of rays, a modern improvement. Indeed, to the pioneers in more than a decade's work in external radium therapy the world over it must seem not a little amusing to see how the subject has apparently only recently been discovered.

But it is not intended in this paper to enter upon this branch of the subject. I believe we have now reached a point where external radium therapy rests upon a firm basis of scientific approval, and that therefore we may with advantage turn attention further afield, namely, to the internal administration of the radioelements. In this field the administration of radium emanation has already assumed a dignified importance and its practice is growing apace, while, both externally and internally, polonium, uranium X, thorium X, thorium B and D, actinium X, actinium D, and others of the thirty

new elements, have a power and a specificity uniquely their own.

Radiochemicotherapy or the Internal Administration of the Radioelements.—Radium emanation (radioactive water). Passing down the uranium series we arrive at radium metal, with a half period decay of 1690 years. A fixed ratio of its atoms in turn explode, throwing off at a great speed an alpha particle. The residue of the atom after the expulsion of this alpha particle is the emanation now suddenly taking on the form of a gas. The expelled alpha particles are helium, a monatomic inert gas, incapable of chemical combination. But inert as is the ejected alpha ray, helium, the residual emanation holds a vast potential of energy, exhibited both in itself and successively in the remaining members of the series. Thus, emanation atoms in turn throw off alpha particles and the residue becomes radium A, a metallic element of very short life. Next succeeds radium B, of life of about 27 minutes, and next radium C. Atoms of radium C are now torn asunder in the severest explosion of any occurring in the series. Alpha, beta, and gamma particles (rays) are shot forth, the alpha at high speed, the beta with nearly the velocity of light, capable of penetrating all metals, and the gamma similar to Roentgen rays, but 40 to 100-fold more penetrating. Some of the succeeding explosions of these retrograde transformations are tame in comparison. But they end in polonium (radium F) which, weight for weight, has an alpha ray activity that is about 6,000 times greater than that of radium.

From the foregoing it is obvious that radium-therapy is practically radium-emanation therapy, since from the emanation springs not alone its own alpha rays, but also, almost directly, the radium C, whose violent alpha, beta, and gamma rays provide the basis of our present radium therapy. And this emanation is peculiarly adapted to general therapeutics since it is absorbed by fluids and may be administered internally by the mouth, may be inhaled and absorbed into the blood stream by way of the lungs, or may be condensed in glass tubes, and for a brief period of time take the place of radium for external use.

From the time of the Romans the striking curative results arising from drinking or bathing in the waters of certain natural springs or spas have been recognized. Miners working in the uranium mines noted that they were free from rheumatism and other ailments. As the centuries elapsed the "Brunnengeist" or Spirit of the Springs became a household word to sufferers who drank their waters now known to have circulated through beds of ore containing radium, thus absorbing the gaseous emanation from crevices and chambers where it accumulated.

As regards the curative value of these springs, chemical analysis failed to give an adequate explanation. Having analyzed the waters of the Gastein Springs, Baron Liebig prophetically ascribed their healing qualities to electric effects. He spoke more truly than he knew, for the rays fundamentally act as an internal electrification of an order not hitherto practised in electrotherapy. And Burckhardt-Eble, in 1835, in a book on the subject of the curative results due to the waters of this same spring, after excluding the saline contents of the waters as having any part in the cures, wrote: "We therefore conclude that the waters contain a gas, the existence and classification of which will in due time be discovered and recognized as the acting substance."[2] The discovery came only in 1903. The gas was the radium emanation.

It is thus that nature and accident and prophecy often point the way to discoveries of the highest importance to the human race, for it is now established beyond question that the waters of these springs contain the radium emanation in varying but considerable amounts, and still further that this emanation, as now scientifically procured by laboratory methods, possesses healing powers far beyond the conceptions based upon earlier experience.

Since the emanation is a gas, it soon escapes from the water. Emanation water, removed from the influence of radium, loses its strength, one-half in four days, one-half of the remaining half in eight days, and practically entirely in one month. For this reason it should be drunk at its source, or, if bottled, soon after bottling.

The degree of activity of the radium emanation dissolved in water is expressed in terms of curies or in Mache units per liter. Avoiding details, we may simply say that the usual ionization current due to the emanation gas held in solution in a liter of water and expressed in terms of electrostatic units is, for convenience, multiplied by 1,000 to give the result in Mache units, and further that one curie is the amount of radium emanation in equilibrium with one gram of radium element. This quantity measured by the ionization method gives 2.67 million electrostatic units (0.89 milliamperes). Therefore, expressed in Mache units, one curie of emanation per liter would equal a strength of about 2,670 million Mache units. One microcurie is the quantity of radium emanation in equilibrium with one microgram (one millionth of a gram) of radium element. Therefore one microcurie (corresponding to one microgram of radium element) per liter equals a strength of about 2,700 Mache units. Here we reach terms easily comprehensible for comparisons and for exact dosage.

Internal emanation therapy offers problems differing from the external. In the latter the alpha rays, which constitute perhaps 90 per cent. of the whole, cannot penetrate the epidermis, but, employed internally, the alpha rays, powerfully ionizing, can exert their full and their especially differentiated effects. To this must, of course, be added the effect of the beta rays, and to a lesser extent that of the gamma.

Action of the Emanation.—The action of the emanation upon plant growth has been studied by various authorities. From it we may draw useful parallels to its action upon human beings. Julius Stoklasa,[3] using radioactive water from the springs of St. Joachimsthal (300-600 Mache units per liter, Franzenbad (150 Mache units per liter), and Brambach (1,700-200 Mache units per liter), saturated the soil of growing plants and noted the effects upon cell increase and growth. The results are so remarkable that I will produce them. It was found that with 96 Mache units there was a great increase in dry weight of the plants, which had been exposed to emanation during 46 days' growth, as shown by the following table:

	Radioactive Water, Gm.	Non-radioactive Water, Gm.
Pisum arvense	6.873	2.137
Lupinus augustifolius.	3.793	1.845
Vicia faba	12.887	6.009
Hordeum distichum	9.085	0.906

In other experiments (70 Mache units per liter) there was an increase of from 62 to 158 per cent. in the dry weight of the plants over the dry weight of control plants.

It must be equally noted that a certain increase of the emanation at first increased growth, but later on retarded it, as shown in the following table of results using buckwheat:

	Dry Weight of Plant
Inactive water	9.45 gm.
Water containing 30 Mache units	13.54 gm.
Water containing 60 Mache units	19.54 gm.
Water containing 300 Mache units	Bad effect

These results as regards dosage emphasize a generalization in respect to all radiation treatments, as well, indeed, as to many drugs, namely, that a certain relatively small dose stimulates cell action; a certain larger dose is noxious to some cells and not to others (selective action), and a still larger dose is destructive to all cells.

Again, Dr. H. H. Rusby, dean of the Columbia University of Pharmacy, has demonstrated practically in a series of elaborate experiments upon field crops covering hundreds of acres that radium (which means, of course, the radium emanation) is a wonderful stimulant to plant life. The increase in production in lettuce was 29 per cent., in cucumbers 35 per cent., in squash 35 to 44 per cent., in radishes 70 per cent., etc., etc., through a long list.

Dr. Rusby's experiments demonstrate that the entire plant, and more especially the root, becomes radioactive, and that this activity resides in the contained water of the plant. The roots absorb the radium emanation water from the soil and thus root crops especially benefit. From this general point of view we have a striking illustration of the mode of action of radium emanation water (as, indeed, of other radioactive fluids to be alluded to) when employed in human beings by actual drinking. The water, charged with the emanation gas giving off its alpha rays, and also continuously transmuting into radium A, B, and C, with their alpha, beta, and gamma rays, circulates in all the juices of the body and stimulates the cells to their normal healthy function, including the assimilation of food, which, as in the case of plant fertilizers, must be furnished in due supply. In the case of smaller animals to whom large doses of radioactive substances have been administered, it is possible to obtain a picture of the long bones through their direct action upon a photographic plate.

Effects Upon Human Beings.—It would far transcend the limits of this paper to enter upon this branch of the subject fully. To those interested a presentation of general results may be found in two articles by Dr. S. Saubermann of Berlin, and one by Prof. Paul Lazarus of Berlin.[4]

The progress of radium emanation therapy has been slow in this country, though established on a firm basis in Europe through the labors of eminent authorities such as Von Noorden, Von Neusser, Kraus, Paul Lazarus, Winternitz, Gudzent, Minkowski, Klemperer, Haubner, Saubermann, Mache, Curie, Laborde, Foveau de Courmelles, Finzi, the Radium Institute of London, and many others. Over a thousand papers on the radium emanation have already appeared.

The primary effect of the emanation treatment is, with little doubt, largely due to ionization produced by the alpha and beta rays. It is therefore fundamentally electrical. The activity of the various ferments of the body is increased. Chemical reactions become more active. This means an increase of the rapidity of tissue oxidation—in short, an increase of the sum total of all the chemical exchanges known as metabolism together with a corresponding elimination of waste products. As Saubermann says, "disturbed metabolism is nothing but disturbed fermentation."

The above is a broad view of the effects. Specifically the emanation causes peripheral blood vessels to dilate, thus reducing blood pressure, reduces the viscosity of the blood, thus facilitating its circulation, assuages pain to some degree, increases the amount of hemoglobin and the number of the erythrocytes, and while at first increasing, in larger doses diminishes the number of the leucocytes. It also has been claimed that it causes solution of uric acid. This on good authority is denied, though it is admitted that the nitrogen output (as urea) may be increased.

The emanation treatment has been used with success in rheumatism of the joints and of the muscles, in rheumatoid arthritis, in gout, particularly chronic gout, in neuralgia, sciatic and otherwise, in arteriosclerosis, in nephritis, in diabetes, in constipation, in locomotor ataxia, in anemia, and chlorosis. Favorable results in the above, as well as other diseases, are supported by eminent authorities.

Apropos of the effect of the emanation upon human beings both in a specific class of cases and in general, I quote from the authoritative source of the London Radium Institute as follows:[5]

"Arthritis Deformans.—The daily administration of 250 c.c. of radium emanation solution of a strength of not less than 1 millicurie per liter to patients suffering from this obstinate and painful and crippling disease is sometimes attended by very remarkable results. . . . Little or no improvement can be looked for in instances where cartilaginous or osseous changes are predominant, and the radium emanation solution is powerless to bring about the absorption of osteophytic growths or the loosening of fibrous or bony ankylosis. . . . When limitation of movement is due to periarticular fibrous thickening, considerable increase of mobility often follows on the taking of the radium water, and enables patients to perform actions, such as feeding themselves, brushing their hair, shaving, etc., which they may have been powerless to do for some months or even years. . . . Other favorable effects of the treatment are the lessening or disappearance of the muscular and articular pains, the grating of the joints on movement is not so marked, the muscles regain much of their lost tone, and the patient's general health is much improved. This is especially noticeable when the patients are suffering from anemia, the hemoglobin index being rapidly increased. . . . Much research work has yet to be undertaken to enable an accurate opinion to be formed of the manner in which radium emanation solution produces these results, as its action appears to be a multiple and highly complex one, but the reinforcing of the body ferments, the increase of tissue oxidation, and the dissolving uric acid are undoubtedly factors which contribute to its success."

One millicurie per liter represents 2,700 M.U. $\times$ 1,000 = 2,700,000 M.U. $\div$ 4 (250 c.c.) = about 700,000 M.U. daily. This is large dosage.

Probably the most important effect of the absorbed emanation is its action upon the ferments:

of the body as referred to above. The emanation increases autolytic fermentation (Neuberg), increases the activity of the peptic ferment (Bergell and Bickell), increases the activity of the pancreatic ferment (Braunstein and Bickell), of the lactic acid ferment (Richet), increases the solubility of uric acid salts (urolytic fermentation), increases the glycolitic fermentation (Deutelmoser and Saubermann) and increases the activity of diastatic fermentation (Edelstein).[2]

Another effect which I believe must be taken strongly into account is that upon the glandular tissue and upon the lymphatic organs. The glands of the skin and the cells of the testicles and the ovaries are especially sensitive, also the cells of the spleen and the bone marrow. A similar action upon the ductless glands is to be presupposed. These glands are interrelated in cause and effect, and upon

FIG. 1.—Five-gallon jar containing sixty pounds of Joachimsthal pitchblende and water. From the two quart bulb above, fresh water is introduced as fast as radioactive water, after leaching through the powdered pitchblende, is drawn out at the stop cock below. Thus no air enters the large jar and it is always sealed.

their proper condition depends not only the health, the temperament, the character, the power and capacity for accomplishment, but also duration of life itself. It has been said that "a man is as old as his arteries." We would change this and say that "a man is as old as his ductless glands." If his thyroid, his adrenals, his pituitary, and the others functionate properly the old age of today becomes comparative youth with the retention of physical and mental vigor. Always presuming that the dosage and selection of radioactive substances are properly adapted, it is entirely within the bounds of present clinical experience to set into healthy glandular function the entire system of glandular organs and tissue, thus rejuvenating the prematurely failing body.

"*Activators.*"—Apparatus for the production of radium emanation for the treatment of disease is at the present time both here and abroad being extensively pressed upon the attention of both the medical profession and the public by manufacturers and producers of radium. There exists a live interest in the subject. Perhaps the writer may be allowed to claim that in respect to radium emanation activators and the valuable medical results of radium emanation therapy he was not merely wise after the event, for he devised apparatus and put this method in practice in 1903 and published it in detail in 1904 and 1905.[3]

One main object of his early publication, however, was to present not alone the method as now adopted, but also what seemed to be then and what seems to be now to the writer even a better way of producing radium emanation water. This was to employ the natural radium ore, pitchblende, and by immersion to secure to the water the continuously emitted emanation. I employed a hundred pounds of the ore and produced highly radioactive water, substantiating this by careful analysis and report upon it by Prof. Geo. B. Pegram and Dr. L. V. Case, of the Department of Physics of Columbia University. I also reported in this article a case of a superficial rodent ulcer of the cheek cured by drinking the water and taking esculin for its fluorescent quality.

My one hundred pounds of pitchblende has been producing continuously radioactive water since 1903, and I have as continuously employed it therapeutically. The water is of an activity of 80,000 Mache units and upward, a very high figure and accounting for medical results not to be accomplished by smaller dosages. I am glad at last to be vindicated by the corresponding recent dosages adopted, as already referred to, by the London Radium Institute.

I find an advantage in using pitchblende to be that I obtain not alone the radium emanation and its sequent products, but also the actinium and possibly thorium emanations and their sequent products. I estimate that 100 pounds of the best selected and purest pitchblende may contain say 1/3 of a milligram of radium element per kilogram (2 lbs.) of ore. This would be equivalent to about 30 milligrams of radium element. Now, 1 milligram of radium element corresponds to about 3,000,000 Mache units. But the pitchblende, even though reduced to the size of fine sand, occludes a vast amount of the emanation in its own particles. Therefore the resulting concentration of the emanation per liter of water is reduced and must be arrived at by actual measurement. The same holds true of all activators. Radium sulphate, commonly used, yields to the water only about 2.5 per cent. of the total emanation produced.

It is, of course, highly desirable that radioactive water and activators offered for sale should be of sufficient strength. As we have seen, the radioactive value of radioactive water may be and is measured in terms of Mache units, just as the electricity we use and pay for in our homes or industrially is measured in terms of kilowatts, or as commodities are measured in terms of pounds or bushels. Clinical experience has now taught beyond question that, as regards animal life, there exists a remarkable lack of toxicity and a tolerance to both the radium salts and the emanation administered internally. Clinical experience has equally taught that a dosage high in Mache units is required to produce satisfactory results in serious diseases.

The Radium Institute of London has used a radioactive water of as high as 2,700,000 Mache units per liter. As already mentioned, the writer has been using continuously radioactive water of 80,000 Mache units, often running up to 2,700,000 Mache units. Most of the waters now offered for sale promise a radioactivity of about 2,700 Mache units per liter.

Recently a patient said to me, "I have been paying my druggist $1 per liter for my radioactive water and I suppose yours is the same price." Now, the druggist's water was 1,000 Mache units per liter, making the price of mine, at the druggist's rate, $80 per liter. I doubt if the patient comprehended the difference. This incident I relate simply to emphasize the one point, namely, that every successful treatment demands that every apparatus sold should be guaranteed to produce continuously a definite amount of emanation and that all radioactive water sold should likewise be guaranteed as to its radioactivity in Mache units. It is needless to say that the quantity should be large and not small—opinions may differ, but personally I should consider that 10,000 Mache units per liter should be a minimum.

Fig. 2.—Radiogram made by radioactive water. Exposure 30 minutes.

Finally, upon the basis of personal experience with emanation water since 1903, I agree entirely with Dr. Saubermann, who, in closing his address before the Roentgen Society of London, says: "I now conclude my lecture in the words of Professor Kraus, 'The continued existence and future of emanation therapy depend upon the use of sufficiently strong doses.'"

Internal Use of Radium Salt Solutions.—The waters of some natural springs, notably those of Kreuznach, contain small quantities of radium salts in solution; others contain only the emanation. In either event, radium acts, as has been said, by its emanation only. Therefore to inject radium salts intravenously or to give them by the mouth is to look to the emanation for therapeutic results. But objection has been made that the radium salts used internally, or their subsequent transmutation products, may exert a harmful action by accumulating and remaining in the body and thus exerting a continuous radioactivity to the detriment of the tissues involved. Personally, I have had a long experience with the internal administration of radioactive substances, particularly uranium X and thorium X, and I have yet to observe the least harmful effects. True, it has been claimed by Dr. Lazarus Barlow, of the Middlesex Hospital, London, and Professor Caan, of the Heidelberg Radium Institute, that normal tissue is radioactive, that the older the person, the more radioactive the tissue, that the tissue of a carcinomatous person is more radioactive than that of a healthy individual, and that carcinomatous tissue is more radioactive than normal tissue—all of which, in my mind, goes to show that not only is radioactivity a normal exhibit of universal matter, but that furthermore it selectively has a specific attachment to cancer tissue. This latter we know already from experience with external radiation, and it therefore affords us the best of hopes for securing a beneficial if not indeed a curative reaction in the case where we administer internally and in sufficient quantity any of the radioactive substances, radium pre-eminently.

I therefore see no objection to the internal administration of the radium salts. Certainly thus far no injurious effects have been noted from giving quite large doses by the mouth or intravenously. While small doses had been thus used in Germany and results reported, it remained for Dr. Frederick Proescher, director of the Pathological Laboratory of the Standard Chemical Company of Pittsburgh, Pa., to extend the method to much larger doses by a series of careful experiments upon the lower animals and upon man.[7] Cases thus treated by Dr. Proescher with from 100 to 200 micrograms during a period of more than a year have shown no injurious effects. In one case of leucemia almost three milligrams of radium element were given. As to a fatal dose for human beings, according to his animal experiments, a dosage of at least 50 to 60 milligrams would be necessary to show pathological changes in the internal organs, especially in the liver and bone marrow.

On the whole, Dr. Proescher advocates a dosage of from 100 to 200 micrograms intravenously, stopping the administration at a total of one milligram. It is fairly evident from these experiments that radium used internally is not as toxic as had been supposed. It would appear that the largest part of the radium is slowly excreted after acting both chemically and radioactively.

Thorium and Thorium X.—Thorium X may be obtained by any of the well-known methods of chemical separation. I usually precipitate with ammonia, evaporate to dryness, and volatilize the ammonium salts. The residue is intensely radioactive, due to the thorium X, which now may be reduced to solution with hydrochloric acid, neutralized, and arranged for dosage. By this method both the emanation and the "active deposits," thorium A, B. C and D, are retained in the filtrate. About fifteen pounds of thorium nitrate, which sells at about $5 per pound, will give (provided the mesothorium has not been removed) thorium X equivalent in activity to one milligram of radium element. Chemically metallic thorium and its insoluble compounds are non-toxic. The toxicity of the nitrate is low. Used by intravenous injection, thorium X in a dosage of 1,500,000 Mache units, within the first 24 hours, causes weakness and loss of appetite, followed on the next day by signs of general improvement. A case of fatal result after the injection of 5,000,000 Mache units has been reported by Professor Orth.[8] A dose of 1,000,000 Mache units is now regarded as entirely safe, though a period of two or three weeks should be allowed between injections.

On the whole, thorium X and its successive trans-

mutation products are decidedly more toxic than radium. But at the same time its clinical effects are more positive. It has a great affinity for the lymphatic structures and has also been most successfully employed in articular rheumatism, caus-

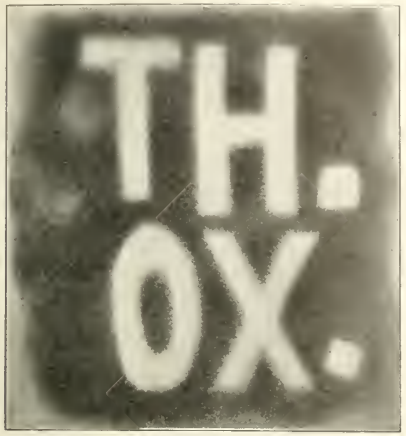


Fig. 3.—Positive of radiograph (autograph) of thorium oxide. Lead letters laid on light proof photographic plate and thorium oxide powder spread over them. 20 hours' exposure.

ing disappearance of pain and swelling and actual anatomical improvement of the joint. Its toxicity, or potency, is probably radioactive rather than chemical and possibly due to selective action to some extent.

The emanation may be driven from thorium oxide by heat and inhaled. This method I employed extensively some seven years ago, but with no pronounced success in any direction. I now prefer to give a thorium X solution by the mouth, arriving gradually at a cumulative effect. In this manner the emanation, whose half period is 54 seconds, makes one complete blood circulation, remaining at least long enough to leave its disintegration products behind it. The emanation can be demonstrated in the expired air and in the urine for five or six hours after administration of a single dose. Thorium X is soluble in physiological salt solution, and because of its short life must be used soon after preparation. Its principal ray product is the alpha ray, as no beta and gamma rays of importance come into play except during the brief life of thorium D. Clinically, keeping in view the idea of specificity of the rays, to be alluded to later on, I depend upon thorium X solutions for an alpha ray effect and upon uranium X solutions for a beta ray effect, administering in each case by the mouth.

Thorium X, though expensive, is not as expensive as radium. It has a wide range of therapeutic usefulness. For details as to the chemical properties and activities of the radioproducts of thorium, see McCoy and Viol[7] and Soddy.[8]

Uranium and Uranium X.—Uranium, unlike radium, actinium and thorium, has no emanation. It emits alpha rays and the residue becomes uranium X, next in the order of disintegration downward through radium to polonium. All uranium salts contain uranium X from a minimum to a maximum, according to the age of the salt. Freshly prepared, the amount is almost nil; in 24.5 days half value is reached, and in six months the full value of equilibrium is nearly obtained. The peculiarity of uranium is that it gives forth highly penetrating and highly ionizing beta rays about equal in intensity to those of radium C. To these beta rays is due the strong photographic effect of uranium and its salts. Its gamma radiation is very feeble and negligible. Uranium X may be chemically separated from uranium by any one of several methods described by both Rutherford and Soddy. In uranium X I see a specific agency for internal use of the beta rays alone. In the interest of future and accurate internal radiotherapy it seems to be important to use a single and specific ray, thus avoiding what may be termed the "shotgun" dose of emanation carrying alpha, beta, and gamma rays. Most assuredly in the latter case the alpha ray effect and the beta ray effect must conflict, since the one is of atomic proportions carrying a positive charge and the other a subatomic particle or electron, 1/1700 of the size of the first and carrying a negative charge, if, indeed, it is not itself negative electricity. The same argument in favor of a distinction as to the action of alpha, beta, and gamma rays applies to thorium, where in thorium B and D we have powerful beta rays with some gamma, but no alpha. To the ray effect must be added that of the chemical constitution of the element. Uranium as a chemical may be safely given in a dosage of from one to five grains three times daily.

Potassium and Rubidium.—It is noteworthy that as regards the therapeutic use of these elements, no attention so far as I know has yet been paid to their comparatively recently discovered radioactive properties. They and their salts have been found to exhibit two new and specific types of beta ray radioactivity, though it is considered doubtful at the present time whether we have to do with atomic disintegration of the type now established for the other radioelements. All the potassium salts show a beta ray activity of about the 1/1000 part of the beta ray activity of uranium. Rubidium exhibits

Fig. 4.—Same as Fig. 3, employing thorium nitrate powder; the solution acts in the same manner. 20 hours' exposure.

a beta-ray activity similar and yet distinct from that of potassium. Actually the activity of rubidium is very much greater than that of potassium, though the potassium beta ray is about nine times more penetrating than the rubidium beta ray. The

rays are about as penetrating as those of uranium X and are easily deviated by an electric field.

No chemical element has a more permanent hold upon the confidence of the medical profession than potassium and its various salts, particularly the iodide. The sale of potassium salts weight for

Fig. 5.—Positive of radiograph (autograph) of uranium X solution as at first obtained. Paper wet with the solution and dried is laid upon a light proof photographic plate. 20 hours' exposure.

weight probably exceeds that of any other drug in the Pharmacopœia. The action of the iodide of potassium has never been explained. Why use the potassium salt so efficiently in syphilitic affections and find no use for the sodium iodide in the same disease? May we venture the answer that its medicinal value is due to its radioactivity? A radioactivity of a degree of 1/1000 part of uranium element of equal weight is an energy not to be regarded lightly if we take into account the concomitant circumstance that solutions of potassium salts invade not alone the blood but also all the juices of the body. Each cell of the body enters into osmotic relation with the salt solution and takes to itself or gives up to the solution some of its identity at the moment.

And what shall we say of the numerous pharmacological and therapeutic interpretations of uranium and thorium salts with which our text books abound, comprising as they do extensive results of experimentation upon the lower animals and experience in their use with human beings? Obviously, a great, if not a preponderating influence, in the results reported must have depended upon the enormous ionizing effects of the uranium X and the thorium X contained in the drug at the moment of administration. For if the uranium salt, say the nitrate, had been freshly prepared within a few days of its use, it would be non-radioactive, whereas the same specimen of the salt, laid aside for 24.5 days to allow of the accumulation of a one-half value of uranium X would be very powerfully radioactive. Had Becquerel happened to have used a freshly prepared salt of uranium instead of a crystal of uranyl potassium sulphate long in his possession—in which, therefore, uranium X had had time to reach its equilibrium, we should probably never have heard of the Besquerl rays (uranium X) and also probably the incentive to Prof. and Madame Curie to search for radium and its rays would have passed by perhaps for a long time. Indeed it is remarkable how great a part accident, or shall we say Providence, plays in human affairs. Thus it is with the therapeutic action of the potassium salts. Accident leads to its true interpretation.

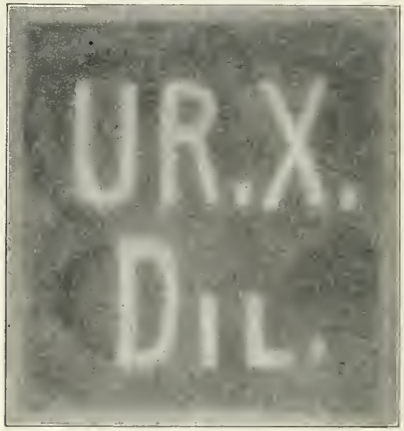


Fig. 6.—Same as Fig. 5, but diluted for internal administration by the month. 20 hours' exposure for comparison. Of these radiographs it may be observed that just as the medicine writes its own autograph on a photographic plate, so likewise it writes upon the human body into which it is taken.

Rubidium, like potassium, has been found to be a valuable therapeutic agent. Its bromide and iodide salts are very soluble in water and are well borne by the stomach. In ordinary tests of the salts of rubidium for radioactivity, its type of beta rays is absorbed by the salt itself to a greater extent than are the beta rays of potassium, owing to the higher penetrating power of the latter. Hence the deduction that the actual radioactive processes of rubidium in solution are greater than those of potassium. We may therefore draw the conclusion that rubidium deserves more therapeutic attention than has thus far been accorded to it. In radiochemicotherapy at all events it may, together with potassium, claim fellowship with its more powerful prototypes among the radio elements.

Specificity of Radiation Treatment.—The rays upon which we rely to produce therapeutic effects, whether externally projected against tissue, or internally projected in the midst of tissue, as by Internal administration of the individual radioelements are the familiar alpha, beta, and gamma. Each element of the thirty, in disintegration, gives off one or all of these rays. So different is one type from another that it must be concluded, and in a large measure it has been demonstrated by actual experiment on living cells, that their therapeutic effects differ even though they have many properties in common. The alpha rays are positively charged atoms of helium shot forth with a velocity of 12,000 miles per second, *i.e.* about 1/15 the velocity of light. Each alpha ray is a distinct ion—a helium ion. The particle has 6,800 times the mass of a beta particle, and moves with less speed, hence it is less capable of penetrating substances. It is stopped (absorbed) by 7 cm. of air, 1/20 mm. of aluminum, or practically by a sheet of paper, and yet it imbeds itself in the surface of glass and

strikes crystals of zinc sulphide with sufficient violence to cause scintillations of light. The alpha particles in fact constitute about 90 per cent. of the total radiations of alpha, beta, and gamma. It is shown (Rutherford) that the alpha rays "play a far more important part in radioactive processes than the beta rays, and that the greater portion of the energy emitted in the form of heat and of ionizing radiations is due to them." In external radiotherapy, owing to its comparatively weak penetrating qualities, this vast store of energy of the alpha particles is of no avail whatever; in fact, owing to the "burning" effects upon superficial tissue the rays are stopped by adequate filters. But the situation is reversed in internal radiotherapy where the intense physiological effects of the alpha rays have full play.

The beta ray is a negatively charged particle of a mass equal to 1/1700 that of an atom of hydrogen or 1/6800 that of an alpha particle; its velocity is that of light. Owing to this velocity and its small size it has about a hundred times greater penetrating power than the alpha ray. It is a swift cathode ray. The beta rays of radium are absorbed by about 5 millimeters of aluminum or 2 millimeters of lead. The beta and the gamma rays, while feebly ionizing as compared with the alpha rays, have a strong photographic effect, the gamma being feeble in comparison with the beta, and the alpha feeble in comparison with both beta and gamma. On the whole the beta ray is a very powerful ionizing agency.

The gamma rays are analogous to, but more penetrating than the x-rays. They are from 10 to 100 times as penetrating as the beta rays. In their flight of projection they produce beta rays all along their course, and it is more than probable that their ionizing effect in gases and their physiological effect in the treatment of disease is due to these beta rays. Under exposure to either alpha or beta rays glass turns of a violet or a blackish color. This I note continuously in the case of glass bottles, in which I dispense a solution of radioactive water for internal medication.

Therapeutically it is not reasonable to suppose that an alpha particle of large mass with a positive charge would have the same effect as the negatively charged beta ray particle of subatomic dimensions. Already clinical evidence is accumulating to show that such is not the case. This evidence need not be detailed here. In a recent communication, Dr. Robert Abbe[10] having devised a special apparatus for the separation of the rays by the well-known property of magnetic deviation, submitted both plant and animal cells to their more or less prolonged action and arrived at the conclusion that "separated beta rays from radium are demonstrated to be the efficient force most active against living cells." In this opinion he is undoubtedly at one with other observers. His accomplishment is to have demonstrated the opinion to be fact.

In internal radiotherapy this statement must be modified, owing to the far greater quantity of the alpha rays in ratio to the beta and gamma, and their peculiarly active ionizing effects, both of which qualities do not come into play in external radiotherapy. To the beta ray must be allowed its due quota of effect, but obviously the preponderating rôle will be played by the alpha ray. During a series of clinical experiments conducted now for over a year and still in progress, as to the relative influence of the alpha and beta rays administered internally, I have noted a marked difference in their effects. This is especially true as regards cancer, especially when there exists a broken down area which may be studied visibly and tested as to its secretions. I use uranium X as a source of beta rays and thorium X and radium emanation water of about 100,000 Mache units as a source of at least predominating alpha rays. To administer pure alpha rays would require the use of polonium or radium F which gives off only alpha rays and whose half period of decay is 136 days. We are hopeful that this test of polonium may soon be made, for already certain experiments have shown that certain effects are due to alpha rays alone. For instance, Altmann's granules, in healthy tissues submitted to all the rays, have been caused to disappear, but this does not occur when beta and gamma rays only are used.[11]

The above facts relate to the question of specificity of the rays themselves. But in radiochemicotherapy it becomes necessary, as has been said, also to take into consideration the chemical nature of the radioelement itself. Briefly, these elements are metals or gases. Radium element is a metal of the group of calcium, barium, and strontium, highly unstable, forming an oxide and a nitrate and ultimately a carbonate, in air. It is obtained in the form of its salts, the bromide, chloride, sulphate, and carbonate. Among the alkaline earth metals, it resembles barium most in its reactions. Uranium and thorium are long recognized metallic elements. The chemistry of the radioelements constitutes a most complex problem. Many of the elements as yet cannot be chemically separated one from the other and yet are known to be dissimilar by means of other equally reliable methods of examination. For instance, thorium and radiothorium are chemically identical and inseparable, but mesothorium, which comes between, may be easily separated from the other two. Uranium X chemically resembles thorium.

The following groups possess nearly the same electrochemical properties:[12] Radium, Thorium X, Actinium X. Radium B, Thorium B, Actinium B. Radium C, Thorium C, Actinium C. Thorium D, Actinium D.

Thorium, radium, and actinium produce radioactive emanations, each one step in the series of downward disintegration, and each capable of being condensed. Therapeutically it is believed that this gas acts as a catalyzing agent activating the body ferments. Curiously enough, while the emanation is an inert gas, its next radioactive successors ("the active deposit") are metallic, soluble in acids, volatilizable, and mechanically distributable.

That a gas, namely radium, actinium, or thorium emanation, may be dissolved in the blood stream and there change itself into a succession of metals, all, both gas and metals, highly radioactive and each capable of selective tissue combination, is surely a therapeutic thought of high interest and novelty. Or that radium, uranium, thorium, and other radioactive salts administered internally and medicinally shall undergo successive protean changes, jumping, so to speak, from element to element, and yet always shooting their rays into tissue, is calculated to inspire the idea that internal medicine yet possesses a wondrous field for investigation. Yet such is the invitation extended by radiochemicotherapy. These problems are of the utmost complexity, but they will be unraveled thread by thread from the tangled skein. Scarcely in decades

shall we know the promise and meaning of radiochemicotherapy.

In cases of cancer I have succeeded in producing both an arrest and a retrogression of the disease most decisively by the administration of the alpha and beta rays, both by the mouth and by subcutaneous injection, paying attention to the selectivity of the radioelement producing these rays respectively. The ultimate outcome of this line of progress must be reserved for another article to which this one is necessarily introductory.

In the various other diseases already referred to, I am finding that the progress already reported upon by many observers may be greatly enhanced by paying less attention to empirical results and paying more attention to a therapeutic selection of such radioelements as afford a specific action from both their chemical and their radiation qualities.

In conclusion, the proper preparation and administration of these radioactive substances constitutes one of the most subtle and refined branches of therapeutics, and it is to be fervently hoped that in the interest of general medical science and practice, some of our research laboratories will devote attention to the subject.

Summary.—1. Radiochemicotherapy is the combined therapeutic effect of two independent properties coexisting in a single chemical element, namely, radioaction and chemical action, both influenced by selectivity (specificity).

2. Thirty or more new elements have become known within a few years, of which only two, uranium and thorium, were previously known therapeutically, and these two not as radioactive, but merely as chemicals.

3. All of the thirty are radioactive and therefore produce therapeutic effects comparatively new to medicine.

4. All present a differing chemical constitution and therefore a different therapeutic action from a drug point of view alone.

5. From a radioactive point of view, all may be viewed as producers of either a positively charged or a negatively charged particle or ray, viz., alpha or beta.

6. That these rays affect human tissue in a remarkable manner is known and assumedly the action of a positive charge and that of a negative charge should be essentially different. This gives rise to a hope to establish in the future a specificity of action as between the two.

7. Already these radiations have established themselves, together with their congener the *x*-ray, as the sole agency which has specifically caused retrogression and repression of the growth of cancer.

8. This success by means of application from the exterior promises success by the use of the same rays introduced interiorly by medication in the blood and lymph streams.

9. In radiochemicotherapy the alpha rays, avoided in external radiotherapy, become of the highest importance, since in radioactive processes the greatest portion of the energy emitted in the form of heat and of ionizing radiation is due to them.

10. The radiations due to the radioelements used as medicines exert a profound and favorable effect upon the processes of metabolism. They are therefore indicated in a large number of diseases due to faulty nutritional processes, such as gout, rheumatism, anemia, etc.

11. Comparing the present success of external radiotherapy to the reasonable expectations of internal radiotherapy, the writer is of the opinion that the latter will in time far outstrip the former in successful medical service to the human race.

12. Radiotherapy in its fulfillment and radiochemicotherapy in its embryo are illustrations of the thought that the scoffs of yesterday are the medical practice of to-day, while those of to-day will be the practice of to-morrow.

13. In particular, in this line of work designated by the writer as radiochemicotherapy, it has been his aim to treat cases of cancer by causing a metallic or other radioelement to become "fixed" in the cancer tissue as iodine, for instance, becomes fixed in thyroid tissue and there exert a prolonged and intimate radiation effect, the more effective by reason of being able to utilize the highly ionizing alpha rays.

REFERENCES.

1. "Radium for the Treatment of Cancer and Lupus," read at the second International Congress of Physiotherapy, held at Rome, Italy, October 13-17, 1907, MEDICAL RECORD, November 9, 1907.
2. Quoted from article by Dr. S. Saubermann of Berlin, *Archives of the Roentgen Ray*, London, January, 1912.
3. Stoklasa: Strahlentherapie, Vol. IV, 1914, quoted from *Radium*, April, 1914.
4. Read before the British Medical Association in 1911, *Archives of the Roentgen Ray*, January, 1912, and August, 1913; read before the Roentgen Society of London, April 1, 1913.
5. Second Report, *British Med. Journal*, May 23, 1914; *Lancet*, May 23, 1914.
6. Article by Dr. Heber Robarts, *Medical Fortnightly*, St. Louis, May 10, 1904, describing Morton's activator. Article by Dr. William James Morton, "Radioactive Water and Other Fluids," *Journal of Advanced Therapeutics*, October, 1905, read at the meeting of the American Electrotherapeutic Association, September 18, 1905.
7. *Radium*, July, 1913, January, February, March, April, and May, 1914.
8. *Muenchener med. Wochenschrift*, May 21, 1912.
9. "The Chemistry of the Radioelements," by Frederick Soddy, 1911.
10. MEDICAL RECORD, November 28, 1914, "Radium Beta Rays," by Robert Abbe, M.D., New York.
11. "Radium Therapeutics," by N. S. Finzi, London, 1913.
12. "Radioactive Substances and Their Radiations," E. Rutherford, New York, 1913, p. 600.
13. "The Chemical Properties and Relative Activities of the Radioproducts of Thorium," by Herbert N. McCoy, Ph.D., and Charles H. Viol, Ph.D., *Philosophical Magazine* for March, 1913.

19 EAST TWENTY-EIGHTH STREET.

THE EFFICIENCY OF RADIOACTIVE WATERS FOR THE CONTROL OF FAULTY ELIMINATION.*

BY C. EVERETT FIELD, M.D.,

NEW YORK.

WERE it not for the fact that I have been assigned to speak to-night on radium, I feel that I should much prefer to detail my own personal observations as they relate to the delightful bit of nature's wonderland, located here in Saratoga. I could recount a knowledge of the healing powers of your waters, a tonic influence of your atmosphere, and tempered climatic conditions which, combined with the natural beauty of your surroundings, have made you famous in times that are past. Every metropolis as

*Read by invitation before the Saratoga County Medical Society at Saratoga Springs, N. Y., January, 15, 1915.

well as cross road hamlet has a reason for its very existence and I will venture the opinion that as a natural health resort, there is no spot on earth that has a clearer right to its title than Saratoga.

Before biblical times certain of the Roman Baths presented waters that were heralded to give forth mystic cures. The famous spas of Germany date their cures back to the feudal age. Here in America, tribal history among our Mohawk Indians recalls them journeying hundreds of miles to sojourn a season at Saratoga, to drink from its springs that which relieved their pains and brought new vigor to their bodies. The mysterious power and supernatural force which brought about the fabled cures was never hinted at, until, following the example of those who have studied the great foreign spas, we are hoping to ascribe to radium at least some of the peculiar virtues of these waters. The great hidden laboratory within the earth is awakening the scientific world to a greater appreciation of one of the most valuable agents of the healing art, Hydrotherapy.

That Saratoga has been blessed by hundreds of fountains, the component elements of which have been recognized, analyzed, and approved as especially adaptable to the relief and cure of chronic diseases, is known to you all. That Saratoga has carbonic springs not to be excelled in the world, is placing gems in the crown of the Empire State. With all this, however, we are not to forget another element of Saratoga's prominence—she has, what many of the great spas in the Old World have and that which others have not—all of Saratoga's springs are radioactive and several actually are solutions of the radium deposits deep down in her loins.

To-day the world at large is tremendously interested in radiumtherapy, and scientific effort in many different research stations is busy checking up its deductions on clinical achievements. It is most fitting then that we should consider for a little while just what radioactivity of the waters means; what are its possibilities in the relief of disease, and how can it best be administered?

That radioactivity as applied to the waters is a potent factor in therapy is evidenced by the fact that the most renowned spas of Europe are those which are found to be of highest radioactivity—that the saline, ferric, and carbonic principles, however, are equally important in eliminative treatments must be immediately granted. Hydrotherapy, no matter what its form, can best be appreciated by a complete understanding of its physiology. It is fitting that we have a clear conception as to the properties of one of hydrotherapy's most potent agencies, radioactivity. Not in many decades has the world held a theme of such universal interest as radium.

Radium was first isolated and named by Madame Curie in 1898. During the first five years but little was learned from this new element and insignificant was the advance made in its application in medicine until it was recognized as one of the basic factors of the healing springs. In nature, radium is found in close association with uranium ores, so minute are its quantities, however, that a single ton of carnotite, which is one of the uranium bearing ores, must be treated by over four tons of chemical solutions carried through hundreds of processes of recrystalization, over a period of nearly four months, and as a result we secure a tiny speck of a grayish-brown powder about the size of a pin head, which contains about two milligrams of radium element. When once obtained this small speck of radium evidences for a half period lasting about two thousand years the most remarkable liberations of energy known to man, and its entire life will not have been spent much short of eighteen thousand years.

Radium owes its energy to some unknown disruptive force, within each atom of the element, which results in the spontaneous disintegration of the atom accompanying the emission of the rays. These manifestations are commonly known as alpha, beta, and gamma rays, which are widely diverse in their type and power of penetration. In such a paper it will be impossible to give time to their discussions other than to quickly outline their general character. With the disintegration of radium we have produced constantly a liberation of alpha rays and emanation. It is the latter substance, a radioactive gas, that we are most interested in for the treatment of diseases of faulty elimination. Alpha rays are atoms of helium, charged with positive electricity. Beta rays are negatively charged electrons. Both alpha and beta rays exhibit marvelous powers of energy almost beyond conception. Alpha particles are shot out into space by an explosive force that drives them at a speed of 12,000 miles per second, while the beta rays have a velocity of over ten times the speed of alpha rays and nearly one hundred times their penetration. Gamma rays are defined as an ultraviolet light of exceedingly short wave length which penetrate opaque matter and excite peculiar phosphorescent phenomena in certain other elements. A small specimen of radium will cast its gamma rays through several inches of lead or six inches of battleship steel without effort. It is the beta and gamma rays that are used in the destruction of cancerous tissue.

Emanation is a gas which causes a phosphorescent action upon glass within which it is contained. It is readily absorbed by waters, oils, and innumerable other substances. Von Noorden on emanation states, "In contradistinction to all other forms of electrotherapy we possess in the radioactive substances means of carrying electrical energy into the depths of the body and there subjecting the juices, protoplasm, and nuclei of the cells to an immediate bombardment by explosions of electrical atoms. We may, therefore, designate this internal treatment with radioactive substances, internal electrotherapy."

As in the treatment of cancer the conservative operator recognizes radium as simply one more knife in his instrument cabinet, so we prefer to urge the use of radium and its emanation in internal medicine. It is only one of the therapeutic agencies that nature's laboratory has given us for the cure and alleviation of the miseries of mankind.

Although it is my privilege at this time to discuss the use of radioactive waters for the treatment of faulty elimination, it is my purpose to make it very clear that I am to discourage the thought that radium is a panacea for all the ills of human kind, or miraculous as a rejuvenator. We must recognize in this element and in the energy it imparts simply one remedy which when scientifically administered in conjunction with other recognized measures of treatment assures us of a definite activation of the body's excreting organs and its ferments. I think it is fairly well established that emanation physiology is largely dependent upon its catalytic action (as a contact body it controls chemical action, but is itself not consumed).

In the light of our present understanding certain of the physiological manifestations of emanation due to physical and chemical effects are clearly evidenced as serviceable in many of the cardiovascular degenerations, in improving general metabolism, influencing the solubility and absorption of uric acid, and in stimulating the body ferments. We have yet to learn much as to the definite process by which emanation exerts its beneficent influence. Cardiac activity is lessened and blood pressure is lowered, and in company of vasomotor excitation we have a dilatation of the blood vessels. The coagulation period of the blood is materially shortened yet the viscosity is diminished. It markedly increases the red blood corpuscles and produces leucocytosis of temporary duration. A lasting tonic effect is exerted.

Abundant literature detailing the exhaustive biological and physiological research of worthy observers is at hand and can be accepted, especially that which pertains to metabolism. The careful and accurate findings of such workers as von Noorden, Gudzent, His, Deutelmoser, Klemperer, Falta, and von Neusser tend to substantiate much of the true physiology of emanation.

Enormous effort has been made in the application of these physiological principles in therapy and as a result we find each year hundreds of thousands of human sufferers making their pilgrimage to those vast centers of healing in Germany, Austria, and France, where nature and science have combined to regulate and approximate dosage and treatment best suited to produce rapid elimination, improved organic function, and tonic influences. It has been estimated that from this country alone there is annually expended by those seeking health at the radioactive shrines of Europe between $80,000,000 and $90,000,000. This economic feature has served to direct the attention of the medical profession more acutely to the conditions in this country as far as public health is concerned. So common have become those diseases of the heart and arteries due to degenerative changes largely traced to faulty actions of the organs of elimination or from infection from disordered digestive ferments, rheumatism, etc., as to constitute a national menace. It is a well known fact that the vast majority of all of the cases of arteriosclerosis, cardiac affections, and kidney disease should be classed as preventable, and yet recently the Health Commissioner of New York City, Dr. S. S. Goldwater, notes the fact that the "death rate from diseases of the heart and kidneys has approximately doubled in the past thirty years."

During the past few months a society of national scope, the Life Extension Institute, has been organized to direct the attention of the public to a great loss of life daily sacrificed to diseases preventable or curable. (This society estimates 2,500 deaths per day in this class.) "The human clock usually 'breaks down' instead of 'running down,'" states Dr. Eugene Lyman Fisk, and as an example he quotes that " in the United States there were in 1910 more than 100,000 deaths between the ages of forty and sixty, from diseases of the heart, circulation, and kidneys." With then a clear conception as to the importance of this situation, let us consider for a moment just what diseases receive benefit by treatment at the noted spas and clinic centers of Europe, especially those where the radioactive emanation treatments are given, and make deductions as to similar methods of study and treatment that should be applied here.

Emanation therapy applies probably with greatest force and importance in those diseases of the heart, arteries, and kidneys which evidence degenerative changes. In arteriosclerosis and cases of high blood pressure of cardionephric origin, idiopathic in type, emanation is most successful. Various forms of arthritis and muscular rheumatism are promptly relieved. Stubborn neuralgia, myalgia, and neuritis are markedly influenced. Frequently the administration of emanation produces startling results as regards the ferments which control digestion and in the stimulation of general metabolism. Possibly no other known agent can so thoroughly banish the rheumatoid and gout pain. Klemperer states, "Before experience, I expressed myself as very skeptical of the reported success of others, but now I can say that radium scores such success as does no other therapeutic measure in rheumatism."

The immediate change in the blood picture following emanation treatment directs our attention to its use in all forms of anemia and the debilitated states noted in the convalescence from fevers, operations, etc.

Most happy are the results forthcoming in many of the characteristic changes that present themselves with advancing years. That emanation exerts its efforts to sustain vitality at this period is well known, yet possibly over-heralded by those who have perchance witnessed some remarkable evidence of rejuvenation. In diabetic states, as an adjunct remedy it does noteworthy service, due to its influence on the ferments. Early cases most frequently give favorable results. Many of the unpleasant symptoms of diabetes such as pruritus yield promptly.

In nervous diseases emanation produces good effects; even functional disorders show marked improvement. Spinal cord affections respond. The pain of tabes is almost always controlled. Emanation exerts a pronounced sedative and lymphatic action. Time will not permit further reference to the many other conditions, dependent upon faulty metabolism and elimination, that should be listed under therapeutic indications for the use of emanation. The more I study the body of chemistry and electrical phenomena the more disposed I feel toward predicting that many of its processes may be dependent to a considerable degree on radioactivity.

I feel that it will interest you to consider a comparison of the possibilities of treatment at Saratoga as planned under the competent management of the New York State Commission with a few of those famous springs of the Old World. As regards radioactivity, Joachimsthal gives us 185 Mache units of emanation per liter of water; Gastein, 155; Carlsbad, 38; Landeck, 98; Nauheim, 28; Baden Baden, 82. The radioactive content of Saratoga's waters, those for instance of Crystal Rock Spring, according to the measurements of Richard B. Moore and C. F. Wittemore of the Bureau of Mines, Washington, D. C. (subject to some deviation), is 2.4 Mache units per liter of water. While such grouping brings out the fact that the radioactive element of Saratoga's best water presents apparently an insignificant emanation concentration, I am not justified in depreciating its therapy. I append herewith further findings of Messrs. Moore and Wittemore in tabulated form correctly expressed which may be of interest as a matter of record. Crystal Rock in common with many of the other springs shows a small proportion of its activity due to the soluble salts of radium. This feature, however, represents but about 1 per cent. of its total activity.

Although I have no authority to assume that the small activity constant in these springs possesses real virtue, I feel that we should refrain from passing judgment until we are fully aware just how infinitely small radium can be subdivided into dosage and still express physiological activity. Let us take genuine comfort in the fact that Kissingen gives us Rakoczy with 2.85 Mache units; Wiesbaden shows Spiegelquelle and Kochbrunnen Springs with 0.8 Mache units and 1.23 Mache units, respectively; Ferdinandsbrunnen and Ambrosiusquelle Springs of Marienbad give us an activity on only 0.66 Mache units and 1.62 Mache units. These resorts are all credited as being clinically effective. Time and a still better understanding may yet discredit them or it may establish a real merit.

Saratoga has the advantage over most of the foreign springs in having a tremendous quantity of the waters, apparently inexhaustible in their character. Let us be guarded in all statements that lay stress on Saratoga's radioactivity.

A glance across the waters shows us that the favorite method of application at the celebrated foreign "cure resorts" is by use of the bath and "drink cure." Patients for treatment are most carefully examined, every spa being equipped with perfect laboratory facilities. When diagnosis is complete treatments consisting of the proper initial bath and drink dosage are prescribed; followed up by suitable changes in the system, increasing or varying the character of the dosage, as laboratory and clinical findings may indicate.

An emanation bath consists usually of about 200 liters of water and should give an emanation content of not less than 25,000 Mache units. In that it is conceded that very little absorption takes place through the skin, practically, we must count on inhalation of emanation only. The tub should be narrow and high, equipped with a rubber canopy to catch the emanation. A compressed air bubbling outfit is sometimes used to aid in driving emanation from the waters.

Radioactive spring waters for drinking at the spa are administered daily in quantities, divided into three or four doses. Emanation from drinking waters is quickly absorbed, traverses the portal system and to the lungs, there to be all exhaled in about two hours; the larger part of it is probably gone in the first fifteen minutes.

Although large doses of emanation water are gaining in favor, as is indicated in the dosage advocated by the London Radium Institute, which is using from 50,000 to 1,000,000 Mache units, I have seen very excellent reports which represent the results of doses as small as 500 Mache units of emanation. At this point we must express our opinion that a very generous amount of the good results forthcoming at the "water cures" are dependent upon the general character of the waters, plus diet, exercise, massage, etc., tempered with psychic effects much to be desired. Many of the great "cures" abroad have now equipped their institutions with emanatoriums of generous proportions, where the gases from the waters, captured from deep caverns, are taken direct from emanation apparatus generating daily a given amount of the emanation. Many authorities claim the best clinical results are derived from this form of application. When the gas is inhaled it is immediately absorbed by the lungs, which in turn charge the arterial circulation and thus radium traverses every capillary in the body. Where emanation chambers are to be incorporated they should have a minimum dosage of at least 100 Mache units per liter of air and with a capacity of ten times as much for general treatment. Then there are the radioactive mud baths; compresses containing definite amounts of radium for local application, all efficient to a degree. Such are some of the methods by which radium is commonly used at the spas abroad.

With a proper and continued support from the State, I feel most confident in claiming that Saratoga, with its natural resources, can accomplish what these institutions have done, and more. We shall not attain a full measure of success, however, until every facility for treatment is granted. Equally important will be the fostering of the campaign already started to acquaint the medical profession with a better understanding of hydrotherapy, to impart a more keen knowledge of the body ferments, enzymes, and metabolic changes, and to promote a more liberal attitude toward the peculiar forces evidenced in the physiological manifestations of radioactivity.

Not only are the springs of your community to be made available for every form of treatment, this is assured, but elaborate sanitaria for the housing of your visitors must soon be made ready. It will be necessary that these institutions maintain a staff of physicians thoroughly capable as diagnosticians and clinicians and supported by the best men obtainable for the laboratory work. It will also be found necessary either to equip the reservation itself with a large emanatorium and numerous individual chambers or to have such facilities incorporated in the sanitaria.

In certain advanced cases of polyarthritis, neuritis, and in some forms of arteriosclerosis it may be advisable and indeed necessary to administer radium more liberally by the direct use of the soluble salts of radium, given as drinking water or by intravenous injection. Radium for several years has been given internally and by injection in large doses with absolutely no disturbing symptoms. It is accepted as harmoniously by the blood stream as is sunlight by plant life. The use of the soluble salts of radium intravenously transforms the body into an emanatorium and its results are readily noted in increased elimination and a change in the blood picture. The radium is gradually eliminated from the body and finally disappears entirely, but as long as the substance is present it is producing continuous physiological activity.

I append a summary of a few recent radiumtherapy investigations that are well worth careful attention. The first two groups follow the use of emanation waters mainly. The third with emanation and intravenous injections; the last two groups were the results of mainly the intravenous application of soluble radium salts.

You have been exceedingly generous in allowing me much of your time, in which I have stated little as relates to so great a subject. The State of New York has set the seal of its approval upon the work already started and the eyes of the world will watch what you are to accomplish. The careful and conservative administration of the Commission will insure in due season valuable scientific reports as to the real merit of all means of therapy placed at its disposal. Their findings, therefore, will in no small way contribute toward the defense or disavowal of radiumtherapy. If their work follows in accord with methods that science has already unfolded for the restoration to usefulness of the army of sufferers, Saratoga will before another

decade accept its position as the most famous healing place in North America.

Summary of a Few Radiumtherapy Investigations

Reviewer or Investigator	*Arthritis or Arthritis Deformans	Muscular Rheumatism	Gout	Neuralgia	Sciatica	Lumbago	Neuritis	Arterio-sclerosis
Rowntree & Baetjer (Review) (*Journal A. M. A.*, 10-18-13)								
Cases concluded	435	59	166	59	115	5	13	
Improved	387	49	86	47	91	4	10	
Not improved	48	10	80	12	24	1	3	
London Radium Institute, 1913 (*British Med. Jour.*, 5-23-14)								
Cases concluded	86		3	3			8	3
Improved	47		3	2			5	2
Not improved	39		0	1			3	1
Cameron (*Penna. State Med. Jour.*, Dec., 1913)								
Cases concluded	38							
Improved	31							
Not improved	7							
Proescher (*Radium*, March, 1914)								
Cases concluded	16							
Improved	14							
Not improved	2							
Bissell (Medical Record, 7-11-14)								
Cases concluded	5	1						1
Improved	5	1						1
Not improved	0	0						0

*On account of the classifications employed by various writers, it is impossible to give data regarding the individual type of cases.

Spring	Emanation in Spring Gas, Microcuries per Liter	Emanation in Spring Water, Microcuries per Liter	Radium in Spring Water, Micrograms per Liter
Emperor	0.00022	0.00007	0.00006
Peerless		0.00006	
New Red	0.00008	0.00004	
Hathorn, No. 1	0.00021	0.00014	0.00004
Coesa	0.00008	0.00009	
Hathorn, No. 2	0.00005	0.00016	0.00010
Hathorn, No. 3	0.00008	0.00006	
Geyser	0.00005	0.00004	
Adams	0.00011	0.00012	0.00005
Flat, No. 2	0.00003	0.00005	
Pump Well, No. 4	0.00067	0.00023	0.00002
Island		0.00011	
Crystal Rock	0.00084	0.00088	0.000009
New Shonts Well		0.00011	

THE EPILEPTIC TYPE OF NERVOUS CONSTITUTION.

A RATIONAL PREMISE FOR THE FUTURE INVESTIGATION OF THE EPILEPTIC.

By RUSSELL G. MacROBERT, M.D.,

NEW YORK.

RESIDENT PHYSICIAN, SECOND DIVISION, NEUROLOGICAL INSTITUTE.

ONE individual in every 400 of our population is an epileptic and we have every reason to believe that no race under the sun escapes. The importance of the subject cannot be overestimated. Epilepsy shares with tuberculosis the distinction of having received during the past decade or two a most unusual amount of study and investigation. Reviewing this past investigation of epilepsy we find the greatest literature centering around the search in brain pathology for an organic basis of this disease. Great time and energy have been spent in this pursuit; diligent has been the search for a pathognomonic lesion. Several have been at times accepted but it is unnecessary for these to be reviewed here as to-day there are no pathognomonic signs of epilepsy. All have been overthrown.

Much work has been done on the toxic theory. The fact that convulsions similar in nature to the major attacks of epilepsy occur in the course of diabetes and nephritis and as a sequel to alcoholic and other poisonings led to the theory that many epileptic attacks were due to poisons in the blood. The products of imperfect digestion or excretion as well as extraneous poisons may cause an epileptic manifestation but are only the exciting factors of single attacks.

In support of a toxic theory it has been reported that blood withdrawn from an epileptic during an attack of convulsions will produce convulsions in some small animals. In the small animals this acts only as a poisonous excitant of convulsions, somnolence, and coma. This poison is most likely a product of the excessive metabolic changes of a convulsive attack, as the severity of its action in rabbits and guinea-pigs depends upon the severity of the epileptic manifestation during which the blood is withdrawn.

The more recent investigations seek a solution in two ways: One is a diligent search for a psychogenic origin; the other, which is concomitant with the decision that epilepsy can scarcely be considered a distinct disease, demands that we speak of the epilepsies. Division is attempted into those of organic brain disease, of gastrointestinal, cardiovascular, glandular, toxic, and other origins. This latter is but classifying obtainable exciting causes of attacks and making to accord with them the various epilepsies.

The present day text-books present "the strangest disease in human history" as the enigma it was 25 centuries ago. Why has this subject so baffled human research? Why are we kept at the same position occupied by investigators centuries ago? Why have we found no cause, cure, or explanation?

These questions are answered by one unassailable fact, which is, that the fundamental premise upon which our investigations have been built is the wrong one. Points all through the literature argue the truth. There is no such disease as epilepsy or the epilepsies. Our study was of convulsive phenomena and loss of consciousness—pathological actions of brain cells whose physiological action we are not even able to comprehend.

We can get no further until we realize that there are no epilepsies and recognize the truth that we are dealing with the peculiarities of a distinct type of nervous system. The manifestations by which we diagnosed epilepsy are the natural resultants of irritation on this type of nervous system and part of its syndrome of response.

The loss of consciousness or the convulsion bears to the epileptic nervous type the same relation that any one of the major manifestations of hysteria, such as an anesthesia or a paralysis, bears to the hysterical nervous type. Hysterical stigmata are but peculiar reactions to irritation of a certain nervous makeup or class of individual. The frequency of the epileptic response must be even greater than the frequency of the hysterical response when we recall that there exists one pronounced epileptic for every 400 of our population, and that epilepsy is common to all races. The epileptic with an occasional convulsion may not be half as pathological as his sister, the hysteric.

That the epileptic is so from his earliest moments seems unquestionable. At present we do not recognize this type until we have the evidence of one of its gross manifestations. The secret is at present successfully concealed, till some irritant, physical or psychical, of sufficient degree provoke the latent

epileptic phenomena. Such excitant usually arrives in early life or during the unsettled developmental period of adolescence. Few epileptics reach 20 years of age without having given some major manifestation as proof of their very definite type of nervous organization. Some few may continue on through life and a severe nervous strain or organic disease be required to awaken these inherent peculiarities of action.

The same serious brain disease will not cause epileptic manifestations in all men. In some the phenomena are early acquired and in others the general features of major epileptic response never appear.

The literature abounds with evidence in support of this view. "The excitation is no more than the spark which causes a conflagration; rendered possible only by the chemical constitution of the materials ignited," is a quotation from Gowers' early writings, which seems to be voicing the view presented in this paper. Again speaking of a cause for the first fit he says "When such a cause can be discovered it is usually manifestly inadequate to produce a convulsion by itself and can only be effective in consequence of a powerful predisposition."

Favoring the view that epileptic manifestations are the expressions of inherent properties peculiar to a distinct type of nervous organization and not the result of pathognomonic lesions of any nervous organization are the following lines from the same author: "The various changes that have been described and have been supposed to be related to the origin of this disease have probably no connection with it and do not even deserve enumeration, nor is there at present much likelihood that our knowledge will be more definite. The changes in the nerve centers are probably of that fine kind which is revealed only by altered function and elude the most minute search."

In support of the view that the syndrome of nervous responses expressive of the epileptic type are inherent qualities developed before birth is the unqualified statement by Gowers as early as 1888 that "epilepsy is an inherited disease," and another that "there are few diseases in the production of which inheritance has a more marked influence and the traceable influence is always far less than that which really exists." Voisin, Féré, Nothnagel, Dana, Peterson, Starr, Church, and others express similar views.

Spratling's studies discovered "heredity the supreme agency to which the disease could possibly be ascribed." As to how far heredity is really responsible he says, "A safe reply would be that if such influence had not been present in all probability there would have been no epilepsy."

Church and Peterson say, "It must be admitted that at present the most careful search fails in many cases to detect any histological change known to be morbid."

Spratling in speaking of the organic brain conditions says "such gross lesions do not of themselves cause epilepsy; they are only effective in coexistence with an unstable nervous organization, one predisposed to convulsive manifestations."

These statements are but a few of the many with which the literature on the subject is redundant, that convince us that the fundament of epileptic expressions is an inherent and peculiar principle of one kind of nervous organization.

Each repetition facilitates the onset of the next convulsive outburst. The convulsive habit is recognized as an example of practised nerve action. It, like any other habit, is one of the natural expressions of the nervous system of which it forms a part.

The future research of the epileptic will be in the light of this view. It will be an investigation of the factors that play a part in the prenatal production of a nervous type. The observation of the patient will not be of more use in the future study than a thorough consideration of his antecedents and prenatal influences.

Our now occasionally demonstrated cause we shall view only as the inciting irritant that first revealed the presence of this type of nervous organization. The inciting factors point out to us only what we are not yet able to determine beforehand. At present the epileptic is not often suspected till the appearance of a first convulsion or loss of consciousness.

The secret once disclosed to us, it has been possible in a certain percentage of cases to safeguard our patient from further provocation to gross manifestations. The nervous system is a great child of habit and we must in future strive for an exact description of this nervous type and recognize the epileptic before he has been introduced to the pernicious convulsive habit to which he is by his specific constitution predisposed.

We hope to combat the inherited tendencies by a more definite form of prophylaxis to which our future studies will give rise. Previously we were investigating epilepsy as a disease entity which we were not able satisfactorily to define. We found ourselves involved mostly in a consideration of convulsive phenomena and loss of consciousness, pathological processes of brain cells whose physiological processes we were unable to explore.

Our future investigation will seek to discover influences productive of a definite type of nervous system. The epileptic type of nervous system is one characterized by the peculiar response to irritation on certain occasions, by paroxysms abrupt in onset, variable in duration, usually short, in which there is a loss of consciousness together with a loss of motor co-ordination, usually with convulsions.

Our investigation in future must consider the physical and psychic states of the parents at the time of conception and the environment and psychic states of the mother during the intrauterine life of the child, as well as the earlier hereditary influences and family predispositions. Banishing epilepsy as a disease entity and bringing forward a definite nervous constitution to consider opens a wide range of possibilities. With attention turned to the recognition of the characteristic preconvulsive expressions of this nervous type and more light on the path leading to its causative influences, we may soon be equipped with a more specific prophylaxis.

Our present method of treatment, which is a suppression of the activity of the cells producing the epileptic manifestations, a removal of discoverable irritations, and a combination of these two, will probably give way to a method which will be a better direction of cellular activity.

The idea of epilepsy as a disease entity or a series of diseases should not longer be entertained. We must look upon the epileptic constitution as a type of nervous system that responds in its peculiar manner to any irritation of sufficient degree whether such irritation be a gross brain lesion, a

glandular dystrophy, a gastrointestinal anomaly or toxemia, cardiovascular disease, or the most potent of all, some psychic influence. With the epileptic viewed in this light the future research of this subject is given new wings.

Thanks are hereby expressed to Dr. Charles L. Dana and Dr. Frederick Peterson for their encouragement in the presentation of this view of the epileptic.

119 East Sixty-seventh Street.

CEREALS IN MILK MODIFICATION.*

By FRANK BETHEL CROSS, M.D.,

BROOKLYN, NEW YORK.

ATTENDING PHYSICIAN, METHODIST EPISCOPAL HOSPITAL.

The story of cereal diluents is briefly told. In or about 1876 Jacobi first suggested that cereal decoctions be used in the modification of cow's milk for the very young, and, despite lack of support, for many years he continued to warmly advocate their use. In 1895 Heubner, writing in the *Berliner klinische Wochenschrift*, announced his staunch advocacy of the same principle. Since then others have taken the same stand.

Schiffer, Moro, Korowin, and Zweifel had, in the meanwhile, demonstrated that both the saliva and the pancreatic secretion of young infants possessed amylolytic properties. Kerley and his co-workers verified these early findings nine years ago. In October, 1912, Hess published in the *American Journal of the Diseases of Children* the disclosures of the duodenal tube in infants, establishing beyond all shadow of doubt that the duodenal fluid contains an amylase or starch-converting enzyme. In light of this proof, Wentworth's observation that secretin, the hormone necessary to activation of the pancreas, is not present in the epithelial cells of the intestine of the very young, is open properly to review.

The advisability of the administration of cereal diluents appears to revolve about the problem of their digestibility. Granted that it is established that there is an amylolytic ferment present in the intestinal canal of even very young infants, the question of practical value is how effective this enzyme will be in the presence of a considerable quantity of starch. The starch capacity of infants is a variable factor; at best it is not great, so that if cereals are given too freely, there is poor digestion of the starch content with the usual train of first digestive, then nutritional disorders.

Starch is a polysaccharid, slowly hydrolyzed in the body into first dextrin, then maltose, then dextrose, and consequently, in excess, is never digested with ease. If used in moderation it rarely does harm even if imperfectly digested. Tympanites, with accompanying colic, is rare if the total cereals used is not too great.

The protein of cow's milk is one-fifth soluble whey protein and four-fifths insoluble caseinogen, the latter producing casein when acted upon by digestive ferments. Human milk protein is two-thirds whey protein and one-third caseinogen. As it is the insoluble caseinogen that is responsible for the difficulty in protein digestion and as it is present in such an overwhelming per cent. in cow's milk, we find it desirable to favorably influence its coagulation.

As caseinogen modifiers the cereal decoctions are best known, their addition to cow's milk, through the action of insoluble colloid components, resulting in the formation of smaller, finer, softer and more flocculent casein curds. With such curds digestion is simplified and the digestive capacity conserved. Curds in infant stools are composed of fat, soaps, and fatty acids, large curds generally presenting some protein material as a base. Small curds contain little or no protein. The fats of the milk are further emulsified by the starch.

The use of cereals undoubtedly supplies an additional energy to the food mixture, and this is measurable from the caloric standpoint. The cereal diluent of everyday use is barley, and standard barley-water made with one tablespoonful of flour to each pint of water presents a formula of—fats .05, starch 1.63, protein .09. Oatmeal is richer in fats, rice very poor in fats, wheat a well-balanced cereal. Of all the cereals rice is most easily digested, at the same time being equally nutritious. I question if we use it often enough.

All cereals should be thoroughly cooked, never less than one hour, better two or three hours. The effect of dextrinization is never fixed, as starch, dextrin, and maltose are found in varying proportion, depending upon the length of time of the action of the diastase. With the transforming of some of the starch to soluble carbohydrates (dextrin and maltose), the full mechanical action on the caseinogen is diminished. I take it that no action is had if all the starch is converted.

The teaching of most pediatrists is that cereal diluents in any quantity should not be used in any feeding cases before the age of six months. It is true that the assimilation of protein is not increased by their use, but its digestion is rendered easier through their influence on the caseinogen. The determination of nitrogen waste in the bowel has not been accomplished to date; until some further laboratory process is perfected, no light can be thrown definitely on this problem of the utilization of casein.

Barley or granum decoctions are generally the first to be used, forming about 25 to 50 per cent. of the milk mixture. If marasmus is present, boiled starch in larger quantity is used freely. In malt soup the carbohydrates total 13 per cent. and comprise dextrin, maltose, and lactose as well as unchanged starch. In the lesser degrees of malnutrition a cereal diluent adds to the nutritiousness of the milk formula and may be used as early as two or three months. This is generally appreciated by the manufacturers of proprietary infant foods, as most of these are of cereal origin, either with the addition of dried milk, or with the conversion of the starch into dextrin or maltose.

The administration of cereal solutions alone for a long time, say several weeks, has been known to produce certain symptoms of food deprivation. General atony, hypertonia of the muscles of the arms, legs, or spine, or edema of simple hydremic origin have been observed. These symptoms are most alarming, the edema in some of the cases being so extreme as to suggest diffuse nephritis. The instances reported have been in cases not under medical supervision, but receiving the dietary care of some untrained person.

Cereal dilution is not a feeding "method." Of methods there are many. No one is adequate for all situations, no one method is ideal. But all have merit in varying degree and it should be our aim to feed the individual baby according to his individual needs. Whether we are feeding a healthy baby with

*Read before the Brooklyn Pediatric Society, November 25, 1914.

a normal digestion or a malnutritioned young infant with a subnormal digestive ability, makes a very great difference.

In the latter class of cases cereal gruels have an especial field of usefulness, beyond their routine utilization in the artificial feeding of all children six or more months of age.

832 PRESIDENT STREET.

A NEW CURATIVE TREATMENT FOR PNEUMONIA.

BY FRANCIS E. PARK, M.D.,

STONEHAM, MASS.

I HAVE held back this method of treatment for a period of two years, during which time it has been tried out carefully on a large number of cases of various acute infectious diseases, mostly of the respiratory tract, and in no case have I seen any untoward results. The effect in the milder diseases has not been so striking, because of their comparative innocuousness and also because we have many other agents that are capable of influencing them very materially. In pneumonia, on the other hand, we have a deadly disease, that is not easily influenced, and which annually carries off many thousands of victims. The percentage of cures in all the cases I have observed—and when I use the word "cure" I mean it literally, the patient beginning to improve markedly within a very short time of the administration of the remedy, and convalescence being established usually within three days—has so far been 100. I give here case histories of 12 cases of acute lobar pneumonia, all in adults, the age ranging from 19 years to 90 years.

CASE I.—Mrs. C., 86 years of age, had been suffering from an attack of acute bronchitis for several days, when she was suddenly taken with a chill and with pain in the lung. Domestic remedies were employed for a time and I did not see her until the next day. She had at this time a temperature of 103° and pulse hard and wiry of 110. The cough was very tight, and the mucus that she was raising was thick and yellow, very tenacious and mixed with blood. The physical signs were located in the right lower back. They were, dullness, increased vocal fremitus, and numerous rough, loud râles. A diagnosis of acute lobar pneumonia was made. She was given an intravenous injection of 4 c.c. of my solution and the following morning the temperature had dropped to 99°, pulse to 100. Not only had the temperature and pulse come down, but there was a very decided improvement in her whole general condition. The following day the temperature was normal, and she went on to convalescence with no signs of a relapse.

CASE II.—Woman, aged 51, has been under treatment for several years for functional heart trouble, associated with tachicardia. This patient suffered a severe chill, lasting about an hour, on a Thursday evening, employed home remedies on Friday, and sent for me early Saturday morning. I found her with a temperature of 101.6° and a pulse of 144. She complained of intense pain of a stabbing nature on inspiration. Auscultation revealed crepitant râles over the upper right lung. There was a rusty tinge to the sputum. A diagnosis was made of acute lobar pneumonia of upper lobe of right lung. She was given 2 c.c. of the solution, and counterapplication of a stimulating liniment applied over the inflamed area. That evening the temperature was 102°, a little higher than in the morning, but she was feeling very much better. The pain and distressed feeling were gone. Sunday morning the temperature at 11.30 was 101°, pulse 112. Patient was very comfortable and felt like sitting up. Lung was very much clearer and cough easy. A second intravenous injection of 3 c.c. was given, and in the evening the temperature was 100°, pulse 96. Monday morning the temperature was 99.40°, pulse 100; very little cough; no blood in sputum. Increased vocal resonance was gone. The following day the pulse and temperature were normal.

CASE III.—Woman, aged 39, had been feeling run down for some time; went shopping on a Friday, felt bad all Saturday, and had a chill that night; was sick abed Sunday. I saw her Monday morning, when she had a temperature of 104°, pulse 120. In the top of the right lung was dullness with increased vocal resonance, and many râles, crepitant and coarse; severe headache; complained of great pain in the lung on breathing; was raising thick rusty colored sputum. The diagnosis was made of acute lobar pneumonia of the upper lobe of the right lung. I gave her an intravenous injection of 4 c.c. In the evening the temperature was 102°, pulse 100; patient feeling much better. Tuesday morning the temperature was 101°, pulse 100; numerous râles over the whole area; dullness gone. A second intravenous injection of 3 c.c. was given, and in the evening the temperature came down one degree, pulse 108. Next morning the temperature was 100°, pulse 96; in the evening the temperature was 99°, and the next day normal, with the patient sitting up.

CASE IV.—Man, aged 49, previously well, was exposed to cold on Saturday evening; had a severe chill that night; was abed all day Sunday; sent for me Sunday night. I found a man of full habit, face very flushed, coughing and raising tough sticky rusty sputum. He complained of pain in the back on respiration. Auscultation showed a large dull area in bottom of right lung, with increased vocal fremitus and many râles; temperature 103.6°, pulse 120. The diagnosis was acute lobar pneumonia of lower right lung. Counterirritation was made for the pain, and an intravenous injection of 4 c.c. was given. Next morning the temperature was 102°, pulse 96 and soft. Patient looked like a different man. In the evening the temperature was 102°, pulse 100. The bowels were moved with Epsom salts. On Tuesday morning the temperature was 101°, pulse 96; sputum much thinner and more liquid and containing much less blood. A second injection was given Wednesday morning. Both temperature and pulse were now normal.

CASE V.—Man, aged 69, veteran of the Civil War, had been feeling sick for a day, then experienced a severe chill, and sent for the doctor. He had a temperature of 103.4°, pulse 104; severe stabbing pain in base of right lung, with dullness there, and increased vocal fremitus; crepitant râles; was raising a very thick rusty colored sputum; was profoundly sick; diagnosis, acute lobar pneumonia of the base of right lung. Treatment: Counterirritation for pain; intravenous injection of 4 c.c. Following day the temperature had dropped to 100°, and the next day to normal. He was kept quietly in bed two days longer and then allowed to get up.

CASE VI.—Man, 90 years old, had suffered for some years from enlarged prostate and retention of urine. Otherwise had been very well. He had a temperature of 104°, pulse 110; was coughing hard and raising quantities of bloody sputum; stabbing pain on respiration; dullness and increased vocal fremitus over right back. He was so sick that it almost seemed useless to try and do anything. He was given 3 c.c. that night, and the same amount the next day. In three days his temperature and pulse were normal and the lung cleared up. He was slower in convalescing than the others, owing to a bladder infection that followed catheterization, but in two weeks was about again, and now, six months after, goes out to walk every day.

CASE VII.—Man, 19 years of age; saw him two hours after initial chill; a very septic case; patient stupid, like a typhoid, coughing incessantly and raising a large quantity of bloody sputum; numerous crepitant râles over left back; no dullness on percussion; temperature 105°, pulse 130; diagnosis, acute pneumonia of left back. He was given an intravenous injection of 5 c.c. and ice was applied to the chest and head. In four hours the temperature had dropped 3 degrees and he was rational. Six hours later the temperature was 99°. The following morning the temperature and pulse were normal. He raised rusty sputum for several days longer; no further recurrence of infection.

CASE VIII.—Woman, 79 years old, had been up in the night assisting her sick husband and got chilled; several hours later had a severe rigor and sent for help. She had a pain in her right lung; was coughing. Auscultation showed numerous crepitant râles over the right front; temperature 103°, pulse 110; diagnosis, beginning case of acute lobar pneumonia. She was

given an intravenous injection of 4 c.c. When seen in the morning both pulse and temperature were normal, and after staying in bed for two days she was able to get up and go about again.

Case IX.—Man, 62 years old, addicted to alcohol; had been exposed to very cold, inclement weather; had a temperature of 102.6°, pulse 100; dullness and increased vocal fremitus over left upper lung; severe stabbing pain and raising rusty sputum; diagnosis, acute lobar pneumonia. Treatment: intravenous injection of 4 c.c. Inmprovement was prompt, and in three days the temperature had reached normal. The following day it shot up again and a relapse was experienced—the only instance I have seen since using this remedy. He had an injection on each of the successive days, when the whole condition cleared, and he got up. This was an exceptionally bad case. His condition for a long time previous had been very poor, and, furthermore, his alcoholic addiction was against him.

Case X.—Woman, 49, very fat and full blooded, 5 feet four inches in height, weight 210 pounds. This case I have not my notes on. I remember that the initial temperature was 103°, with a rapid pulse. It came down promptly to about 101° and remained about there for four days. She had three intravenous injections, and on the seventh day the temperature dropped to normal. Although she was of a notoriously dangerous type, yet at no time after the first day was she dangerously ill, and she made a very rapid convalescence.

Case XI.—Man, 65, chronic drunkard, had been sick two days when I saw him; had a well developed pneumonia of right lung. He was very sick, coughing badly and raising quantities of bloody sputum; temperature 104°. He was given 4 c.c. and sent to a charitable institution. Two days later his temperature dropped to normal.

Case XII.—Man, 52, a poor laboring man; has a very bad heart, with big mitral leak; had had a chill the day before, and when I saw him he was a desperately sick man. It looked like an absolutely fatal case. His temperature was 105°, pulse 130 and intermittent; great pain; coughing and raising incessantly rusty sputum. Following morning temperature was 100° and pulse 96; in the evening the temperature had risen to 103°. He was given a second injection. Next morning the temperature was 99° and the following morning normal, and he was soon up and about.

Now here is a series of 12 cases taken from a period of two years. There have been as many more that I feel very sure might have developed into pneumonia had they had a little more time, but they were nipped in the bud. These 12 are undoubted cases. In no case during the time that I have been using this method of treatment have I failed to get a perfect result. I feel that enough time has elapsed and experience accumulated to justify the publishing of this remedy in order that it may receive further trial at the hands of others. If it proves the same with them as it has with me, then we have added a weapon to our armamentarium of great value. I prepare my solution as follows: In 2 ounces of chemically pure distilled water I dissolve 15 grains each of sodium salicylate and the soluble phosphate of iron. This solution is sterilized by heat and on cooling there is added 15 minims of a saturated calcium-creosote mixture, the whole then being passed through a small laboratory porcelain filter. The injections are made through the skin, with an all glass syringe, using a 27 gauge needle, into one of the large veins of the forearm. Great care of course is taken with the asepsis and also to be sure that the needle is within the vein. If properly inserted there will be absolutely no pain. If pain is felt, it means that the needle has gone into the muscle instead, and the injection must instantly be stopped and a new trial made. There may be a momentary flushing of the face and occasionally a temporary nausea. The dose varies from 2 to 5 c.c., according to circumstances. The injection must be made very slowly.

Medicolegal Notes.

Statute of Limitations in Malpractice Action.—In an action for malpractice in the performance of an operation for the removal of gallstones, the Pennsylvania Statute of Limitations, providing that actions for personal injury, not resulting in death, must be brought within two years, was pleaded as a defense. It was held that the bar of the statute applied, and that the statute providing that actions upon the case, other than for slander, shall be commenced within six years, has no application thereto. In Griffin vs. Woodhead (Rhode Island), 74 Atl. 417, which arose under a similar statute, providing that "actions for injury to the person shall be commenced and suit brought within two years next after the cause of action shall accrue and not after," the plaintiff averred the employment of a physician to perform an operation for the purpose of reducing a broken hip, and that the physician so unskillfully and negligently conducted the operation as to cause a permanent shortening of the plaintiff's leg. It was there held that the two-year limitation of the statute applied. In the case of Birmingham vs. Chesapeake & Ohio Ry. Co. (Virginia), 37 S. E. 17, which was a malpractice suit brought against a physician for unskillfully treating a dislocation of the hip-joint, it was held that the action, though brought upon an implied contract, is for a tort or wrong resulting in bodily suffering and injury, and is thus limited by the statute (the Virginia statute limiting actions for injuries to the person to one year after the cause of action arises) to one year. It was there held that the gist of the action was the wrongful injury, and that the plaintiff made use of the defendant's contract merely as an incident in the transaction to show how and why the duty of reasonable care and skill, under the circumstances, rested on the defendant. —Henkel vs. Beitsch, 22 Pa. Dist. 895.

Contract for Treatment by Physician Terminated by Death.—A patient signed a contract to pay his physician $5,000 for his treatment of locomotor ataxia in payments of "$500 every three months till paid." The patient died eighteen months after, having paid at that time $2,375. Six hundred and twenty-five dollars was admitted to be due, and objections were made by his representatives to the allowance by the auditing judge of $2,000 in addition. It was held that, had the treatment consisted of an operation or the prescribing of medicine for a definite period during which the testator lived, the physician's performance of his contract would have been complete and the balance remaining unpaid at the testator's death would have been properly payable to him. But his letters to the testator showed that it was in his mind that the treatment would probably continue for three years. The court applied the principle that generally in all contracts for personal services it is an implied condition that the death of either the employer or the employee dissolves the contract. To hold that the physician was entitled to full payment at any date within the two years and six months for which the payments were to be made would be to say that he might have collected his $5,000 if the testator had died twenty-four hours after the making of the contract, an arrangement neither party could have contemplated. Had the physician died before the treatment was complete no recovery could have been had. It was held that the physician was only entitled to a pro rata payment for the period covered between the date of the contract and the date of the testator's death.—Smith's Estate, 22 Pa. Dist. 1007.

Evidence as to Physical Condition after Injury.—In an action for personal injuries, testimony of a physician as to the plaintiff's physical condition after the accident was held admissible against the objections of the defendant that there was no connection between the injury and the plaintiff's condition as found by the physician and that there was no evidence to show the plaintiff's condition before the accident other than her own statements.—Delong vs. Chicago Railways Co., 187 Ill. App. 432.

Practice of Medicine—Title of Statute.—The title of Louisiana Act No. 49 of 1894 recites that it is an act "to regulate the practice of medicine" and to "provide punishment by fine or imprisonment or both." In proceedings for practicing medicine without a license it was held that the defendant's contention that the act is unconstitutional because its title is not broad enough to cover a prosecution for practicing medicine without a license was not well founded.—State v. Nelson, Louisiana Supreme Court, 65 So. 893.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 6, 1915.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

AT the International Conference on Tuberculosis in Berlin two years ago Gustav Baer described a new method of treating quiescent tuberculous cavities in the lungs. This method consists in the direct surgical approach to the diseased area through the chest wall, the incision of the lung over the tuberculous cavity, and the filling of the latter with a paraffin paste containing bismuth. This method is somewhat akin to that proposed several years ago by Beck of Chicago for the treatment of tuberculous sinuses. Later observations made by Baer tend to strengthen his conviction as to the real value in selected cases of the method proposed by him, and in the *Zeitschrift für Tuberkulose*, December, 1914, he sets forth the results of his more recent experience and describes in detail the technique of this new mode of combating chronic tuberculous foci in the lungs.

The essential steps in the technique of this method are the following: The operation is performed under local anesthesia. A portion of the second or third rib varying in length from four to eight centimeters is removed, the periosteum being carefully spared from injury. The resection is made directly over the cavity which has been accurately located with the aid of the *x*-rays. The costal pleura in the region about the resected portion of rib is carefully separated from the inner surface of the thorax. Large sterile compresses should be at hand, to be introduced into the newly formed space to protect the lung in its vigorous excursions during the act of coughing. Entrance into the tuberculous cavity is effected by means of the Paquelin cautery. The cavity is then packed with walnut-sized plugs consisting of paraffin of a melting-point of 48° to 50° C., with the addition of carbonate of bismuth, 0.5 gram, and iodochloroxyquinoline (an odorless substitute for iodoform), 0.05 gram to every 100 grams of paraffin. These plugs are molded into the cavity without undue pressure being used. The cavity is thus filled up to the stumps of the overlying rib, and the musculature is sutured in one or two layers.

The above operation is followed neither by respiratory nor by circulatory difficulties. The good effects are said to be sooner or later manifested in the diminution in the cough and expectoration and an improvement in the general condition of the patient. Occasionally unfavorable results of the operation are to be observed. The development of emphysema and the presence of hemoptysis suggest that the cavity has broken into the surrounding parts of the lung. Pleural complications are less serious.

The indications for Baer's operation are the presence of local tuberculous foci which have already shown a tendency to heal and which constitute the main lesion in the lungs. The general condition of the patient should be a relatively good one. While slightly less widely applicable than the operation of artificial pneumothorax, the procedure of paraffin plugging is said to be superior in its rapid effects. Moreover, it is regarded as free from many of the disadvantages accompanying the other plastic operations for pulmonary tuberculosis.

SECONDARY INFECTIONS IN HOSPITAL WARDS.

A SUBJECT of considerable interest and importance in clinical medicine is that of so-called secondary infections, the significance of which is most keenly realized in public isolation hospitals in which patients suffering from the same communicable disease are usually treated in the same ward, irrespective of the severity of the disease or of any complications that may be present. This is the common practice in spite of the fact which is well known that a large percentage of the patients admitted to the common ward develop complicating infections which they transmit to one another. To diminish the liability to this transmission strict bed isolation is necessary. However, in spite of all precautions observed, such as preventing contact between the patients, by the careful disinfection of the nurse's or physician's hands after each patient has been attended to, by the placing of screens between the beds, etc., secondary infections arise to an extent much greater than one would anticipate in view of these precautions.

In seeking an explanation for this incidence of supervening or superadded infections two factors must be considered. In the first place the patient himself may harbor, chiefly in his nose and throat, microorganisms which under ordinary circumstances are innocuous but which on account of the weakened resistance of the patient following an infectious disease are able to gain a foothold and give rise to a new infection. In the second place the patient becomes susceptible to bacteria, both virulent and non-virulent, harbored by other patients in the ward, by attendants, or by visitors. To diminish the possibility of antoinfection systematic antiseptic spraying of the patient's mouth, throat, and nose would seem to be called for. To diminish the danger of heteroinfection the admission of visitors to the ward should be restricted, and every effort should be made to prevent contact between the patients and the carrying of droplet infection either directly through the air or indirectly through the medium of the nurse's or physician's hands.

It is impossible in the present state of knowl-

edge to determine what percentage of secondary infections are caused by the patient's own microorganisms, and what percentage are caused by microorganisms transmitted from another. The solution of this problem is, however, not beyond the reach of possibility. If careful bacteriological examination were systematically and repeatedly made of the bodily secretions of every patient admitted to a hospital ward, and if virulence tests were made in the case of every type of organism isolated, one would be able to gain some clue as to the source of supervening infections. But this would not be sufficient. It would be necessary also to compare the results as regards the percentage and nature of secondary infections, by treating two sets of patients under separate conditions: in the one case in the open ward, and in the other case in the cubicle pavilion in which each patient is completely isolated from every other by partitions reaching to the ceiling. Only by means of this comparison may one be able to gauge the extent of secondary infections emanating from the patient himself or from another individual.

The recognized advantages of the block or cubicle system of isolation makes it the ideal method in the management of infectious diseases. The only real disadvantages are the greater expense and the greater inconvenience to which it subjects the nursing and medical personnel of the hospital. When patients suffering from the same contagious disease are treated in the same ward it is necessary to maintain a distance of not less than twelve feet between each bed in order that the possibility of cross infection from one patient to another may be minimized. The security may be increased by the use of glass partitions that do not reach to the ceiling, forming incomplete compartments that seem to serve the purpose in most cases of preventing cross-infection.

HEMORRHAGES IN SCARLET FEVER.

In most of the infectious diseases there is recognized a particularly severe type in which the tendency to hemorrhage is quite marked. One may speak of hemorrhagic measles, hemorrhagic smallpox, etc., which terms are generally synonymous with the malignant types of these diseases. Similarly in very severe cases of scarlet fever hemorrhage may occur into the punctate spots which become petechial. But hemorrhage from the mucous membrane in scarlet fever is an extremely rare occurrence. In fact most of those who have written monographs on this disease scarcely mention hemorrhage as one of the complications. In a careful search of the literature for the past one hundred years W. N. Klimenko (*Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. 3, No. 3) finds that only 89 cases in which this complication was present have been reported. To this total he adds ten cases of his own, occurring among 1,600 cases of scarlet fever that have come under his observation in the course of four years. From the study of all these cases Klimenko reaches a number of important conclusions.

The most common source of the hemorrhage is some part of the arterial system; next in order come the veins; and last, the capillaries. The cause of the bleeding is usually an erosion of the wall of the blood vessel, the result of a suppurative or gangrenous process occurring in the immediate neighborhood of the blood vessel and involving the latter. But there is another important factor that must be considered. In scarlet fever there is a tendency to a degeneration of the muscle coat and elastic fibers of the blood vessels. Most of the hemorrhages in scarlet fever come from the throat; next in order are those from the mouth and nose; then come the hemorrhages from the ears; the fourth site of the bleeding is the stomach; and lastly may be mentioned instances in which hemorrhage may come from two or more of the above mentioned sources. The hemorrhage has a tendency to recur a number of times and is never seen earlier than the second week of the disease. Death is the usual outcome. The treatment demands both tamponade and ligation when these are feasible. The most important point in the prophylaxis is the timely incision of suppurating lymph nodes, particularly those of the neck, in which region the possibility of erosion of the jugulars or of the carotids must be thought of.

PITUITARY STANDARDIZATION.

The rôle of the internal secretions is growing to be better appreciated day by day, though knowledge of the manner in which they act is, at present, inadequate. Enough, however, is known to warrant the statement that in the future organotherapy will play a very great part in medicine. Thyroid extract has long been known to be valuable in the treatment of disturbances of the normal function of that gland, adrenal extract has an assured place in therapeutics, and the same may be said (with some reservations) concerning the extract of the infundibular or posterior lobe of the pituitary body, notwithstanding the fact that as yet no active principle has been isolated from it. This extract has been demonstrated to exert a decidedly stimulating effect upon uterine muscles and to have its uses in obstetrical practice.

One of the greatest obstacles to progress in therapeutics is that medicinal agents are employed before their properties have been accurately gauged. In the case of the pituitary body not only is it necessary to reach a better knowledge of its physiology, but to standardize any extracts which may be obtained from it. In a paper on "Pituitary Standardization" contributed to the Bulletin of the Hygienic Laboratory of the U. S. Public Health Service for November, 1914, Dr. George B. Roth points out that scarcely is any organic or inorganic substance shown to possess physiological activity, than it is placed upon the market as a therapeutic agent, and too often by the manufacturer from other than altruistic reasons. This is often done before any study has been made as to securing an active and staple product. He further points out that manufacturers are not entirely responsible for this condition, as they are frequently obliged to supply the demand created by the physician even though there is no method of stand-

ardization known. Roth has made a fairly exhaustive investigation into some of the physiological properties, and relative activity of the various preparations of the pituitary body now upon the market and he gives a most interesting and instructive sketch of the history, anatomy, physiology, chemistry, and therapeutic uses of the pituitary body. He concludes that the isolated uterus method, in which the degree of activity of the sample of pituitary extract is determined by the force of the contraction it induces in the uterine muscle of a young virgin guinea pig, has been found to be the most satisfactory one. These contractions are compared with those induced by a 1 to 20,000,000 dilution of beta-iminazolylethylamine hydrochloride which is taken as a standard solution. An arbitrary standard of activity for commercial pituitary extracts, making a 1 to 10,000 dilution of the extract equal in activity to 1 in 20,000,000 dilution of the standard when the isolated uterus of the virgin guinea pig is used, is also suggested.

Indirect Mortality from Tetanus.

The experience of the present war is bringing home the fact that tetanus patients even when the convulsions have been permanently arrested face a heavy risk of death from causes by no means to be classed as necessary complications and sequelæ of the disease. Among them may be mentioned bronchopneumonia, gas bacillus sepsis originating in the wound, ordinary sepsis from the same source, and the lighting up of old lesions like syphilitic nodules in the heart. Complete autopsies in tetanus subjects are evidently impracticable in war cases, but if such were performed our knowledge of contributory causes of death would doubtless be much increased. At a recent discussion on tetanus before the Aertzlicher Verein of Hamburg (*Berliner klinische Wochenschrift*, January 4) Fraenkel took up this side of the subject. He had made seven thorough autopsies on men who died in the course of or after tetanus. In but one of these was death due to the latter alone. In the remainder other affections, like those cited above, were either the sole or contributory causes of death.

News of the Week.

American Ambulance Chauffeurs.—Students in Princeton University have contributed $1,100 to the American Ambulance Hospital in Paris. The money will be used for the purchase of an ambulance for wounded soldiers in France. It is expected Princeton volunteers will be assigned to drive the car at the front. Already fifty-seven American men, twenty-four of whom are from Harvard, have been sent to France to drive ambulances.

Red Cross Unit for Germany.—Dr. G. L. Bailey of Oak Park, Ills., and four nurses have been sent by the Red Cross to Kosel, Germany, the party sailing last Saturday on the *Rotterdam*.

Hospital Staff for France.—The French Hospital of New York sent a medical staff of five surgeons and ten nurses to France on the *Touraine* last Saturday. They will have charge of a hospital at Château de Passy, to be known as the French Hospital of New York in France, with accommodations for 100 wounded. The medical supplies and equipment, costing $25,000, were shipped a week earlier in the *Niagara*. The physicians sailing were Drs. Joseph L. Wheelwright, T. C. Walker, W. G. Braddock, A. O. Jimenis, and John S. Irwin. Dr. P. R. Turnure, who is to be the chief of the medical staff, is already in France.

The Last Straw.—To the many wonderful tales, shocking or humorous, which have emanated from the seat of war may be added the report contained in a cable despatch to *The Sun* that a Prof. Friedenthal of Berlin University has discovered a means of converting straw into food. Wood pulp will probably be the next article of diet proposed, and then the Germans can eat their newspapers after reading them.

Casualties in the French Medical Corps.—During the first five months of the war 93 French Army Surgeons were killed, 260 wounded, and 440 taken prisoners.

Committee of American Physicians for the Aid of the Belgian Profession.—Dr. F. F. Simpson, treasurer of the committee reports the following contributions for the week ending February 27, 1915:

The Monmouth Medical Club, Monmouth, Ill.	$10.00
The Adams County Medical Society, Quincy, Ill.	42.00
Dr. Charles S. Smith, Uniontown, Pa.	25.00
Dr. Frederick J. Walter, Daytona, Fla.	10.00
Dr. Austin C. Brant, Canton, Ohio.	5.00
Dr. William D. Byrne, Chicago, Ill.	5.00
Dr. Simon Levin, Lake Linden, Mich.	5.00
Dr. Miles F. Porter, Fort Wayne, Ind.	5.00
Dr. J. B. Duncan, Pittsburgh, Pa.	10.00
Dr. J. M. Patton, Vandergrift, Pa.	1.00
Dr. N. B. Williams, Perkasie, Pa.	1.00
Dr. Wilson F. Phillips, Dorchester, Mass.	5.00
Dr. Donald C. Balfour, Rochester, Minn.	25.00
Dr. Austin Flint, Jr., New York, N. Y.	25.00
Dr. Evan T. Steadman, Hoboken, N. J.	10.00
Dr. John B. Nichols, Washington, D. C.	10.00
Dr. Hermann G. Klotz, New York, N. Y.	5.00
Dr. George P. Coopernail, Bedford, N. Y.	5.00
Dr. K. I. Sanes, Pittsburgh, Pa.	25.00
Dr. Herman F. Vickery, Boston, Mass.	25.00
Dr. H. H. Atkinson, Fordyce, Ark.	5.00
Dr. Archibald MacLaren, St. Paul, Minn.	25.00
Dr. Helen C. Puna, Providence, R. I.	5.00
Maricopa County Medical Society, Phoenix, Ariz.	25.00
Dr. J. D. S. Davis, Birmingham, Ala.	5.00
Dr. J. M. Popp, New Castle, Pa.	5.00
Dr. Horace Binney, Boston, Mass.	5.00
Dr. Warren Wilson, Northfield, Minn.	5.00
Dr. Gibbs Biscoe, Pendleton, Ark.	5.00
Dr. Eleanore Boulton, Philadelphia, Pa.	5.00
Dr. O. L. Ferry, Elkins, W. Va.	2.00
Dr. John P. Getter, Belleville, Pa.	2.00
Dr. W. H. Witt, Nashville, Tenn.	5.00
Salt Lake County Medical Society, Salt Lake City, Utah	50.00
New York Medical Union, New York, N. Y.	100.00
The Montgomery County Medical Soc., Dayton, Ohio.	304.50
Receipts for week ending Feb. 27.	$807.50
Previously reported receipts.	3,579.00
Total receipts.	4,386.50
Previously reported disbursements.	$3,575.00
Disbursements for week ending Feb. 27, 352 boxes of food at $2.30.	809.60
Total disbursements	4,384 60
Balance	$1.90

The Academy of Medicine Committee for Belgian Relief.—The New York Academy of Medicine has appointed a Committee to receive contributions for a fund for the relief of the Belgian physicians and surgeons, who have suffered as a result of the present war. This Committee is in close touch with those in other places which have the same object in view, and it is convinced that funds contributed can be expended wisely and economically and without duplication and waste.

The Committee believes that this fund should be administered not only to relieve the present suffering, but also to aid in the solution of the serious problems which will have to be faced at the conclusion of the war. It is beyond question that our confrères in that country have undergone, and are still undergoing extreme privation, and that their rehabilitation in practice will be slow and difficult.

Subscriptions to this Fund will be received by

either member of the Committee appointed by the Academy of Medicine. Checks will be deposited in the Astor Trust Company of New York, and the list of subscribers will be published from time to time in the medical journals of New York. The committee consists of Dr. William B. Coley, 40 East Forty-first street, and Dr. William K. Draper, 123 East Thirty-sixth street.

Annual Meeting of the American Medical Association.—In the *Denver News* of February 18, the statement was published that the trustees of the American Medical Association had requested the Colorado State Medical and the Denver County Medical Societies to invite the Association to meet this year in Denver instead of San Francisco, and that such invitation had been extended. Inquiry made at the office of the American Medical Association in Chicago brings the reply that the Association will not change its place of meeting, but will convene in San Francisco, as originally announced.

Gifts to Hospitals.—As a result of the Charity Ball recently given at Philadelphia the sum of $9,200 was realized, and each of the following institutions will accordingly receive $2,300: University Hospital Surgical Ward, Jefferson Hospital Maternity Department, Rush Hospital for Consumptives, Children's Hospital of Philadelphia.

The Robert D. Brigham Hospital for Incurables in Boston benefits to the extent of $50,000 by the will of Mrs. Ellen A. R. Goldthwait. This sum is to constitute a fund to be known as the Joel and Ellen Goldthwait Research Fund, and the income is to be used for work to increase the knowledge of chronic diseases.

By the will the late Mary Rushton, of Philadelphia, residuary bequests are made to the Children's House of the Philadelphia Home for Incurables and the Hospital of the University of Pennsylvania.

The National Committee on Mental Hygiene has recently received a gift of $44,500 from Miss Elizabeth Milbank Anderson and one of $40,000 from Mrs. William K. Vanderbilt, and the Rockefeller Foundation has agreed to contribute the money necessary to retain the services of Dr. Thomas W. Salmon as medical director of the Committee. At a meeting of the National Committee in this city on February 17 the following officers were elected: *President*, Dr. Lewellys F. Barker; *Vice-Presidents*, Dr. Charles W. Eliot and Dr. William H. Welch; *Treasurer*, Otto T. Bannard; *Medical director*, Dr. Thomas W. Salmon; *Secretary*, Clifford W. Beers; *Executive Committee:* Dr. August Hoch, chairman; Dr. George Blumer, Miss Julia C. Lathrop, Dr. William Mabon, Dr. William L. Russell, and Dr. Lewellys F. Barker.

Harvey Society Lectures.—The final lecture of the course will be delivered at the New York Academy of Medicine on Saturday March 13, at 8:30 P. M., by Prof. Elliott P. Joslin of Harvard University. The subject of the lecture will be: "Carbohydrate Utilization in Diabetes, Based upon Studies of the Respiration, Urine, and Blood."

In Support of the State Health Department.—The New York State Conference of Mayors and Other City Officials, through its legislative committee, is urging adequate appropriation for the State Department of Health on the ground that the educational campaign of that department strengthens the work of local departments and gives it a backing without which local departments would be unable efficiently to carry on such work. The resolution adopted by the committee cites the fact that the first Conference of Mayors devoted its entire program to "The City Healthful" and became thereby a pioneer in the agitation which brought about the demands for the present excellent State health law.

New Division of Industrial Hygiene.—The New York City Department of Health is about to establish a Division of Industrial Hygiene, which will be under the general supervision of the Director of the Bureau of Infectious Diseases, and which will be closely associated with the Bureau of Public Health Education.

Change in the Period of Quarantine in Cases of Scarlet Fever.—In accordance with the effort now being made to bring the public health regulations and laws in this city into conformity with those of the State Department of Health, the quarantine period in cases of scarlet fever occurring in New York City has been fixed at "thirty days and until discharges have ceased and the disinfection of the person has been carried out," instead of the thirty-five day period of quarantine previously enforced in this city.

Death Rate in New York.—For the week ending February 20, the death rate in this city was 14.11 per thousand of population as compared with 16.52 for the corresponding week of 1914. The rate since January 1 has been 13.95 as compared with 14.85 during the corresponding period last year.

Dogs Must Be Muzzled.—The validity of the Board of Health order requiring that all dogs be muzzled has been upheld by Supreme Court Justice Lehman. In his decision the judge said: "In spite of the discussion as to the prevalence or even the existence of this disease (rabies) the prevailing opinion, both lay and medical, is that such a disease does exist and is a menace to public health. * * * The disease can become completely eradicated if it becomes impossible for one rabid animal to bite another animal or human being, and the disease can be controlled in exact proportion that control and protection from such bites can be secured."

Dr. J. M. Godfrey, Past President of the General Council of the Alpha Sigma Medical Fraternity, was the recipient of a silver service at the hands of his fraternity brothers at the annual dinner held at Philadelphia on February 22.

Medical Society Elections.—The Waterbury (Conn.) Medical Association, at the annual meeting held January 11, elected the following officers: *President*, Dr. John E. Farrell; *Vice-President*, Dr. Myron L. Cooley; *Secretary*, Dr. Egbert L. Smith; *Treasurer*, Dr. Charles E. Rodman; *Executive Committee*, Drs. Farrell, Rodman, and Dudley B. Deming; *Literary Committee*, Drs. Cooley, Smith, and Carl E. Munger.

The Santa Clara County (Cal.) Medical Association at a regular meeting held in San José on December 16, elected the following officers: *President*, Dr. Charles M. Richards; *Vice-Presidents*, Drs. James Blair, T. M. Williams, and John Clarke; *Secretary*, Dr. Charles B. Hare; *Treasurer*, Dr. H. B. Wright; *Counselors*, Drs. N. H. Bullock, Frank H. Patterson, and S. B. Van Dalsem; *Delegates to State Society*, Drs. N. H. Bullock and J. A. Bacher; *Alternates*, Drs. M. W. Kapp, Paul Sanford, and P. A. Jordan.

The Pottsville (Pa.) Medical Club, at a meeting held January 7, elected the following officers: *President*, William F. Doyle; *First Vice-President*, Dr. A. L. Gillars; *Second Vice-President*, Dr. John

Striegel; *Secretary-Treasurer*, Dr. John J. Moore; *Board of Membership*, Drs. G. R. S. Corson, J. L. Warne, and C. D. Miller.

The Nashville Academy of Medicine and Davidson County (Tenn.) Medical Society, at a meeting held January 5, elected the following officers: *President*, Dr. W. E. Hibbert; *Vice-President*, Dr. H. M. Tigert; *Secretary*, Dr. J. F. Gallagher; *Delegates to the State Association*, Drs. McCabe, Tigert, and Caldwell.

The Fayette County (Pa.) Medical Society, at the annual meeting held in Uniontown January 7, elected the following officers: *President*, Dr. A. E. Crow; *First Vice-President*, Dr. J. Holmes Sangston, of McClellandtown; *Second Vice-President*, Dr. E. C. Sherrick, of Connellsville; *Secretary*, Dr. Joseph P. Ritenour, of Uniontown; *Treasurer*, Dr. J. E. Van Gilder, of Uniontown; *Reporter*, Dr. G. H. Robinson, of Uniontown; *Censors*, Drs. O. R. Altman, of Uniontown; T. B. Echard, of Connellsville, and H. J. Bell, of Dawson.

The Muscatine (Iowa) Medical Society, at a meeting held December 29, elected the following officers: *President*, Dr. A. J. Weaver, Muscatine; *First Vice-President*, Dr. F. L. Appell, Muscatine; *Second Vice-President*, Dr. W. A. Cooling, Wilton; *Secretary-Treasurer*, Dr. R. M. Arey, Muscatine.

The Kennebeck County (Maine) Medical Association held its annual meeting in Augusta on January 1, electing the following officers: *President*, Dr. Ralph D. Simons, of Gardiner; *Vice-President*, Dr. H. K. Stinson, of the National Soldiers' Home at Togus; *Secretary*, Dr. S. J. Beach, of Augusta; *Treasurer*, Dr. G. R. Campbell, of Augusta; *Censors*, Drs. B. D. Ridlon, of the National Soldiers' Home at Togus; A. B. Libby, of Gardiner; L. G. Bunker, of Waterville; *Delegates to the Maine Medical Association*, Drs. T. E. Hardy, of Waterville; D. B. Cragin, of Waterville, and S. J. Beach, of Augusta.

The Langlade County (Wis.) Medical Society, at the annual meeting held at Antigo on December 23, elected the following officers: *President*, Dr. F. V. Watson; *Vice-President*, Dr. H. G. Westphal; *Secretary-Treasurer*, Dr. J. C. Wright; *Censor*, Dr. M. J. Donohue.

Obituary Notes.—Dr. Homer Gibney of New York died suddenly on February 16, aged 55 years. He was a graduate of the Atlanta Medical College, Atlanta, Ga., in 1893, assistant surgeon to the Hospital for the Ruptured and Crippled, Out-Patient Department, consulting orthopedic surgeon to the Italian Hospital, the Somerville Hospital, and the Rockaway Hospital, orthopedic surgeon to the West Side German Dispensary, and a member of the New York Academy of Medicine and the Society of the Alumni of the Roosevelt Hospital.

Dr. John Wesley Gray of Bloomfield, Ind., a graduate of the Jefferson Medical College, Philadelphia, in 1864, and of the Bellevue Hospital Medical College, New York, in 1867, died at his home, after a short illness, on January 25, aged 75 years.

Dr. Harry Clifton Boutelle of Danvers, Mass., a graduate of the Harvard University Medical School, Boston, in 1899, a member of the Board of Health of Danvers, and of the American Medical Association, the Massachusetts Medical Society, and the Essex District Medical Society, died at his home from pneumonia, on January 25, aged 39 years.

Dr. Samuel W. Langmaid of Boston, Mass., a graduate of the Harvard University Medical School in 1864, consulting laryngologist to the Massachusetts General Hospital, and a member of the American Medical Association, the Massachusetts Medical Society, the Norfolk District Medical Society, the American Laryngological Association, and the New England Otological and Laryngological Society, died at his home in Brookline, on February 3, aged 77 years.

Dr. Thomas Carney of Schenectady, N. Y., a graduate of the Albany Medical College, Albany, N. Y., in 1902, a major in the National Guard of the State of New York, and a member of the New York State and Schenectady County Medical Societies, died at the Johns Hopkins Hospital, Baltimore, on February 6, following an operation for gastric disease.

Dr. William G. Schmidt of Quincy, Ill., a graduate of the Missouri Medical College, St. Louis, in 1891, and a member of the Illinois State and Adams County Medical Societies, died at his home on January 16, aged 54 years.

Dr. Isaac Shelby Warren of Somerset, Ky., a graduate of the Kentucky School of Medicine, Louisville, in 1871, and a member of the Kentucky State Medical Association and the Pulaski County Medical Society, died at the Somerset Hospital, following an operation for cancer, on January 15, aged 59 years.

Obituary.

JAMES FRANCIS DONNELLY, M.D.,

NEW YORK.

On the roll of Red Cross martyrs must be inscribed the name of Dr. James F. Donnelly, who died at Gevelegi, near Nish in Servia, on February 24. He was born in Boston, July 15, 1874, and was graduated in medicine from the University of Louisville. He had had an adventurous career, having seen active service in South Africa during the Boer war and later on the West Coast of Africa. For a number of years he was surgeon on the boats of the Holland-America Line, was for a time in Dalny, and then accompanied, in the capacity of medical officer, an expedition to the head waters of the Amazon in Peru. He was for nearly a year in Hayti, working to improve the sanitary condition of some of the ports in that country, and later was boarding officer at the New York quarantine station. He left New York last November in company with five other physicians and twelve nurses sent by the American Red Cross. When volunteers were called for to take charge of the pest hospital at Gevelegi Dr. Donnelly offered his services and while there contracted typhus fever, which caused his death.

Correspondence.

MEDICAL NEWS IN THE "NEW YORK TIMES."

A DENIAL FROM THE GENERAL MEMORIAL HOSPITAL.

To the Editor of the Medical Record:

Sir:—On Friday, Feb. 19, the *New York Times* featured an article on a "New Cancer Serum," said to have been devised at the General Memorial Hospital and used with curative effect on hopeless cases in the last stages of the disease. So much technical detail was interwoven in the statement as to make it appear that the report had been derived from an authoritative source and such extravagant claims were credited to the Medical Board as gravely to impugn their scientific judgment if not their per-

sonal veracity. Although prompt denial of the authenticity of the article was made by a member of the Board of Managers of the Hospital and published in the *Times* on the following day, the Medical Board of the Hospital feels that a more detailed reply is owing to the medical profession, and to such portion of the public as is within their reach.

While it is impossible to discuss in detail every error in the report, it is possible to deny categorically the chief assertions made in the article, which we wish to do as follows:

1. "The therapeutic agent is a serum of a kind never before used." We are not at present using at the Memorial Hospital any serum whatever.

2. "It is the opinion of those watching the effects of the new serum that it has already superseded the use of radium and *x*-rays." No such opinion is held by any member of the Board regarding any treatment ever employed at this hospital. On the contrary, very elaborate equipment with both these physical agents is constantly being employed at the hospital to the limit of capacity and we see no indication that the demand for radium and the *x*-ray is likely to diminish.

3. The article imputes to us the belief that recurrences after disappearance of cancer under radium treatment are frequent and sometimes more malignant than the original disease. We disclaim any responsibility whatever for this opinion and are not prepared to express judgment on the ultimate effects of radium.

4. "Patients afflicted with cancer of the breast and involving the adjacent smaller glands have been successfully treated by the serum." The only encouraging results we have had with this group of inoperable cases have been with the *x*-ray and here our observations agree with those of radiologists generally.

5. The reference to two specific cases of epithelioma of the temple and cancer of the tongue, said to have been cured by this serum, do not correspond with any observations made in this hospital. There have been no such cases in the institution.

6. "They forecast this report as one of the most important contributions to science emanating from the medical profession of the country." We decline to accept responsibility for any such promise. We have no such report in contemplation. We know of nothing that seems likely to prove a constitutional remedy for advanced cancer. All we hope to do at the General Memorial Hospital is in the line of painstaking study of different forms of cancer, the persistent application of well attested remedies and palliatives in the disease, and the investigation of such other methods as present a sound theoretical basis, always with strict regard to the interests of the individual patient.

7. Finally we desire to state that the article in the *New York Times* was published against the energetic protest of the only member of the Board who was interviewed in regard to it.

In an editorial comment on February 22 the *Times* states: "Real newspapers will continue to exercise their own judgment as to what they will or will not print. That is their business and some of them perform it perhaps with a sense of responsibility, as deep as is that of the most ethical member of the profession." Nevertheless we submit that as a result of publishing the statement, in question, the work of the hospital has been seriously interfered with, the time of its staff has been wasted, the seeds of misunderstanding and mistrust have been sown, the good name of honest investigators in a difficult field has been jeopardized, and false hopes have again been roused in the minds of unfortunate sufferers all over the country.

For the Medical Board, General Memorial Hospital,

JAMES EWING,
W. B. COLEY,
RICHARD WEIL,
S. P. BEEBE.

PROSTATIC ATROPHY AND MUMPS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The close, one is tempted to say mystical, connection between the parotid gland and the testes is well known. That an attack of parotitis may result in atrophy of the testes, in aspermia or azoospermia with complete sterility, is also well known. Hardly known, however, is the connection between the parotid and the prostate, and still less known is the fact that an attack of parotitis may cause atrophy of the prostate without apparent involvement of the testicles and the spermatogenetic function. The sterility may, however, be just as absolute nevertheless, for a normal prostatic secretion is an important constituent of normal seminal fluid and its absence seems in many instances to be alone responsible for the lack of fertilizing power of the latter.

The writer has had seven cases of partial or *complete* (so complete that not a vestige of prostatic tissue could be made out) atrophy of the prostate, in which an antecedent parotitis seemed to be the sole etiological factor; in some of these cases (five) the atrophy was accompanied by atrophy of the testicles; in two the testicles seemed to be unaffected. These interesting cases will be reported in detail later on. But the object of these lines is to call the attention of the profession to the connection between the parotid and the prostate, and to ask them to report, either in the pages of the MEDICAL RECORD or to me directly, any cases of prostatic atrophy in which parotitis was the positive or probable etiological factor.

The relationship existing between far distant glands, organs, and tissues and the genital organs forms a fascinating field of study and research.

WILLIAM J. ROBINSON, M.D.

12 MT. MORRIS PARK W.,
NEW YORK CITY.

THE ATLANTIC COUNTY MEDICAL LIBRARY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In your issue of February 20, in the list of Medical Libraries, you fail to mention the Library at Atlantic City. This is situated in the building of the Atlantic City Public Library but is under the direction of the Atlantic County Medical Society. It contains about 1500 volumes. It is our desire that the physicians who come to Atlantic City may know that our library is at their disposal at all times, and I would thank you to give this publicity to its existence.

W. EDGAR DARNALL, M.D.

ATLANTIC CITY, N. J.

The Suprarenals in Shock. — G. Romano concludes from his experiments on dogs that in the condition of shock there are dynamic and functional changes in the suprarenals, consisting in a marked reduction in the adrenalinogenic power of the medullary substance.—*Riforma Medica.*

OUR LONDON LETTER.

(From Our Regular Correspondent.)

PARLIAMENTARY DISCUSSION ON ANTITYPHOID INOCULATION—CRIMINAL ABORTION—ROYAL MEDICAL BENEVOLENT FUND—RED CROSS AND AMBULANCE REPORT—MILITARY SERVICE AND HEALTH.

LONDON, February 12, 1915.

THE antis have managed to make a raid in the House of Commons on two days this week, but they have sustained so decisive a defeat that they might well bury their prejudices. This resulted from the union of the two parties, for the opposition joined the government forces on this question. The question arose on the vote for the army, when Mr. Peto expressed surprise that any one should oppose inoculation against typhoid so strongly favored by every great medical leader. Typhoid, he said, had practically disappeared among our troops in India, and in the present war the preventive against death was absolute. In the Boer war there were more deaths from typhoid than from the enemy. In the United States army inoculation was compulsory. Then Mr. Chancellor spoke for the antis, complaining that they were boycotted by the press and declaring that although ministers assured men they were not compelled to be inoculated, officers exercised so much influence that it often amounted to terrorism. He told a tale from a letter he received this year about a young man, the only one in his company of "a good many," who declined to be inoculated, and was called a fool and a "dirty dog" by the medical officer, with other opprobrious terms emphasized with profanity. It is certainly disgusting to think a qualified man should disgrace the profession which claims to consist for the most part of gentlemen, but the insulted young man appealed to a superior officer with the result that an apology was tendered. Mr. Chancellor said he did not object to proper persuasion, but to methods amounting to coercion and to the falsehood that opponents of inoculation were deterring recruiting. Sir H. Craik protested against the attack on the honor of the profession whose united opinion was surely preferable to Mr. Chancellor's *ipse dixit*. Then Dr. Addison, who is parliamentary secretary to the Board of Education, put in the defense of the government in an admirable speech in which he pointed out that in the present campaign only 421 cases of typhoid had so far occurred, against 58,000 in the South African war. It was not contended that an inoculated man could not suffer from typhoid, for in fact cases had occurred, but they were so few and the protection was so great that the plan was worth trying. He admitted it was wrong to press the consciences of men, as stated by Mr. Chancellor, whose condemnation should, however, extend to the agitation carried on by his own party by leaflets, manifestos, and people going about the camps urging opposition to inoculation. He understood a possible excess of zeal in an officer taking out a company who felt the burden would be less with fewer sick, and so more units on the firing line. Then Mr. Long, as leader of the opposition, announced that his party would give their support to the government, and hoped they would not by weakness or vacillation add to the decimation of our forces owing to a cause which they could prevent. He believed strongly in inoculation, in vaccination, in vivisection. The pledge given to men enlisted not to compel was binding, but with regard to the future it was for consideration. Mr. Tennant, Under Secretary for War, said evidence for compulsion was accumulating. In India over 90 per cent. were inoculated voluntarily. Previous to compulsion 2,000 cases of typhoid occurred annually. In 1913 there were only 85. Lord Kitchener felt the danger of noninoculated men on leave bringing back typhoid unless they got inoculated. Of our men in France, 34/35ths of the deaths were of the noninoculated. Mr. Chancellor had said zealous officers were conscientious men with a flame burning inside them. But when the flame was about to light the wrong gas it was better to extinguish it.

The Society of Medical Officers of Health has had before it a paper on "Criminal Abortion and Abortifacients," by Dr. W. F. J. Whitley, who said of three ways in which it was attempted the commonest was purgation, the other two being, 1, by drugs having a supposed or real action on the fetus itself or else on the uterine muscle; 2, by mechanical interference. He thought an unsuccessful attempt might perhaps have more serious and far-reaching effects than a successful one, as a maimed, disfigured infant might be born, undeveloped, and possessed of scarcely any power of resistance. Among poisonous drugs, diachylon was much resorted to in the northeast of England, taken in combination with aloes. Some chemists had agreed not to sell it without a doctor's prescription, but there was evidence that it was sold freely by herbalists, many of whom were, in fact, abortionists. Suggested measures for checking the crime were scheduling diachylon as a poison, notification of pregnancy, education as to ante-natal hygiene, notification of all abortions or miscarriages, and a pathological examination of fetus and placenta in every case. Dr. Willoughby admitted that a disastrous effect might follow the ingestion of abortifacients, but feared their use would not be much restricted by scheduling same. The root of the mischief was that a mother was not looked upon with the respect to which she was entitled. People should be warned that drugging might prevent healthy infants being born. Dr. S. C. Lawrence referred to the difficulty of deciding, in presence of an abortion, whether drugs had been taken. Mr. Hichon said in the north of England instruments were more commonly used than was realized. The first preventive step was to stop suggestive advertisements. Dr. Hutt asked what evidence there was of injury to the child after an unsuccessful attempt. If incorrect the statement might do harm. The president, Mr. Herbert Jones, agreed that advertisements of abortionists ought to be stopped. He said the very herbalists who were receiving payments from the State under the insurance offer sold abortifacients. Perhaps your readers will think that the society, instead of confining itself to talk about the evil, might have done better to make a forcible representation of the facts to the government.

Queen Amélie of Portugal took the chair at the annual meeting of the Royal Medical Benevolent Fund Guild, held at the Royal College of Physicians on the 4th inst. The report of the Council urged the need of new branches and more workers. The plan had been one of quiet endeavor and the treasurer pronounced the financial position satisfactory. The war had taken toll of the profession, 73 R. A. M. C.'s having been killed, and on their list were several widows who, besides their poverty, had the anxiety incident to their sons being at the front. The Guild was instrumental in assisting many of these cases and providing for the education and training of other children.

The Red Cross and St. John's Ambulance Societies have made a joint report of their work during the first six months of the war. On its outbreak they received offers of convalescent homes for sailors and soldiers amounting to a provision of 21,339 beds. At present they have 705 auxiliary home hospitals containing 19,576 beds, most of them organized, opened and staffed by voluntary aid detachments under control of the military authorities. About 300 officers have been placed in convalescent homes, 25 sent to Switzerland (some with their wives), traveling and hotel expenses being paid for them. Hospitality has been arranged for a number of Belgian officers and their families. A house with 400 beds given by Messrs. Bourne and Hollingsworth has been handed over to the Belgian Government, and is now King Albert's Hospital. Another house, with 300 beds, has also been given for a convalescent home for Belgian soldiers.

The value of national military service from a physical and medical point of view formed the subject of a lecture by Dr. Leslie at the Institute of Hygiene. To any mother who asked if her son was strong enough to enlist, he declared the answer always was "Yes," for the profession was well aware that the training meant an almost infallible regeneration of physical and mental power. In a specific instance 350 recruits, drawn more or less from the lower strata, 20 per cent. who seemed scarcely fit for service could, after three months, pass any test. The others, who had originally passed, were immeasurably improved. Young men were beginning to realize the value of feeling fit—a fitness which awakened soul as well as body. In heart cases civilians exceeded by 20 per cent. the number of army men.

The progress of the Japanese in physique and intellect since the introduction of national service was almost magical. The same was true of the Australian commonwealth. The British army had more cases of heart disease than the French, Austrian, and Russian armies put together. Our climate with its creation of rheumatism must, however, be remembered in this connection.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 18, 1915.

1. The Treatment of Diabetes. F. M. Allen.
2. Some Perils Confronting State Care of the Insane. C. P. Bancroft.
3. The Preoperative Diagnosis of Tuberculous Mesenteric and Retroperitoneal Glands. E. H. Risley.
4. A Localized Subacute Form of Bronchopneumonia. R. C. Larrabee.
5. The Field for Local Anesthesia and of Spinal Anesthesia in Genitourinary Surgery. A. Hallam Crosbie.

1. The Treatment of Diabetes.—F. M. Allen bases his method of treatment upon the conception that diabetes is the result of a simple weakness of the pancreas without an inherent downward tendency. The first step in the treatment is to have the patient fast till glycosuria ceases, and then for twenty-four or forty-eight hours longer. At the same time, the ketonuria falls steeply. It quickly approximates what a normal individual would show under similar conditions, and the aim is to keep it constantly down to this level. Plain fasting suffices for the purpose; but since alcohol is a food which does not produce glycosuria and is said to diminish ketonuria, it is generally given during fasting, especially if there is danger of coma. Its use or omission in later treatment depends upon individual conditions. Alkalies may be useful for the first few days if coma seems imminent, but are then no longer needed. Continuing the sodium bicarbonate may cause the ferric chloride reaction to remain positive longer than it otherwise would, with no benefit to the patient. When the fasting patient has been free from glycosuria for twenty-four to forty-eight hours, the next step is to begin feeding very slowly and cautiously. There need not be a fixed program. It is desirable to individualize the diet to suit the needs of different patients, and various physicians may have personal preferences of their own. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day, with or without alcohol. The original fast, to clear up the urine in the first place, may be anything from two to ten days, but after that no fast need be longer than one day. The things to be considered in the diet are carbohydrate, protein, fat, and bulk. Frequently the first thing given after the fast is carbohydrate. No distinction is necessary between different forms of starch, but there are advantages in using vegetables, following Joslin's convenient classification on the basis of carbohydrate content. The first day after fasting, the only food may be 200 grams of vegetables of the 5 and 6 per cent. classes. This is increased day by day until a trace of glycosuria appears, which is checked by a fast day. The purpose of such a program is to learn the carbohydrate tolerance and to clear up the last traces of acidosis. After this carbohydrate period, or sometimes in place of it, protein is given. On the first day perhaps one or two eggs are given, and nothing else. More protein, generally as eggs and meat, is added day by day, until the patient either shows glycosuria or reaches a safe protein ration. The purpose here is to learn the protein tolerance, and to cover protein loss as quickly as possible. Fat is somewhat less urgently needed, except in very weak and emaciated patients, and it can be added gradually, as conditions seem to indicate. An element of bulk in the diet is necessary to give the comfortable feeling of fulness, and to prevent constipation. This is the great advantage of green vegetables. When these green vegetables are fed raw, the author says, or cooked in steam, or boiled and evaporated so that none of the water is thrown away, they contain a definite quantity of carbohydrate, besides valuable salts.

3. Tuberculous Mesenteric and Retroperitoneal Glands.—E. H. Risley concludes that tabes mesenterica is often a primary disease with sometimes a fairly distinct clinical history and signs. It most often simulates acute appendicitis, and when in this stage should demand surgical intervention. In the absence of palpable glands, however, it is impossible to make a correct pre-operative diagnosis in many cases, there being no symptom-complex distinctive enough of this condition. A great many people harbor tuberculous mesenteric glands in various stages of activity without symptoms. The disease has two clinical types: a slowly progressing one, generally with palpable glands, and an acute fulminating type, most often simulating and impossible generally to differentiate from appendicitis. The prognosis in the subacute stage is good without operation. In the acute stage exploratory laparotomy should be done, but the glands not removed unless there are definite indications either from adhesions, ulceration, or size of mass producing pain or mechanical obstruction. In children and young adults with a history of right-sided abdominal pain, with or without the presence of palpable masses, tabes mesenterica, the author says, should always be considered as a possibility.

New York Medical Journal.
February 20, 1915.

1. Drainage of the Seminal Vesicles. J. Bentley Squier.
2. A New Test of Blood Serum and Cerebrospinal Fluid in Syphilitic Involvement of the Nervous System. A. Gordon.
3. Radium in Cancer of the Bladder. W. Ayres.
4. Mannerisms and Their Relation to the Psychic Life. J. P. H. Murphy.
5. Foot and Mouth Disease. F. Proescher.
6. Foreign Body in the Psoas Muscle. P. Le Breton.
7. Tonsillectomy. C. H. Smith.
8. Condensed Milk. P. Bartholow.

1. Drainage of the Seminal Vesicles.—J. Bentley Squier draws the following conclusions from the study of fifty consecutive operations upon the seminal vesicles. Operative drainage of the vesicles for chronic focal infection has produced in this series a cure in 68 per cent. of all cases operated upon, improvement in 24 per cent., and no improvement in 8 per cent. The largest percentage of cure has been among those cases in which arthritic symptoms predominated: Cured, 76.4 per cent.; improved, 23.6 per cent. The author's experience with drainage of the seminal vesicles in patients suffering from arthropathies seems to indicate that the amount of relief to be expected in any given case will largely depend upon the length of time elapsed between the acute urethral infection, the appearance of the joint lesion, and the operation for drainage. After ankylosis from fibrous or bony changes has taken place, operation upon the vesicles will offer but little except toward arresting further joint destruction. Next in order of operative relief is the pain group, in which cure resulted in 66.6 per cent. of cases, improvement in 25 per cent., and no improvement in 8.4 per cent. The least satisfactory have been the pus group, in which cure resulted in 61.9 per cent., improved in 23.8 per cent., and no improvement in 14.3 per cent. The reason this group has been the least productive of favorable result is obvious. In most instances the infection in the vesicles is only a part of a pan-infection involving prostate, urethra, and bladder neck. This group of cases may be found to require excision of the vesicles and prostate if cure is to be expected in every case. Twenty-five per cent. of the pain group were complicated by calculi of the vesicle. Where neurasthenic symptoms were associated with any of the symptom groups there has been a complete amelioration of these symptoms. Approximately 10 per cent. of the patients suffered from a postoperative impotence. This was transient in all but one case, where it had continued up to the present, and in which there was a preoperative impotence. The other cases in from two to six months regained their sexual capacity in every instance. The majority of patients suffering from chronic seminal vesiculitis had already manifested an impairment of sexual function irrespective of operation. The important corollary is that a surgeon should definitely ascertain the exact status of a patient's sexual function before operation is decided upon, in order to guard against having the operation considered as the cause of an already existing impotence.

2. A New Reaction in Syphilis.—A. Gordon describes this test as follows: One-half cubic centimeter of blood serum is placed in a test tube. Five drops of a one per cent. solution of bichloride of mercury are slowly allowed to fall in the center of the tube. The following phenomenon is observed. If the serum comes from a normal individual or from an individual suffering from other diseases, but free from syphilis (as proved by a Wassermann test), the moment the reagent comes in contact with the serum a cloudiness will appear which will rapidly increase in density so that at the end of five and sometimes ten minutes the entire or almost the entire amount of serum will present a thick gray mass with a slightly greenish tint. In some cases the thickness appears at once, in other cases shortly after the dropping of the reagent, and in still other cases five or ten minutes later. In syphilitic serums the contact of the reagent produces not the foregoing thick mass, but only a foamy upper layer which remains as such for some time. Here one observes a distinct slight upper whitish and foamy layer beneath which the normal serum is evident; the latter preserves the same appearance and color as prior to the manipulation.

5. Etiology of Foot and Mouth Disease.—F. Proescher reports the results of his examination of smears taken from the pustular contents of two cases of foot and mouth disease. The smears which were stained with methylenazur showed an enormous number of extremely small cocci in the form of deplococci or diplobacilli sometimes appearing in short chains and closely packed together. The majority of the microorganisms are just within the limit of microscopic visibility (0.1 micron); the largest form are about 0.2 of a micron. They are metachromatic violet blue; few are stained deep blue. In places where the organisms appear widely separated they seem to be surrounded by a small colorless capsule. These microorganisms are the smallest of the visible filterable viruses, being smaller than either poliomyelitis or rabies microorganisms.

Journal of the American Medical Association.
February 20, 1915.

1. The "Primitive Physic" of Rev. John Wesley. A Picture of Eighteenth Century Medicine. G. Dock.
2. The Comparative Nutrient Value of Cod Liver Oil and Cod Liver Oil Cordials. J. P. Street.
3. Symptoms and Signs of Gastric Cancer: An Analysis of 712 Consecutive Operatively and Pathologically Proved Cases. F. Smithies.
4. Torticollis. H. J. Fitz Simmons.
5. The Cellular Factor in Infectious Diseases. D. Riesman.
6. Some Observations on the Nervous and Mental Symptoms of Heart Disease. J. I. France.
7. Hay Fever. Its Treatment by Injection of a Solution of Ragweed Pollen. E. T. Manning.
8. Pseudomyxoniatous Cyst of the Appendix with Calcification of Walls. Report of Case. H. H. Ogilvie.
9. The Relation of Pituitary Disturbances to Paranoidal Trends. H. W. Kemp.
10. Case of Unusual Tolerance Toward Belladonna. S. H. Adler.
11. Roundworm Within the Body of a Tonsil. A. B. Middleton.

3. Gastric Cancer.—F. Smithies states that there is at present no known medical cure for gastric cancer. There is, as yet, no dependable means at one's command for the recognition of the disease at a stage when one can positively state that the affection is surgically curable. The cases of gastric cancer early diagnosed are those in which the clinical symptomatology is that which one associates with chronic gastric ulcer, and in which laparotomy has been urged on the suspicion that cancer might be present. Where microscopists disagree regarding the diagnosis of sections of extirpated tissue, clinicians can scarcely be expected to make an early diagnosis of gastric cancer before laparotomy. The question for clinicians and pathologists to settle is not how many cancers had previous ulcer pointings, nor how frequently gastric ulcer changes from a simple to a malignant form, but just how one is to tell, clinically, in a given case of chronic gastric ulcer, what future course it is destined to pursue. This is the crux of the situation. At present there is no means of prognosing the future course of any gastric ulcer, acute or chronic. The life history of the affection seems to depend on certain unknown factors that are apparently highly individual.

5. The Cellular Factor in Infectious Diseases.—D. Riesman suggests a new classification of bacterial infections as follows: (1) The productive infectious diseases, characterized by cellular proliferation. (2) The non-productive infectious diseases, not so characterized. To

the first class belong tuberculosis, typhoid fever, and pneumonia. In pneumonia the cells of the exudate may not be all newly formed. They may have been called forth from the cell depots in the blood and elsewhere. They are, however, new in their pulmonary site and in the Abderhalden sense are out of place. To the non-productive bacterial diseases belong diphtheria and tetanus. A closer study of this classification reveals an extremely interesting point, namely, that the infections classed under (1), that is, the productive infectious diseases, are all due to bacterial endotoxins, or, in the sense of Vaughan, to split proteins, while those in Class (2), the non-productive infectious diseases, are due to the soluble toxins and not to poisons contained in the bacterial bodies.

The Lancet.

February 13, 1915.

1. Puerperal Eclampsia. C. E. Purslow.
2. Experimental Purpura. J. C. G. Ledingham.
3. A Contribution to the Study of Shell Shock. Being an Account of three Cases of Loss of Memory, Vision, Smell and Taste, admitted into the Duchess of Westminster's War Hospital, Le Touquet. C. S. Myers.
4. The Pseudo-Lævulose of Diabetic and Other Urines. P. J. Cammidge and H. A. H. Howard.
5. Death from Strangulated Internal Hemorrhoids. P. Lockhart-Mummery and M. K. Joshi, M. R. C. So.
6. A Note on the Treatment of Gunshot Wounds of the Femur. C. Wallace.
7. Typhoid and Paratyphoid Infection in Relation to Antityphoid Inoculation, together with Remarks on the Importance of the Use of Prophylactic Paratyphoid Inoculation. G. Dryer, E. W. Ainley Walker, and A. G. Gibson.

2. Experimental Purpura.—J. C. G. Ledingham and S. P. Bedson record a series of data showing the blood changes in guinea pigs after inoculation with anti-guinea pig plate serum. The early fall in the number of platelets simultaneously with the outburst of skin purpura is found to be a marked feature. Purpura has also been produced in rabbits and rats by inoculation with the respective anti-plate serum. The blood changes in rabbits have been followed with results similar to those obtained in guinea pigs. Anti-plate serum, in addition to its purpura-producing properties, possesses in common with other cytolytic sera considerable lytic powers, which, in all probability, contribute largely towards the fatal issue in small animals. Death, however, may occur as the result of extensive hemorrhages alone without any obvious lytic changes as evidenced by hemoglobinuria. Sera obtained by immunization with red cells or leucocytes do not produce purpura. This disease is not produced by inoculating animals with heterologous anti-plate sera.

3. Shell Shock.—C. S. Myers reports three cases which apparently constitute a definite class among others arising from the effects of shell shock. The shells in question appear to have burst with considerable noise, scattering much dust, but this was not attended by the production of odor. It is therefore difficult to understand why hearing should be (practically) unaffected, and the dissociated "complex" be confined to the senses of sight, smell, and taste (and to memory). The close relation of these cases to those of "hysteria" appears fairly certain.

5. Death from Strangulated Internal Hemorrhoids.—P. Lockhart Mummery and M. J. Joshi report the case of a man, aged forty-three years, in whom complete gangrene of all the coats of the rectum occurred as the direct result of thrombosed internal piles, and believe that the condition was rendered possible by the secondary anemia from which the patient was suffering. The patient died apparently from septicemia, the result of extensive gangrene of the rectum and neighboring tissues, but had he survived longer the authors have very little doubt that the typical abscesses in the liver would have been evident. The only treatment which would appear to have given the patient any chance of recovery was an early colotomy, which would have enabled the bowel to be kept clear of fecal material. It was, however, obviously unjustifiable to perform colotomy for thrombosed veins in the rectum, and by the time it was obvious that the whole of the rectum was gangrenous it was too late for this method to have had any chance of success, while the patient was too ill to undergo any operation.

7. Inoculation Against Typhoid and Paratyphoid Fevers.—G. Dreyer, E. W. Ainley Walker, and A. G. Gibson believe that it is of the utmost importance that troops should be protected against paratyphoid infection as well as against the *B. typhosus*. This can readily be done by the use of a mixed vaccine containing equal quantities of *B. typhosus*, *B. paratyphosus* (*B*), and *B. paratyphosus* (*A*). Men already inoculated against *B. typhosus* should also be inoculated against paratyphoid infection, since the antityphoid inoculation offers no appreciable protection against paratyphoid bacilli. The epidemics of typhoid fever reported to be occurring among the belligerents (who are all known to practise antityphoid inoculation) are probably to an important extent epidemics of paratyphoid. Unless all cases of typhoid fever are properly differentiated into typhoid and paratyphoid infection the statistics regarding the value of antityphoid inoculation among the forces in the present war will be most seriously vitiated. It is probable that the absence of accurate bacteriological diagnosis in the past explains the fact that the statistical results arrived at in our army have not always been so convincing as would otherwise have been the case.

British Medical Journal.

February 13, 1915.

1. William Hunter and His Work in Midwifery. H. R. Andrews.
2. A Case of Ménière's Disease. Sir Robert M. Simon.
3. Certification under the Mental Deficiency Act. W. A. Potts.
4. Insects and War: The Mosquito. A. E. Shipley.
5. Surgical Experiences at the Anglo-American Hospital, Wimereux, France. H. Lett and J. H. Morris-Jones.
6. Treatment of Cerebrospinal Meningitis by Antimeningococcus Serum combined with Autogenous Vaccine. J. R. Collins.
7. Preliminary Note on Two Cases treated by Rib Transplantation. W. I. de C. Wheeler.

6. Serum and Vaccine Treatment of Meningitis.—J. R. Collins reports a fatal case of meningococcus meningitis in a boy aged nine years. No clinical improvement was at any time noticeable following the use of the specific serum, but on two occasions on which an autogenous vaccine was given a notable though only a temporary improvement followed.

Berliner klinische Wochenschrift.

January 18, 1915.

Nourishing the Civil Population on a War Footing.—Oppenheim concludes his serial article on this subject. He asks "how many cattle ought to be slaughtered?" This will depend upon the amount of fodder available in the future. Probably 10 per cent. of milch cows and 35 per cent. of swine will have to be killed—in figures 1,000,000 of cows and 9,000,000 hogs. The government will have to buy the animals in order to execute such a measure. The markets will then become surfeited with meat and prices will fall. An increased meat consumption will follow and the price will again rise. But measures will have to be taken to preserve a large portion of these meats. The restriction in the animal industry will be counterbalanced by the intensive cultivation of the protein-rich legumes. The crops of the latter, however, are more or less uncertain. It has been proposed to raise wheat in place of beets and potatoes and thus make up the deficit; but this again is offset by the fact that sugar beets, turnips, etc., make superior fodder. At present 14 per cent. of the farmers' horses have been

commandeered for army service, and their places must be filled by oxen and even cows for draught purposes. Motor plows will prove very useful, but owing to the scarcity of other fuel alcohol will have to be depended on. The latter is made from potatoes, so it will have to be decided by actual test whether oxen or motor vehicles are the better. A motor plow does the work of twenty-eight men and requires 300 kilos per day of starch values. The twenty-eight oxen require 400 kilos and also more human labor than the plow. A very serious problem in agriculture is that of fertilizer. While some of the mineral element is available in abundance, phosphate, and especially nitrogen, are scarce. Germany has been using phosphates which are by-products of the iron industry, and this fraction can be maintained; but imports from North Africa and the United States are cut off. Sulphuric acid for making superphosphates is also deficient. However, it is thought that enough phosphates are present in the soil to nourish the next crops. As regards nitrogen, the importation of Chili saltpeter has been abolished. The nitrogen of the air is readily utilizable in several ways, but the necessary electric power is busily engaged in other directions. But all these resources can do but little in comparison with economy in feeding. Every bit of wheat must go to make bread, not starch or alcohol. These can be prepared from potatoes, which are overabundant, and enormous fraction going to waste. But relatively little drinking spirits should be made even from these, for alcohol is necessary for fuel purposes. The author believes that the brewing industry should not be disturbed (according to recent dispatches the output of beer will be reduced one-half).

The Vita Sexualis and Warfare.—Touton presents the third instalment of his article on this subject, taking up the amount of venereal disease in the German army and navy in peace and war. In times of peace prophylactic measures have repeatedly been initiated, but it is admitted on all sides that compulsory measures against either prostitutes or soldiers cannot be enforced. To discipline a soldier for catching a disease, like all repressive measures, leads to concealment. Instead, warning against drunkenness, instruction in sex hygiene, advocation of continence as harmless, with instruction in the use of prophylactics for those who indulge, are the measures which promise most. The theater of war has always been the great breeding place for venereal diseases, as shown by the figures of all recent wars. In armies in time of peace efforts in the direction of prophylaxis appear to make themselves felt and the morbidity usually shows a tendency to decrease. Just before the Franco-Prussian war the new morbidity was at a very low figure. In October, 1870, it was 2.2 per thousand. In January, 1871, it began to rise, until in the following May it was 78 per thousand, and in certain single regiments nearly 10 per cent. were diseased. This great increase was readily explained because after the great battles at the outset the troops were engaged either in the occupation or siege of the large French cities.

Münchener medizinische Wochenschrift.

January 19, 1915.

Wounds of the Lung.—The Military Supplement of this number of the *Wochenschrift* contains five original articles on this subject. Tönniessen, who is in charge of a reserve hospital, has treated fifty-six cases, which he classifies as follows: simple injuries, 21 (uncomplicated by fever or effusion); cases with effusion of blood in the pleura, 23; cases of pneumothorax complicated by pus or blood in the pleural cavity, 8; cases of simple serous effusion, 2; cases at first sterile but ending respectively in empyema and pneumonia, 2. In the entire material there was a uniformly favorable course as to life. Böttner discusses thirty cases treated at the regular medical clinic at Marburg. The author states that developments were noticeable which so to speak were not on the program of text-book lore. There were numerous subjective symptoms. Some felt the impact of the projectile as blunt force. Others spoke of a warm sensation in the wound. Two soldiers when they were about to "hurrah" found that they could not raise the right arm (implication of brachial plexus). Short breath, hemoptysis, and pain were alike present in the majority of cases, and the latter was never absent. But aside from local distress pains were reflected or radiated in a bewildering manner—everywhere apparently, save the lower extremities. This kind of complication was due largely to actual nerve injury (brachial plexus or its ramifications). In eight patients, however, pains of this character could not be traced to nerve injuries and were treated as rheumatic with salicylic acid. A sympathetic nerve mechanism of pain did not hold water in the author's cases, but a psychic component was sometimes recognizable. An interesting symptom was abdominal tension, which is known to follow these injuries, and is believed to be due to irritation of the intercostal nerves. An explanation of certain severe cases may be found in a peritoneal reaction due to the exit of the bullet through the diaphragm. In other respects the symptoms were covered fully by text-book descriptions. Ritter describes his experiences in a field hospital without reference to the number of cases treated. Some of his conclusions are as follows: One should not wait for an empyema to form before operation. In many cases an empyema never does form. Death when it occurs is due to sepsis before an empyema could develop. An infected blood effusion is a signal for immediate operation to save life. As a general rule treatment should be conservative. The worst infections of the soft parts at the entrance opening do not justify the inference that an intrathoracic infection coexists. As a rule the reverse is the case. The pleura should be punctured repeatedly to ward off accumulation of infected fluids. As a rule the odor is sufficient for diagnosis. The external phlegmon, however, calls for the most active treatment. Conservative treatment ceases when the pleural cavity is known to be infected. As already stated, it is an error to wait for the signs of empyema to develop. Finally, if gas gangrene develop in the lung only the most radical treatment can save life. Reiche writes briefly on the natural resistance of the thoracic cavity to infection. A case is cited of a revolver shot in which, while the intrathoracic reaction was harmless, despite the presence of an extensive blood effusion into the pleura, death occurred solely from sepsis due to a phlegmon at the entrance opening. At autopsy the hemothorax was found to be quite sterile. Von den Velden has seen 107 cases of injury of the thoracic cage. In thirty-four of these the lungs were injured. The remainder involved the chest wall only. Of this number thirty-four were mild enough for dispensary treatment. Of the thirty-four pulmonary cases two were fatal (pneumonia, tension-pneumothorax). Hemothorax occurred in twenty-three of the thirty-four cases, and in sixteen cases it was acute in type. The temperature always rises in these cases without reference to infection. In ten cases there was a secondary pneumonia, due perhaps, in part at least, to preexisting bronchitis.

Hemoptysis in Young Children.—Ralleston and Robertson-Ross state that hemoptysis occurring in young children is in the majority of cases due to pulmonary tuberculosis. It is, as a rule, a sudden and fatal event.—*Clinical Journal.*

Insurance Medicine.

Life-insurance Medicine.—Professor Florschütz refers to the immense activity of the past decade in all matters relating to insurance of all kinds, and especially medical matters. The family practitioner once had the say as to who should be insured and who not. He was the sole expert and trusted by all, not only as to professional competency but in all other respects. He must have been approved of by the State, a legal practitioner who had known the applicant for years and had treated him for any recent illnesses. If an applicant had had no need of a family doctor, some physician acquaintance could be called upon by the applicant, or supplied by the district physician to serve as a health witness. Testimony was given unreservedly; the examiner stated his opinion that the risk was healthy, and the risk also signed an application in which his physical condition was considered. It represented a solution among presumably healthy people. A higher opinion was demanded only after death.

All this practice has been revolutionized. We now have confidential examiners and medical directors who review the reports of the first named. The family physician has not been eliminated, for he must often be consulted by the confidential examiner. But in place of a simple opinion by the family physician, a blank form is supplied, to be filled out by physicians known as confidential examiners, who are supposed to have a special all-around training in this line of experization. These men often draw upon the family practitioner to explain problematic answers of applicants and for other like purposes.

The medical director who passes finally on the risks has to do less with merely healthy subjects than with insurable subjects. His business is not to reject outright, but to determine how much a substandard risk can safely carry. This class of men have abundant opportunity to record their finds and ascertain the outcome, and thus supply data of prognostic value. New examination blanks can be introduced to cover particular cases. It must, however, be shown that this medical service is the best possible to maintain its own stability.—Blätter für Vertrauensaerzte der Lebensversicherung, 1914, V, No. 5.

Fatal Case of Bronchial Asthma Six Months After Insurance.—Eshenburg states that bronchial asthma for a number of reasons renders life insurance difficult, especially when the crises are frequent or severe. It then suggests organic disease of the heart or lungs or old age *per se*.

The subject was a merchant aged 25, single, was examined by the insurance company's confidential examiner, after having applied for a policy which called for the latter to mature at 55; no premium payments after 50. The examiner did not know applicant, who was of sound stock and had not done military duty but was enrolled in the Landsturm. He had never had a serious illness, and denied lues emphatically. Nothing abnormal could be found on him, but ordinary acne. Heart and lungs, likewise urine, showed nothing pathological. No emphysema nor bronchial catarrh.

The report of the confidential examiner was somewhat clouded by that of the family physician, who stated that the risk was an asthmatic and used much asthma powder. The attacks were periodical. The physical development was superb and applicant was also a total abstainer. There was, however, a history of attacks of polyarticular rheumatism without participation of the heart. For the past 7 weeks patient had suffered from sexual neurasthenia. As a result of this testimony the company rejected the application, but at the request of the agent employed a second confidential examiner, who was told the history of the case. He supported his colleagues, and even made his testimony stronger for the patient. There was no emphysema, no catarrh, the heart was normal, etc. The special opinion was "no asthma demonstrable."

Both medical directors of the company advised acceptance of the risk with possible penalties. The condition was only a simple bronchial catarrh in a young man. The case was prejudiced by the silence of the applicant in certain matters. An explanation was in order, and it was decided that neither the asthma nor sexual neurasthenia had any bearing on the expectation of life. The man was insured as substandard.

After his acceptance the patient married and six months later was found dead of "heart failure," after a nocturnal asthmatic attack. He received adrenalin and morphine during the night, but in the morning was found dead. The exact cause of death was entirely problematical. The death claim was paid.—Blätter für Vertrauensaerzte der Lebensversicherung, 1914, V, September-October.

Examining Physician as Insurance Company's Agent.—A question put to an applicant for insurance was: "Have you ever been rejected by any fraternal benefit society?" The medical examiner who put the question testified, in an action on the policy, that the applicant answered in substance as follows: "I don't know. I have applied to the Mystic Workers for insurance, but I have never heard anything from them." After consultation with two officers of the society the examiner wrote "No" in the application. So far as appeared from the evidence the applicant told the physician the truth. The court held that, under the rules of law prevailing in the State of Illinois, the regular examining physician of such a society is the agent of the society and the society is bound by his acts within the scope of his authority, notwithstanding an express stipulation in the application that the applicant makes him his agent. In Royal Neighbors of America v. Boman, 177 Ill. 27, the medical examiner asked the applicant to answer the question whether she had ever had bronchitis. She answered that she had had an attack of acute bronchitis, and the physician said that was of no consequence and wrote the answer "No." The court held that he was acting in the interests of the order and that his knowledge must be held to be the knowledge of the order. In Johnson v. Royal Neighbors of America, 253 Ill. 570, one of the questions required to be asked of the applicant by the company physician was whether she had ever had "la Grippe," and the answer "No" was written. It was proved that the application was taken by an assistant deputy, and that when that officer asked the applicant this question she replied that she had been treated by physicians and had taken patent medicines for the "grippe" and the officer said that did not count, and wrote the answer "No." It was held that the party taking the application was the agent of the society, and by his conduct the society waived its right to object to the validity of the certificate on the ground that the answers were warranties. —Turner v. Modern Woodmen of America, 186 Ill. App. 404.

Book Reviews.

The Cancer Problem. By William Seaman Bainbridge, A.M., Sc.D., M.D., professor of surgery, New York Polyclinic Medical School and Hospital; surgeon, and secretary of committee of scientific research, New York Skin and Cancer Hospital; consulting surgeon, Manhattan State Hospital, Ward's Hospital; honorary president, First International Congress for the Study of Tumors and Cancers, Heidelberg, 1906. Price, $4.00 net. New York: The Macmillan Company, 1914.

During the last few years there have been published a number of important books, varying somewhat in type, on the subject of cancer. Among these, Wolff's Lehre von der Krebskranheit is a veritable encyclopedia, with the disadvantage that it is largely a series of undigested abstracts and does not represent the views of the author himself; other volumes, such as those of White and of Ribbert on tumors and of Roger Williams on the natural history of cancer, contain valuable discussions of special phases of the tumor question; and Woglom's book on Experimental Cancer has covered the laboratory aspects quite completely. Nevertheless, there is still room for a book, like the one under consideration, which treats more fully certain of the clinical features of the cancer problem.

The first section, comprising one-third of the text, is devoted to an historical sketch, including a description of those research laboratories where cancer investigation is carried on, and a somewhat unnecessary list of names of the various workers, with a long quotation, now quite out of date, on the general nature of research and organization at the Imperial Cancer Research Fund of London, copied from the report of the Director, Dr. Bashford. This and additional rather extensive quotations from the reports of the New York Skin and Cancer Hospital might very well have been omitted as they are already accessible. Section 2 is a general discussion of the subject of the distribution of cancer in animals. Section 3 reviews the statistics of cancer, these being supposed to demonstrate an increase in the incidence of cancer in certain regions or organs, while in others, for instance the skin and the uterus, no increase has occurred, according to the English statistics, which are the most reliable of those now available. The important work of Murray on the increased occurrence of cancer following concentration of cancerous ancestry in mice is also referred to. The various theories as to the nature of cancer are next summarized, the conclusion being simply that no theory in any degree offers a complete explanation.

The section on the histopathology of cancer is illustrated by a series of excellent drawings showing the various types of human carcinoma and sarcoma. The more theoretical part of the book is largely derived from the publications of the Imperial Cancer Research Fund and is illustrated by some of the excellent cuts from monographs appearing from that laboratory, though the familiar groups of Kashmir natives need not have been reproduced both as a frontispiece and on page 66. The remainder of the text is concerned chiefly with diagnosis and the clinical aspects of the disease and with a discussion of the measures which have been applied to its treatment. It may seem strange that it should be considered necessary in a work of this character to refute the therapeutic claims of cancer cures such as turpentine, molasses, and violet leaves and other plant juices, but any one who sees many patients with malignant disease knows that even to-day a considerable portion of the incurable cases coming to hospitals have been treated, often for months, with these or similar remedies. The writer has done valuable work in summarizing the refutations of the claims of such hypothetical cancer cures as the trypsin method advocated by Beard, the various sera and bacterial extracts and toxins, the tissue emulsions and vaccines made from cancer cells, and the products of tissue autolysis—all of which have been shown again and again to have no curative effect. This portion of the book is extremely useful, not only for the lay reader but also for those practitioners whose time and knowledge of foreign languages are not sufficient to permit them to follow the publication of recent experimental work. Another excellent feature is the thorough review of the operative treatment of late cases in which the ligature of vessels and special technical procedures may possibly prolong life, the cases being otherwise regarded as incurable. Still another valuable section is that on the methods and results of the attempts at popularizing our present knowledge of the nature of cancer and the necessity for early diagnosis and prompt operation. An extensive bibliography and a well arranged and complete index end this useful volume. Unfortunately, the text is marred by numerous typographical errors which will, no doubt, be corrected in another edition.

Carcinoma of the Thyroid in the Salmonoid Fishes. By Harvey R. Gaylord and Millard C. Marsh. Publications from State Institute for the Study of Malignant Disease. Serial No. 99. Issued April 22, 1914. Washington: Government Printing Office.

This U. S. Government Report contains over 500 pages of text and 127 illustrations, mostly micro-photographs. Works of this type are hardly amenable to ordinary reviewing. Summaries and conclusions in English, French and German are appended, but these possess but little interest for the student of human cancer. The conclusion is reached that in the trout endemic goiter and carcinoma of the thyroid are one and the same disease, which in all probability is due to a living organism. The disease, however, is not known to pass from one animal to another. It occurs in trout in the state of nature but becomes endemic in hatcheries; certain species, however, showing high degrees of immunity. Likewise we see at times spontaneous recovery with acquired immunity.

Reducing Weight Comfortably, the Dietetic Treatment of Obesity. By Prof. Gustav Gaertner, M.D., Vienna. Authorized translation in English. Price, $1.50 net. Philadelphia and London: J. B. Lippincott Company, 1914.

With the experience gained from the completion of two thousand obesity treatments, this author here describes his method for the reduction in weight of those who are too fat. There is nothing startlingly new in his methods. "No obesity cure without dieting. Only by dieting is success always obtained." These are the basic principles of his treatment. The diet he recommends is restricted in quantity rather than in quality and is so planned as to reduce the patient's weight by from 0.15 to 0.2 per cent. per day. The treatment is described in considerable detail and several cases cited. Of the efficacy of such a treatment as he proposes there can be no doubt provided, of course, that it be directed and followed with sufficient enthusiasm. The translation rather accurately presents the spirit of the original.

The Heart in Early Life. By G. A. Sutherland, M.D., F.R.C.P. Senior Physician to the Hampstead and Northwest London Hospital. Physician to Paddington Green Children's Hospital. Price, $2 net. London: Henry Frowde, Oxford University Press. Hodder and Stoughton; New York: The Oxford University Press, 1914.

It is not very many years ago that little was known concerning the heart of a child, that is, from the medical scientific standpoint. The subject was not mentioned in text-books dealing with the diseases of children. Gradually, however, the conviction has been forced upon practitioners that in many essential points, the heart in early life differs from the adult heart. Dr. G. A. Sutherland in the book now being noticed, has dealt with certain clinical problems of cardiac disturbances and diseases during childhood and youth, as they present themselves in the ordinary routine of practice. The author refers to the fact that the scheme of the book is directly due to the discoveries regarding the heart and the teachings thereon by that great pioneer in scientific cardiology, Dr. James Mackenzie. The volume is timely as it provides a clear exposition of modern scientific views with respect to the heart in early life.

Air, Water, and Food from a Sanitary Standpoint. By Alpheus G. Woodman, Associate Professor of Food Analysis, and John F. Norton, Assistant Professor of Chemistry of Sanitation; Massachusetts Institute of Technology. Fourth Edition, Revised and Rewritten. Total Issue Five Thousand. Price, $2.00 net. New York: John Wiley & Sons, 1914.

In this volume will be found a discussion of the three essentials of life, namely air, water, and food. Clean air, safe water, and good food are necessary to health and comfort as well as to life; and they are therefore subjects of vital importance to every one. The present work is elementary rather than exhaustive, and it contains a useful bibliography of the more important of the recent publications on the same subjects.

Society Reports.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held December 1, 1914.

THE VICE-PRESIDENT, DR. E. G. ZABRISKIE, IN THE CHAIR.

Brain with Double Frontal Abscesses.—Dr. L. CASAMAJOR reported this case and showed the specimen. The history was furnished by Dr. E. J. Smith of Larchmont, N. Y. The patient was a mechanic and inventor, fifty years old, whose family history was negative. Between the ages of twenty and thirty he had suffered from several severe attacks of articular rheumatism, with heart complications. The patient had always been very active as a young man, and at one time was a long distance bicycle rider. Until about twenty years ago he used alcohol habitually and to excess, but for fifteen years preceding his death he had been a total abstainer. He smoked constantly and used chewing tobacco daily. During the past ten years he had worked very hard at his trade and had accomplished a great deal in a mechanical line. He took no recreation excepting a few days each summer, when he did some yacht racing. The exact date of the onset of his present illness could not be fixed. He was in the habit of receiving osteopathic treatment for minor ailments, and was under the care of an osteopath when he came under Dr. Smith's observation on March 10, 1914. At that time the patient complained only of a slight frontal headache and of being unusually tired. He had the appearance of being slightly jaundiced. The pupils were contracted, reacting slowly. The tongue was heavily coated and the breath offensive. The temperature was normal; pulse, 60 per minute and full. On his first day in the hospital he refused to stay in bed; he wished to go to business and insisted on smoking his pipe. On the following day he kept his bed and abstained from tobacco. He remained in his usual jovial mood and his symptoms were such as one would expect in a case of catarrhal jaundice. His condition remained practically unchanged for four days, without improvement in appetite, appearance of tongue, etc., in spite of active purgation. On the fifth day it was observed that he was quite indifferent to his surroundings and very talkative. His headache had disappeared almost entirely and he still had nothing to complain of. When left alone he talked and whistled, and was not at all disturbed when he soiled the bed by an involuntary defecation. His pulse remained slow, and his rectal temperature on the fifth day was 101°. The urine was stained deeply with bile; it contained a trace of albumin; no sugar; there was a marked indican reaction and a few hyaline casts. No complete blood count was made, but a differential count showed 79 per cent. polynuclears. The stools were offensive and lighter in color than normal. The pupils remained contracted and sluggish, acting equally. The ears showed nothing abnormal and there was no nasal discharge. The patient remained in practically the same condition for another twenty-four hours, appearing indifferent when he was alone, but acting quite rational upon being questioned. There was no paralysis and the reflexes were normal, excepting the pupillary. His temperature on the evening of the sixth day was 101° in the rectum; pulse, 54; respirations, 18. At 8 A. M. on the seventh day after his admission he suddenly developed a chill, his rectal temperature rose to 106°, he became comatose, developed Cheyne-Stokes respiration, and died in three hours.

Two days prior to this patient's death his family was advised that the symptoms pointed to some unusual brain lesion, the exact nature of which was not clear.

Autopsy.—The brain was removed, and upon its removal about half an ounce of foul smelling pus escaped through the right frontal lobe. Further exploration showed a double frontal abscess, undoubtedly primary on the right side, and extending through the corpus callosum into the left frontal lobe. No other abnormality was found. There was no pus in the ventricles; no internal hydrocephalus. The pus found in these abscesses contained the *Bacillus pyocyaneus*. The infection from this organism, Dr. Casamajor said, was, according to Oppenheim, most often hematogenous and was one of the commonest causes of brain abscess. The meninges in this case, as well as the frontal and other sinuses, showed no evidence of involvement.

Pavor Nocturnus.—Dr. A. STERN reported two cases. The first case was that of a girl, eight years old, the youngest of seven children. The mother of the child was markedly neurotic; otherwise the family history was negative. This child had always been her mother's pet, rarely leaving her side and without any desire to play with other children. She cried bitterly when her mother went anywhere without her. She had always been fed, dressed, and bathed by the mother, who had noticed that while bathing the child, when the hand came in contact with its genitals, the child would press the mother's hand between its thighs. This, Dr. Stern said, we might consider a sexual trauma, as surely we could interpret the child's action in no other light than a desire to prolong the contact, and in this way a desire of a distinctly sexual nature was directed by the child toward the mother. Naturally the child desired to be, whenever it could, in the presence of its mother—its loved object, and this was easily enough accomplished by day, while night terrors, from which the child frequently suffered, served the purpose at night. Night terrors were very properly so called, the speaker said, not only because the children, during the attacks, had such an expression of dread and anxiety on their countenance, but also because these attacks produced terror in the members of the family, and it was through the latter that the child gained its object, namely, to have some one with it at night. In this case, as in the second case reported, the children were cured of their terrors when the mother was instructed to insist upon their sleeping alone and paying no attention to them when the attacks occurred. The children were also taught to rely on themselves, to become less self-indulgent, and to spend more time in the company of other children. Dr. Stern said that the practical application of the knowledge gained from Freud's teachings perhaps nowhere else showed such rapid and brilliant results as in the treatment of the different manifestations of the neuroses as they occurred in children. Stekel held the view that the most common form of neurosis that existed in children was the anxiety neurosis, and a very frequent manifestation of this neurosis, and heretofore very difficult to treat, was the night terror. The causes of pavor nocturnus, as heretofore given, were about as follows: (1) adenoids and enlarged tonsils; (2) large and irregular or indigestible meals eaten before going to bed; (3) terrifying stories told to children before retiring. In answer to a question as to how the treatment in these two cases differed from that employed heretofore, Dr. Stern said that Holt, in his book, recommended that in cases of night terror where children were very much frightened, some one should be in the room with them, which was directly opposed to the treatment employed in these cases. Drugs had also been recommended, among them bromides.

A Case of Vagotonia.—Dr. WALTER TIMME presented this case, in connection with which he gave a brief survey of the divisions of the autonomic nervous system, in which he mentioned some of the characteristics of an over-active extended vagus, and which were manifested in this patient, such as hyperacidity, hypermotility of the stomach, vomiting, constipation with occasional diarrhea, bradycardia, low blood pressure (105-110 mm.), dermatographism, absent gag reflex, clammy hands and feet, and cessation of menstruation. In striking contrast to these symptoms were those of a marked sympathicotonia, namely, mydriasis and wide palpebral fissures. The patient was an unmarried woman, 29 years old, who was engaged at social service work. Of some importance in her family history was the fact that two members of her mother's family had suffered from attacks of spasmodic asthma for twenty years. This patient, following a succession of mental shocks in the spring of 1911, began to vomit after each meal, and this daily vomiting had persisted without any lapse up to the present time, a period of over three years. Eight years ago she had a similar attack which lasted three weeks and ceased spontaneously. The excessive motility of her stomach musculature was proven by two roentgenograms, showing that the stomach emptied itself of bismuth paste in twenty minutes. One of these plates showed very well the condition of the spastic stomach wall termed by Holzknecht "Cow-horn" stomach. It was found that the patient could retain some articles of food, notably chocolate, for a much longer period; perhaps this was due to the slightly sympathetic stimulant theobromine which chocolate contained. As the patient was not willing to give up her work, the treatment with atropine could not be carried out very satisfactorily; so unsatisfactorily, indeed, that

the small doses of the drug that had been given seemed to bring out a greater opposition on the part of the vagus, increasing some of her symptoms. Various combinations of glandular extracts had been tried with very little effect. The patient had also been under psychoanalytic treatment without any success. In reply to a question, Dr. Timme said the patient could retain coffee, if it was strong. As to whether an intrathoracic-thyroid could be ruled out in this case, the speaker said it could not. Vagotonia might be a disease entity, or it might accompany any of the toxic conditions.

Dr. S. Rothenberg of Brooklyn said that in the article by Eppinger and Hess on this subject, the authors suggested that it was sometimes possible to bring out an entire train of symptoms by the injection of a small dose of pilocarpine, and the aggravation of certain symptoms thus elicited might act as a guide in the subsequent therapy of the case.

Dr. D. M. Kaplan referred to the work of Fleischmann in the Hess Clinic, who came to the conclusion that it was absolutely impossible to classify these cases, owing to the fact that one group of symptoms corresponded to the vagotonic condition while another corresponded to the sympathetic. For example, the dilated pupil had been explained by Eppinger and Hess as due to the presence of excessive adrenal secretion in the blood, and he advised certain tests for ascertaining the amount of adrenal secretion.

Dr. Timme said the pilocarpine test mentioned by Dr. Rothenberg was only useful in cases where the irritability of the vagus was in doubt. When the vagotonic symptoms were present, the pilocarpine test was unnecessary. As a matter of fact, pilocarpine had been tried in this case and had aggravated the vagotonic symptoms. The speaker said he had seen no instance in which all the symptoms were either wholly vagotonic or sympathetic, and he knew of no one else who had reported a pure case of vagotonia.

Dr. I. Abrahamson thought the word vagatonia was a misnomer in these cases, as the vagus was a very complex bundle of nerves, made up of mixed fibers, including both accelerator and depressor fibers to all the viscera. It would be preferable, he thought, to speak of these symptoms as being derangements of either the autonomic or sympathetic systems and to drop the word vagotonia altogether.

Pain and Tenderness in Spinal Disease and Its Surgical Treatment.—Dr. Charles A. Elsberg read a paper on this subject and showed a number of cases and a series of lantern slides to illustrate the peculiarities in sensory disturbances observed on patients in the course of 100 spinal operations. He emphasized the fact that there was a marked difference between the cervical and the dorsal spinal roots in their structure as well as their course. The cervical roots originated from the cord over an area one to two centimeters wide and ran as separate bundles to the dura, while in the dorsal region the bundles soon united to form one nerve root. Therefore, in the cervical region, a tumor could press on a few of the root bundles and give rise to symptoms from those bundles only, so that one should differentiate between root bundle symptoms and root symptoms. He reported several cases in which pressure upon the lower root bundles of the seventh cervical posterior root produced pain limited to the index finger, so that it was probable that the lower root bundles of the seventh cervical nerve supplied the index finger and perhaps part of the middle finger. Dr. Elsberg then described the peculiar course of the nerve roots. In the dorsal region the roots first ran downwards, bending upwards again at a very acute angle. Further investigation had shown that the outer surface of the dura of the spinal cord was very sensitive, while the cord itself was insensitive excepting near the origin of the posterior roots, and the posterior roots themselves were very sensitive. Taking these facts into account, it was easy to understand how a small focus of malignant disease in the posterior and lateral surface of the body of a vertebra could cause very acute root pains. Extramedullary tumors which did not press upon nerve roots might cause pain in the back from pressure on the inner surface of the dura, especially if they laid in front of the slip of the dentate ligament. The reader then described a peculiar set of symptoms which he had observed in several cases of extradural tumor. There was a kind of reverse Brown-Sequard, the motor symptoms being on the opposite side and the sensory symptoms on the same side as the tumor. In these cases there was a collection of fluid under the dura on the side of the tumor, which pressed the spinal cord to the opposite side against the walls of the spinal canal, so that the motor symptoms were due to the pressure of the contra-lateral pyramidal tract against the bony wall of the canal. This could be called *contre coup*, and was similar to what occurred in the posterior cranial fossa when a cerebellar tumor of one side pushed the cerebellum to the other side and caused the facial nerve of the contra-lateral side to be pressed against the petrous portion of the temporal bone, with resulting facial paralysis on the side opposite to the lesion. Finally, he reported peculiar anomalies of the spinal vessels which gave rise to irregular symptoms and which had not hitherto been described. These cases, he said, deserved further study. In order to illustrate the facts of the paper, Dr. Elsberg presented the following cases:

Case I.—A patient who was completely relieved of symptoms of abdominal pain on the right side by the removal of an extramedullary spinal tumor from the 12th dorsal segment.

Case II.—A patient from whom a tumor had been removed at the 8th dorsal segment, underneath the slip of the dentate ligament. This tumor had caused paraplegia and severe pain in the back.

Case III.—A patient cured after removal of a tumor from the eighth cervical segment. She had suffered from marked motor symptoms for a long time, but sensory symptoms only appeared after lumbar puncture had been done.

Case IV.—A patient who rapidly recovered from a paraplegia of three years' duration after the removal of a small tumor from the sixth cervical segment. This patient at first presented symptoms at the eleventh dorsal, but a laminectomy failed to discover the tumor. A year later, the patient presented level symptoms at the first to second dorsal, but the tumor was found at the sixth cervical.

Case V.—A patient who had had spastic paraplegia due to a localized pachymeningitis, with tremendous thickening of the dura at the sixth dorsal level who was completely relieved by excision of the thickened dura.

Case VI.—A patient completely relieved for a number of years by decompressive laminectomy from symptoms simulating mutiple sclerosis.

Case VII.—A patient with acromegaly who had had an acute exudate in the sella turcica, causing the rapid development of eye symptoms. When the patient was admitted to the hospital he had meningeal signs, was blind in the left eye, and had temporal hemianopsia in the right eye. With the subsidence of the hypophysitis or perihypophysitis, the fields of vision in both eyes gradually returned to normal.

Dr. I. Strauss, discussing the last case shown by Dr. Elsberg, said that when he saw this patient, together with Dr. B. Sachs, he was in a condition of stupor. He had previously ben examined by Dr. Abrahamson, who was then able to make out a hemianopsia in one eye, but when Dr. Strauss saw him the patient was not sufficiently conscious to answer questions. He had then been in the service of Dr. Morris Manges for about a week with a temperature curve very suggestive of typhoid fever, and an examination of the blood showed the presence of the paratyphoid bacillus. He had been suffering for some time from a profuse and offensive nasal discharge. There was increasing stupor and coma, with a slight Kernig's sign, and some stiffness of the neck. Repeated lumbar puncture gave clear fluid and no increased leucocytosis; hence it seemed certain that there was no meningeal process. There was a history of trauma eleven years previously (falling from a considerable height) followed shortly afterwards by enlargement of the hands and changes in the face characteristic of acromegaly. The acromegalic features of the case were regarded as due possibly to a cyst or some other disturbances of the hypophysis. The acute symptoms were regarded as being due to ethmoidal or sphenoidal disease, possibly of paratyphoid origin, though this was not proven. Dr. Emil Mayer was then asked to see the case, and he felt somewhat loath to expose the sinuses on account of the general blood infection, but he was finally convinced that there was no reason why a local focus of infection of this kind, provided it existed, should not be treated just as is done in bacteriemia due to sinus thrombosis in atitic disease. He thereupon opened the themoidal cells and drained them. From that time on the patient's improvement set in, and on the very next day his mental condition was much better. It was possible to rouse him, he answered questions intelligently, and his temperature gradually reached normal by lysis. At the same time the remark-

able improvement in his sight, which Dr. Elsberg had shown by his charts, developed. This case, Dr. Strauss said, seemed to him to present an infection of the sinuses, with secondary involvement of the chiasm. The rhinologist not infrequently saw cases of sinus disease, ethmoidal or sphenoidal, with optic neuritis which might go to blindness, if unrelieved, and the emptying of the sinuses was always followed by a rapid return of vision and lessening of the inflammation of the optic nerve. The speaker said he did not see how the symptoms in this case and their rapid disappearance after operation could be interpreted in any other way. One could be almost certain that there was no meningeal involvement, as proven by the fact that the spinal fluid was clear and that recovery was so speedy.

Dr. L. Hauswirth, who had seen the case in the service of Dr. Morris Manges at Mt. Sinai Hospital, said the sequence of symptoms in this case were rather remarkable, and they finally led to the conclusion that we had to deal with a sinus infection in a patient with acromegaly. The man gave the history of having fallen from a four-story building ten years ago, and that he grew tremendously after that. When he was admitted to the hospital he stated that for the preceding ten days he had noticed that the sight of his left eye was becoming dimmer and was gradually lost. He then became unconscious, although when Dr. Abrahamson saw him, after withdrawing 30 c.c. of spinal fluid, he was able to demonstrate a temporal hemianopsia on the right side and complete blindness on the left. The question naturally arose whether the fall might not have resulted in a hemorrhage, with the formation of a cyst. A peculiar odor was noticed about his bed, and we found a very offensive discharge from both nostrils, particularly from the right. Dr. Emil Mayer's operation on the ethmoidal cells was followed by an immediate improvement in the left eye; and within twenty-four hours he had a bitemporal hemianopsia which soon disappeared. The failure of the hemianopsia to persist proved either that he had had no cyst at all, or that it had disappeared—an unlikely alternative. That the infection of the sinus in this case was of parathyroidal origin, Dr. Hauswirth said, had not yet been proven.

Dr. J. Ramsay Hunt said it was certainly a great pleasure to listen to a surgeon who had had the opportunity of seeing these lesions in the living subject, and who was able at the same time to discuss them from the viewpoint of the neurologist. Among the lesions described by Dr. Elsberg was an enlargement and varicosity of the veins of the pia mater, which corresponded in level to the distribution of the symptomatology. In such a condition, the natural presumption would be a secondary congestion of the venous circulation from pathological changes within the spinal cord itself. In this connection it was of interest to recall the rare occurrence of varicose veins of the sciatic nerve (*sciatique variquese*). Speaking of the vertebral pain associated with spinal tumors, Dr. Hunt said he had always explained this on the basis of a localized meningeal irritation. This pain, in his experience, was usually bilateral, and had not the unilateral distribution of the root pains. He thought it well that Dr. Elsberg had emphasized the importance of cutting the posterior root where it had been subjected to pressure for a considerable length of time, and in that connection he asked his opinion as to the advisability of cutting these roots for the relief of a long-standing unilateral spasticity, when the site of operation exposed the necessary root distributions. The possibility of contralateral pressure symptoms occurring in connection with lesions of the cord, as shown by the reader of the paper, was of extreme interest. The mechanism of contralateral pressure was recognized as a rare occurrence in the hemispheres of the brain and also in the brain stem, in which event its recognition would be of great importance from the operative standpoint.

Dr. I. Abrahamson said he had seen two cases where marked changes of the vessels of the cord were present. The specimens had not yet been carefully examined in order to determine whether they found the beginning of an angiomatous condition and a true varix. One specimen did not show any dilatation of the vein—only a moderate hyaline degeneration of its walls. These cases were quite typical in their symptoms, and were in sharp contrast to those common to extramedullary tumors of the cord. In the latter, the motor symptoms were markedly predominant, with root symptoms at the level, while the cases with varicose vessels showed a marked preponderance of the sensory symptoms, the motor symptoms never equalling the sensory in their intensity. The finding of this dilated blood vessel at the exact level and position that was indicated by the signs and symptoms left but very little doubt as to its etiological importance. When one had to deal with a rather atypical level cord picture suggesting an intramedullary lesion and yet not characteristically so, associated with slight motor symptoms and marked sensory symptoms, one should be on the lookout for this condition of varix or a type of angioma of the cord.

Dr. Foster Kennedy said that apropos of angioma of the cord producing symptoms referable to the interior of the cord rather than to pressure upon the outside of the cord—that is, intra- rather than extramedullary—he thought it well to bear in mind that a chronic syphilitic pachymenigitis of long duration very frequently produced such circulatory conditions, usually by nipping of the blood vessels, as to cause a breaking down of the interior of the cord, so that we had to deal with a syphilitic syringomyelia. He asked Dr. Elsberg whether heregarded these symptoms as being due to the direct pressure of the varix or to the circulatory disturbance produced thereby; in other words, whether the symptoms were mechanical or circulatory.

Dr. H. Climenko said he had had the opportunity to observe two of these cases in the service of Dr. Abrahamson. In one of them the symptoms closely simulated multiple sclerosis; the sensory symptoms made their appearance later. In the second case he saw the symptoms were also very puzzling for a long time, and as it subsequently was shown, the sensory symptoms did not correspond to the location of the tumor. Moreover, there was no constant level, the symptoms shifting up and down. The motor symptoms in this case were so far advanced that even if a tumor had been found, no such improvement as actually occurred would have been expected.

Dr. S. P. Goodhart said that in one of the cases which he saw, the patient gave an early history of paresthesia affecting the thumb and index finger of one hand. It had since occurred to him, the speaker said, that it was very likely that some of the fasciculi of the cord were affected at that time.

Dr. Alfred S. Taylor said that one must be careful lest we attribute too much importance to the presence of these varices. There was a considerable space between the cord and the dura, and he could recall several cases where he had observed large veins in this location, and where a simple decompression had given perfectly satisfactory relief, the condition probably being one of inflammation in the cord and the enlarged vessels being an expression of such inflammation.

Dr. Elsberg, in closing, replying to Dr. Hunt's question as to the advisability of cutting the posterior nerve roots for the relief of spasticity, said he would only advise such a step in cases where the cord had been subjected to pressure for a long time, perhaps four, five or six years, and had been injured beyond the hope of recovery. As to the significance of these enlarged vessels, he felt convinced they were not the ordinary congested vessels one found accompanying an inflammatory process. In the condition he had described, the veins were from six to eight times their normal size—larger than the radial artery, and at once impressed the operator as enormous vessels of abnormal size. In 114 spinal operations, he had only observed this peculiar enlargement six times; ordinary slight inflammatory enlargement he had seen many times. His object in showing these cases was to call attention to this peculiar anatomical condition that so far as he knew had not been described elsewhere.

Some Psychological Studies on the Nature and Pathogenesis of Epilepsy.—Dr. L. Pierce Clark presented a paper on this subject. He first referred to the contending views whether genuine epilepsy was a true, degenerative organic disease of the cerebral cortex, or a neurosis in its true sense, a functional disease of the nervous system without demonstrable or constant lesions. Both of these views had their strong points and possessed their special advocates. Suffice it to say that probably less than one-half of all cases of genuine epilepsy had a generally acknowledged gross or microscopic pathology or constant lesion. On the other hand, the chemotoxic theory of the disease had even less positive evidence to offer. Even the experimental use of these toxic agents did not produce constant convulsive symptoms. Epilepsy, as we knew it clinically, could not be experimentally induced. There was always something lacking. In view of the present unsatisfactory anatomic pathology of the disease

and an equal failure in chemotoxic pathogenesis, it behooved us to study the clinical make-up of epilepsy more closely. With this view in mind, Dr. Clark said he undertook two years ago to analyze the epileptic temperament and character before the convulsions had occurred. Obviously, cases for such a study had to be selected from those individuals who were already epileptic, but in whom it was possible to study the developmental traits of character before the convulsive part of the disorder had developed to complicate the personality make-up. Some twenty-five cases had now been analyzed carefully by this method. First of all, cases of feeble-mindedness were absolutely excluded, and the majority of those selected were often above their grades at school. The following was a summary of his findings: It was found that the potential epileptic, as a rule, possessed a supernormal output of energy which was constant and fairly productive of good developmental results as far as the organic make-up was concerned. There was a poorly repressed or thinly inhibited outcropping of the egotistic tendencies. These characteristics of a pathological self-love were far beyond the bounds of a pure physiological variation. As a rule, the potential epileptic was illy adapted to his environment and could not easily change the same. He cooperated badly in social and economic settings. For the most part he was frank; the subtleties of mind were not his; on the contrary, he had a simple, childlike pattern of emotional life. He never had the scruples nor doubts of the obsessive neurotic; not being hindered with the inhibitions and prohibitions of the latter class, he was often permitted to become engrossed with the lower animal instincts and passions. With the inhibitions reduced and with an over-emphasized estimate of his own importance and ability, the potential epileptic found himself in constant conflict with the outside world. While the normal individual had his infantile struggle with reality and made the life compromise, the potential epileptic youth kept up the baffling strugle; hence his deep-rooted dislike and even hate of the outside world. Individuals who possessed the epileptic constitution lacked real general interests. The libido was rigid, self-centered and crude. There were small religious promptings; the meaning and ends of life rarely engrossed the potential epileptic. His friendships were perfunctory; the egotistic traits prevented a free range of emotional expression. A parental attachment of the potential epileptic to his own sex was the rule, and this was especially marked in girls. The love fixation to the mother in the majority was prominent more or less throughout life. The potential epileptic's attitude toward the opposite sex was very significant; it rarely possessed the higher love attributes and more frequently evolved little beyond the simplest or grossest sexual demands. That fact alone, independent of the superadded convulsive disorder, made marriage among epileptics almost invariably a failure. For some time now it had been customary for psychiatrists to ask themselves What do psychotic individuals get out of their disease? What purpose do the mental symptoms and settings serve to the unconscious and instinctive demands of the person so afflicted? Such studies had compelled the investigators to discard much of the conscious formulation of the obvious content of the psychosis and look more deeply into the unconscious strivings as shown in the symbolic utterances and behavior of their patients. With this altered approach to mental disorders a new era dawned in psychiatry; mental symptoms once discarded as meaningless or unimportant took on a new significance and interpretation. From the inspiration of such work, Dr. Clark said, he undertook to study anew the meaning of the fit in epilepsy, a work now some two years old. He now had the material of a dozen or more cases of genuine epilepsy, an epitome of the findings of which he briefly set forth. Uniformly in all cases it was found that the fit served as an unconscious gratification to the libido. By dream analysis, the analysis of many minor attacks, and of a few major fits, this unconscious striving was often found to be a sexual outlet; in others it was a discharge of accumulated pleasure affects that had been long accumulating in the individual epileptic. The essential motive in all genuine epileptic fits would seem to be at bottom an unconscious striving on the part of the epileptic to return to intrauterine life and was conditioned upon the stage of libido fixation in infancy, which occasionally might be so advanced as to reach into homosexuality but rarely into heterosexual life. Finally, we had more or less definitely indicated what the motive of the unconscious mechanism of the fit really was, but how might we account for the nature and character of the classic but peculiar type of muscular spasm in the grand mal seizure? At another time, Dr. Clark said, he hoped to give a detailed comparative study to show that the types of muscular movements were from that infantile period to which the unconscious urge strives to force the unconsciousness to return, namely, the intrauterine period and possibly the first few months of extrauterine existence. The seizure movements were point for point identical with the impulsive movements of the fetus and the period of earliest infancy. In the normally developing child these muscular movements were slowly but definitely repressed as the will and the conscious life unfolded; in the epileptic the impulsive movements of earliest infancy were released from conscious and voluntary control, and they re-enacted the fetal and infantile purposes of satisfaction of that period. Lastly, the speaker referred to the enormous therapeutic gain we might obtain in looking at the epileptic mechanism in the light of the therapy briefly set forth in his paper. The hygienic training treatment, the educational and environmental therapy were given a new and clearer meaning by this hypothesis; it signally made clear the reasons for the large majority of epileptics who could not be cured, and at the same time it showed a much more definite and speedier plan by which we might rescue the less severe cases of epilepsy by restoring them to health as shown in an arrest or cure of epileptic fits.

Dr. Hoch said the most prominent feature which Dr. Clark's study brought out was that in epilepsy, as in the psychoses and neuroses, that which one might call infantile motives played an important rôle. Such infantile motives were the result of imperfect development of the instincts. Such motives Freud had demonstrated in the neuroses by means of his psychoanalytic method. In psychoses they were very prominent and quite plain. They expressed themselves often in delusions and hallucinations of the patient, which we did not understand formerly because the patient did not produce them in an adult logical form, and because we had no idea of the fact that a defective instinct development could give rise to such motives. But once this was known many of the utterances of the insane became strikingly clear and did not require the complicated, difficult, and, in the hands of the inexperienced, doubtful method of interpretation because the patients very plainly expressed these infantile desires. The interesting personality studies on epileptics which Dr. Clark made also gave us, as all such studies did, an interesting confirmation of the claim that epileptics presented imperfectly developed instincts. But one could hardly admit the claim that in patients with constitutional disorders there was an all-engrossing attachment to the parents into which even sexual elements entered, although the matter became very convincing when we found that this motive returned with almost tiresome frequency in the delusions and hallucinations of the psychoses. Still more absurd seemed at first glance the desire to get back into the mother's body, but when looked at from the point of view of a desire for complete shelter, for that most fundamental renunciation of adaptation to reality, it appeared much more reasonable, and the special formulation which we found in delusions and in dreams, namely, a formulation which often referred to the real womb, was likely to be in large part a secondary mental elaboration. At any rate this motive had to be accepted as a definite fact, no matter how we tried to explain it. This entire method of studying diseases had added much to our knowledge of the symptom analysis, the structure of the clinical factors, and the forces at work. It should, of course, not be claimed that the forces thus discovered and the imperfect instinct development were the final cause of epilepsy. Such studies gave no account, and did not claim to give any account, of the organic causes of the constitutional defect or the organic side of abnormal functioning of the instincts.

Dr. John T. MacCurdy thought that all those who had studied epilepsy with psychonalytic methods would admit that Dr. Clark's paper marked the most important advance in our knowledge of the subject. We knew from our data—pathological, clinical, and hereditary—that epilepsy occupied a lower scale in mental adaptation than did dementia præcox. In the latter the essential feature was the attachment of the patient to the parent of the opposite sex. This already implied a certain degree of interest outside the individual, a certain degree of objectivation. If epilepsy represented a

lower stage in adaptation then we should look for the point of fixation in the stage of "mother-life," and that Dr. Clark had apparently discovered. He had told us that epileptics were intensely egotistical, which pointed to a failure of objectivation; that the conflicts of the world were nothing to them, which was another evidence of egotism, and, finally, he had made the very interesting observation that there was a definite desire to return to the mother's body. That was an extraordinary claim, yet we saw it in other psychoses. The speaker said he recently saw an epileptic who claimed that during his convulsion he went back to his mother's womb, which he very much enjoyed.

Dr. Smith Ely Jelliffe said that the "mutterleib's phantasy" was met with in various phenomena in addition to the epilepsies, such as in various conversion and compulsive phenomena. Dr. Clark apparently would apply a general situation present in the psyche of all individuals as explanatory of a specific phenomenon. It would be of practical interest in the analyses of the epileptic phenomena to see just how the individual had evolved the universally present Œdipus situation through the individual muscle erotic gratification. It was no solution to say that these patients showed an introversion type in phantasy—everybody did that. The answer should show how the epileptics worked out their phantasy not in harmonious muscular activity but in the discordant and nonadaptive epileptic discharge.

Dr. Clark, in closing, said he had not included the definitely organic cases of epilepsy in his study, and that for the time being he wished to limit his interpretation of the mechanism of epilepsy to that of the so-called idiopathic group. He might say, however, that he had seen several cases of epilepsy which followed in the wake of infantile cerebral palsy in which the mechanism of the attack was quite identical with those he had studied in essential epilepsy as embraced in his paper. He cited the fact that Binswanger, Gowers, and Oppenheim had all indicated that the essential make-up in personality and the enduring mental stigma of the disease were to all intents and purposes identical in epilepsy following cerebral palsies as compared with that of idiopathic epilepsy. From this and other data in his hands he was willing to admit that the possible real genesis of the epileptic state might be organic at bottom. But where persistent attacks occurred his contention was that the organic insult merely permitted or allowed the mechanism of epilepsy to occur as he tried to show it to have done in his study.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held December 10, 1914.

Dr. William P. Northrup in the Chair.

Presentation of Cases Showing the Effect of Blood Transfusion in Purpura Hemorrhagica, Henoch's Purpura, Chronic Sepsis, etc.—Dr. Edward Peterson presented these cases. He stated that all types of pathological hemorrhage yielded the best results when treated by blood transfusion, or by subcutaneous injections of human serum. Of the two methods the former had proven the more efficacious. Following transfusion there was an increase in blood pressure, in the number of cells, and in the percentage of hemoglobin, and the coagulation time was shortened. Besides being hemostatic, whole blood, administered by transfusion, stimulated the hemopoietic functions and there was an increasing clinical evidence that it was also antitoxic and bactericidal. The effects of blood therapy were well illustrated by the following cases.

Case I.—This patient, 4½ years of age, was admitted to the Post-Graduate Hospital on April 16, 1914, with purpura hemorrhagica. The child was normal at birth and had been well since, with the exception that he had had measles at the age of one year. A few days before admission to the hospital he began to bleed from both ears and from the nose, but not from the gums, mouth, or throat. A petechial rash appeared on the feet, legs, hands, and arms. Later large ecchymoses appeared on the eyelids and under the eyes, and then on the thighs and legs. There were small ecchymotic spots on the body also. The blood count showed red blood cells 4,300,000; hemoglobin 68 per cent.; leucocytes, 16,200; polymorphonuclears, 74 per cent.; lymphocytes, 23 per cent.; transitionals, 2 cent., and cosinophiles, 1 per cent. A discharge from the ear showed the *B. pyocyaneus*. The feces showed some blood microscopically. The child was restless, irritable, and cried constantly, though the temperature and pulse were only slightly elevated. A diagnosis of Henoch's purpura was made. The treatment consisted in the subcutaneous injection of 20 c.c. of the mother's blood at the time of admission. Blood transfusion was suggested, and the child's brother acted as the donor. The hemolysis and agglutination tests were negative. A transfusion was done by the Lindeman method on April 18, between 250 and 300 c.c. of blood being given. The tendency to bleed ceased abruptly and up to the present time had shown no tendency to recur.

Case II.—This was a case of mild secondary anemia following injury occurring in a male child 18 months of age, who gave a history of having had a supposed meningitis, double otitis media, and bronchopneumonia. On August 15 he fell down a flight of stone steps striking the left temporo-parietal region and producing a decided lump and contusion. He was rendered unconscious but had no paralysis. Two days later he seemed drowsy, lost his appetite, and vomited occasionally. For three weeks he lay in a semicomatose condition; then gradually his mental condition cleared. The child was admitted to the Post-Graduate Hospital on September 30, 1914, in a very relaxed and emaciated condition, his weight at this time being 16 pounds 8 ounces. The child had a double otitis media, moist rales over both lungs, an irregular temperature albumen in the urine, but no pyelitis. The Widal reaction was negative. The blood count showed red cells 3,000,000; hemoglobin, 54 per cent.; leucocytes, 38,000; with 78 per cent. polymorphonuclears and 22 per cent. lymphocytes. The boy was transfused on October 22, 1914, the mother acting as the donor. The amount given was 350 c.c. Improvement commenced with the operation and progress toward recovery had been uninterrupted. After transfusion the blood count showed red cells 4,456,000, hemoglobin, 68 per cent., and the leucocytes had dropped to 12,300.

Case III.—This was a case of Henoch's purpura in a girl, 11 years of age, who was admitted to the Post-Graduate Hospital on May 21, 1914. Her personal and family history were negative, except that she had had measles and scarlet fever. Two months previous to her admission to the hospital she became ill with diarrhea and abdominal cramps. The latter symptom increased in severity and was most marked in the lower right quadrant. Appendicitis or nephrolithiasis was suspected. A rash appeared on the legs, knees, hands, and elbows. Blood was passed *per rectum*. The temperature was 102° F. and pulse 140. At this time any slight trauma would be followed by ecchymosis. A little later the child had three convulsions evidently of uremic origin and the urine showed blood. There was edema of the feet, legs, face, abdomen, and back which progressed until there was general anasarca. This edema had gradually disappeared until at the time of admission it was scarcely noticeable. Aside from the poorly nourished anemic condition physical examination revealed nothing abnormal except that the post cervical chain of glands, particularly on the left side, were slightly enlarged. Some of the symptoms of rachitis were present. There were purpuric spots on both knees and also large ecchymoses on the left external malleolus. The left epitrochlear gland was palpable and the inguinal glands were palpable and slightly enlarged. There was blood in the stools both microscopically and chemically. Blood examination showed red blood cells 3,168,000; hemoglobin, 35 per cent.; white cells, 18,000; with 77 per cent. polymorphonuclears and 23 per cent. lymphocytes. The child was given a blood transfusion of 270 c.c., the father being the donor, and the preliminary tests having been satisfactory. Immediately after the transfusion the child looked and felt better. She was dismissed from the hospital on June 1st, at which time her blood count showed red cells, 4,256,000; hemoglobin, 65 per cent.; leucocytes, 11,700; with 60 per cent. polymorphonuclears and 40 per cent. lymphocytes.

Case IV.—This was a case of chronic sepis following pneumonia and empyema. This patient was born on October 23, 1913, and had been well until the present illness. He had had pneumonia during the latter part of July and was brought to the hospital three weeks later with an empyema on the right side. He was operated upon by Dr. Vincent at which time his weight was 20 pounds 12 ounces. He ran a very high temperature and gradually lost weight and

strength and refused food. This was followed by diarrhea which further weakened the boy. The prognosis was considered hopeless but as a last resort transfusion was suggested. A blood transfusion of 235 c.c. of blood, the mother being the donor, was given. The temperature dropped immediately and remained down. The child's appetite was ravenous. The blood count before transfusion was: red blood cells, 3,847,000 and hemoglobin, 40 per cent.; today the red blood cells numbered 4,220,000 and hemoglobin was 77 per cent.

Dr. ALFRED M. HESS said that in the treatment of the conditions under discussion by blood transfusion, etc., a sharp distinction should be made between immediate results and permanent ones. In cases in which there was a possibility of this treatment replacing blood, stopping hemorrhage, or combating sepsis it should be used. It should be remembered that in purpura hemorrhagica the attacks were sometimes very infrequent; in one case coming under his observation there was a recurrence of the condition after ten years; in other instances it recurred at longer or shorter intervals, so that whether transfusion was of permanent value in purpura hemorrhagica remained to be seen. In one case of hemophilia in which he had seen this treatment used it did no good, the coagulation time of the blood continued to be as long as before the transfusion. In another instance transfusion had been performed three or four times and each time the hemorrhage recurred; this was a case of purpura hemorrhagica. Whether transfusion was of more than immediate value was still problematical. Dr. Hess said he had also used another method, that of defibrinating the patient's own blood and reinjecting it. This stopped the hemorrhage. In one instance this procedure had been carried out three times and it stopped the hemorrhage for a week or ten days after the serum was injected. This method had the advantage of being highly practicable; no hemolytic tests were required, no difficult technique, no donor. The injections of autogenous blood should be tried in cases of purpura with hemorrhage.

Dr. WILLIAM SHANNON stated that he had recently seen a case of hemoptysis and that Dr. Hess had also seen the case. The child had been bleeding for a week and the family history showed that hemophylia was a family characteristic. There was a history of rheumatic purpura and of purpura hemorrhagica, a combination of the two conditions. It seemed that in this case transfusion might be of benefit.

The Extent of Tuberculous Infection among the Children of New York Tenements as Evidenced by the Application of the Cutaneous Tuberculin Reaction.—Dr. MAURICE FISHBERG presented this communication. He recalled that a year ago he had reported as to the tuberculin test in 692 children of tuberculous parentage among which the reaction was found positive in 67 per cent. of the cases, and at the age of fourteen the proportion of "reactors" was even as high as 83.79 per cent. The report now presented was on the application of the von Pirquet test to 589 children of non-tuberculous parentage. They were all of poor economic and social status, depending on charity wholly or in part for subsistence. On the whole they were considered healthy by their parents. They lived in the tenement district of New York City. He found that 52.72 per cent. showed positive reactions to the cutaneous tuberculin test. Among the children under one year of age only 10 per cent. reacted; among those between one and two years of age 33.38 per cent.; between three and four years of age 41.25; between five and six years of age, 50 per cent.; between seven and ten, 64.74 per cent.; between eleven and fourteen, 69.4 per cent., and at fourteen years, 75 per cent. These figures, though apparently startling, were in agreement with conditions found in various European cities.

Dr. GODFREY R. PISEK said he would like to ask Dr. Fishberg whether in the families ruled out as not having tuberculosis there were any boarders or lodgers? He wanted to know whether the converse of his statement was not the more important; whether if there was no reaction there was no possibility of the child having tuberculosis (excluding terminal cases of course). If this were true the reaction would still be of distinct value.

Dr. ABRAHAM HYMANSON called attention to an article which he had published in the Archives of Pediatrics, August, 1912, on "Tuberculosis in Young Children," in which he had stated that during the years of 1909 and 1910 he had applied the Moro and von Pirquet test on 68 infants from two days to two weeks of age, the mothers being apparently free from tuberculosis, and none of these children showed any trace of the disease. In another series of 18 cases he had applied both of these tests, in both the infants and the mothers. Four of the mothers showed a positive reaction and three of these showed physical signs of the disease. The infants invariably showed a negative reaction. He had looked for enlarged glands in 86 infants but found none, with the exception of one infant, all of whose glands were enlarged. There was no history of syphilis in this case. Dr. O. Bondy had applied the cutaneous tuberculin reaction in 350 cases of new born infants between the second and fourth days after delivery and found the test negative in all, although it was positive in 71 of the mothers. Drs. Paten and Grietert had applied the von Pirquet test in 53 children less than two weeks old and none of them showed a trace of reaction. Other observers had made similar tests and the fact seemed to be established that with very few exceptions infants were born free from tuberculosis, but that they contracted it during infancy or childhood.

Dr. LEON T. LEWALD said that he had made radiographic examinations of the lungs of many children who had given a positive tuberculin reaction and on no occasion had he found lung lesion, except in miliary tuberculosis; even when the children showed positive signs of the disease the lung was not infiltrated, but the process was located somewhere else in the body, in the bones, joints, on lymph nodes, but not in the lungs.

Dr. FISHBERG, in closing the discussion, said that Dr. Pisek's question was a very proper one in view of the ubiquitousness of tuberculosis. In an investigation of an isolated mountainous district in Scandinavia with a population of one hundred among whom there had not been a death from tuberculosis for ten or fifteen years, Overland found that 75 per cent. of the population gave positive reactions to the tuberculin test. After investigation it was found that the village teacher was a consumptive and responsible for this high percentage of infection with tuberculosis. Direct contact was not necessary to transmit the disease. This was evident from the fact that a cow which reacted positively to tuberculin, placed with a herd every one of which reacted negatively, resulted after a few months in a considerable number of positive reactions among that herd, though there might be no well developed instance of tuberculosis. As to a negative reaction, this often meant nothing whatever. Where the reaction was positive and the disease was present it need not necessarily be in the lung, but might be in a joint, in glands, or other organs since it was the organism that responded to the tuberculin test.

Experience with the Diphtheria Toxin Skin Reaction of Schick.—Dr. WILLIAM H. PARK made this presentation. He said that he had brought with him two students who had submitted themselves to the Schick test and showed reactions. The Schick reaction was just the reverse of all other tests in that a negative reaction meant immunization and a positive one meant susceptibility to the disease. The Schick reaction was due to the direct toxic action of the toxin of diphtheria. The negative reaction meant that the toxin was neutralized and a positive reaction meant that the patient did not have sufficient antitoxin in the blood to neutralize the toxin introduced. There was also a pseudo reaction which was anaphylactic in type and was in reality due to the endotoxins. It gave the impression of a much more decided reaction that the true reaction. In the pseudo reaction there was slight hyperemia and infiltration at the site of the injection. To demonstrate the difference between the true and the pseudo reactions Dr. Park exhibited two guinea pigs. The one had been subjected to a double Schick test; that was, at one site an injection of diphtheria toxin alone had been given, while at a second site a similar dose of toxin together with sufficient antitoxin to neutralize it had been administered. At the site of the first injection there was an induration, while at the site of the second injection the toxin had been completely neutralized and there was no lesion. A second pig had been inoculated with a non-virulent culture and showed the pseudo reaction which was larger than the true reaction and mean that the pig was immune. The pseudo reaction came quickly and went quickly, while the true reaction lasted for a week or two before disappearing. In applying the Schick test the dosage used was about one-fiftieth of the fatal dose, though it might be as low as one-sixtieth or as high as one-thirtieth; with a larger dose there was danger of necrosis. If there was not an active

antitoxin present and the reaction was doubtful the subject was put down as non-immune. Dr. Park exhibited charts showing the result of the Schick test in children from the time of birth to the fifteenth year and in adults when the toxin was administered subcutaneously, intramuscularly, and intravenously. In children between the ages of five and fifteen years 50 per cent. showed a positive reaction; in those between the ages of four and six years about half were immune to diphtheria and half were non-immune. In younger children 60 per cent. were immune, while among adults 70 per cent. were immune. In certain children "once immune always immune" seemed to hold good, while in others who had had the disease the test might be used to determine the limit of immunity. At the Willard Parker Hospital they were immunizing all the children admitted to the scarlet fever wards, but only those that showed a positive Schick reaction. A child that gave a negative Schick test was positively safe among diphtheria carriers. Several other applications of the reaction could be made. When the toxin was given intravenously the reaction was increased. If a case was supposed clinically to be diphtheria and one got a negative Schick reaction and a positive diphtheria culture one might conclude that the patient was only a carrier and did not have true diphtheria. About one-third of the cases of diphtheria developed antitoxin while two-thirds did not. When one positive Schick reaction was found in a family it was likely that all the members of that family would have a positive test. Immunity to diphtheria seemed to be acquired; adults and young infants gave a large proportion of negative reactions, but during infancy and childhood the immunity dropped off and then the antitoxin began to be produced again as the children grew older; they did not know the explanation of this. Some individuals produced a large amount of antitoxin; as much as fifteen units had been observed, but whey it should be produced beyond the apparent need was beyond comprehension.

Types of Pneumococcus Bacilli and Their Characteristics.—Dr. RUFUS I. COLE presented this communication. He stated that a study of the races of pneumococci isolated from cases of pneumonia revealed four types of organisms. They had named those groups in which a considerable number of organisms were found to have common immunological characters Types I and II. The Pneumococcus mucosus (Streptococcus mucosus of Schottmüller) had been called Type III, and the group of organisms having no common immunological characters they had called Type IV, or preferably Group IV. For the past two years all organisms isolated from cases of pneumonia had been studied as to their immunological reactions. A study had now been made of the organisms obtained from 150 cases of pneumonia. The result of this study showed the relative frequency of the various types to be as follows: Of Type I there were 57 cases, 38 per cent.; Type II, 44 cases, or 30 per cent.; Type III, 17 cases, or 11 per cent.; Type IV, 32 cases, or 21 per cent. Observations along the same lines had been made by Walker at the Peter Bent Brigham Hospital, Boston, and the Pennsylvania Hospital, Philadelphia, by Dr. Paul Lewis; altogether about 300 cases were studied. The results of these studies coincided very closely with those that had been obtained at the Rockefeller Institute. It seemed that they might safely conclude that there was one type of severe infection due to pneumococci of Type III, in which the mortality was high; a second group of cases of lesser severity, due to organisms of Type II; a third group of cases, only slightly less severe, due to pneumococci of Type I, and finally, a large group due to the non-fixed type of organisms, Type IV, in which the symptoms were milder, and which usually ended in recovery. From the standpoint of prognosis alone, therefore, the determination of the type of infection in the individual case was of considerable importance. They had been studying the toxic action of the pneumococcus with the idea of getting a serum which would be efficacious in pneumonia. It had been impossible up to the present time to get any direct proof that the effects of the pneumococcal growth in the body were due to the elaboration of a poisonous substance. The speaker, after discussing the theories in regard to endotoxins and ferments in nontoxin producing bacteria, described his experiments with the filtrates of cultures, which gave no specific effect; with solutions of bacterial cells, (*a*) in salt solution, (*b*) in cholate solutions, and (*c*) by freezing and grinding. They found that in all three instances the result was acute death of the guinea pigs and hemolysis of the red blood corpuscles. Broth cultures of the pneumococci were found to transform oxyhemoglobin into methemoglobin. They then further studied this change of oxyhemoglobin into methemoglobin, using broth cultures with living pneumonia, broth cultures with dead pneumococci, solutions of bacterial cells, filtrates of bouillon cultures, and washed bacteria in salt solution, in the presence of blood and a small amount of dextrose. They also studied the effect of oxygen in the transformation of oxyhemoglobin into methemoglobin and as a result of their observations concluded that for the formation of methemoglobin by pneumococci the presence of living bacteria were necessary, and since the presence of minute amounts of nutritive material was also necessary, it was probable that these bacteria must be actively carrying on nutritive functions, probably undergoing multiplication. Such substances must be present in the fluid immediately surrounding the bacteria. If the corpuscles and bacteria were separated by any limiting membrane, as by a dialyzing membrane, or even a thin layer of oil, no reaction occurred. These together with other observations made it seem possible that the formation of methemoglobin depended upon some active substance given off by the bacteria, and this substance became inactive as soon as it diffused through the surrounding medium. The suggestion then occurred that the substance given off by the bacteria was in the nature of a ferment, being rapidly weakened or destroyed by diffusion. From their observations of the transformation of oxyhemoglobin into methemoglobin with reference to the effect of oxygen it seemed not unlikely that the formation of methemoglobin occurred in the neighborhood of pneumococci because of a modification of oxidation and reduction processes in the medium immediately surrounding the bacterial cells. This change must be a specific one in the case of the pneumococci, otherwise all living organisms would cause this reaction, which was not the case. This theory seemed applicable to conditions in pneumonia provided one assumed a widespread distribution of the bacteria throughout the body, but after all they had to admit that the exact nature of the intoxication in pneumonia was still obscure. In studying the action of pneumococcus immune serum they had succeeded in immunizing sheep, but when they had undertaken to transfer this immunity passively to guinea pigs the results were very questionable and they must believe that it was very doubtful whether any neutralization of the toxic substance could be obtained in this way. The experimental studies did not indicate that an immune serum obtained by the injection of toxin possessed any high degree of antitoxic power. Their studies had shown why immune serums such as had been used in pneumonia would not be likely to show any beneficial results. In the first place, a pneumococcus immune serum was effective only against the type of organism used in the process of immunization. If, for instance, immunization was carried out with Type I organisms it might be expected that it would have no effect on any infection due to one of the other types of pneumococci. If the immunization was carried out with one of the organisms of Type IV it could have no effect on any infection except that due to the same race. They had lately examined an antipneumococcus serum on the market which was said to be polyvalent; their experiments had shown that it had absolutely no protective power against organisms of Type I or Type II, or, in fact, against any of the organisms against which they had tested it. Its use in the treatment of penumonia undoubtedly did more harm than good. In order to render an antipneumococcus serum theoretically useful in any type of pneumonia, it would be necessary, first, to produce a serum with high protective power against the type of organism concerned; second, to have a satisfactory method of standardizing such a serum, and last, to have a method of quickly determining the type of organism for each individual case. These conditions had been satisfactorily met as far as Types I and II were concerned. As for Type III it had been absolutely impossible to produce a serum having any protective power whatever. The use of immune serum in infections of this type was entirely without justification. Fortunately, infections of this type were relatively infrequent. Active immune serum might be produced to each of the organisms which had been placed in Group IV, but the serum in each case was effective in protection only against the individual race used for immunization. Therefore, such a serum could not be employed with any hope of success. Infections of this type were relatively mild. The cases belonging

to Types I and II constituted the largest number of cases of this disease seen in New York and probably in this country. They had found a method by which it was possible to standardize immune serum with a fair degree of accuracy. They had also worked out a method by which they could determine the type of organism in the individual case in a comparatively short time. As soon as a patient was admitted to the hospital, a portion of sputum coughed directly from the lung was obtained if possible, and, after washing, this was made into an emulsion in sterile salt solution or bouillon, and injected into the peritoneal cavity of the mouse. Cultures were made from the blood of the patient, or in case a satisfactory specimen of sputum could not be obtained directly from the involved portion of the lung by the insertion of a sterile needle. Five hours after the injection an emulsion was made from the washings of the peritoneal cavity of the mouse and the agglutinability tested against an equal part of immune serum of Type I and Type II. When agglutination occured it was usually within half an hour. On theoretical grounds it was important that the serum should be administered early, before the degree of infection was too great. When the type of organism had been determined and found suitable for serum treatment an intravenous injection of the appropriate immune serum of 80 or 90 c.c. was administered and a second dose given at the end of twelve hours. These doses were repeated the following day and on successive days as the condition of the patient indicated. This treatment had thus far been carried out in only a small series of cases, too small to permit the drawing of any definite conclusions, but the results had been extremely encouraging in pneumonia due to organisms of Type I. When the disease was due to organisms of Type II the results had not been so satisfactory owing to differences in different serums, the fact that it was more difficult to produce a serum of high protective power, and the fact that the maximum infective dose which might be protected against by immune serum of Type II was smaller than that which might be protected against in Type I. It was apparent that in the actively immunized animal there was some immunity factor which could not be transferred with the immune serum. In the future study of this subject it seemed most important to learn more of this second factor concerned in immunity and to attempt to find methods for transferring it from one animal to another.

Dr. William H. Park asked Dr. Cole whether using Type I serum might not do some good; would it not help perhaps about one-half of the cases? Of course it would do no good in a case of pneumonia due to Type III organisms. They were often called up over the 'phone and asked in regard to the administration of vaccines in pneumonia and they had been telling inquirers not to use the serums. As to the prognosis, if one learned twenty-four hours after seeing a case of pneumonia to which type it belonged, should he be guided in prognosis by the group to which the case belonged or by the clinical appearance of the patient? For instance, if the patient had a light attack and one found that he had the bacilli belonging to the third group, should a serious prognosis be based on laboratory findings?

Dr. Cole replied that if one were sure he had a certain type of bacilli the thing to do was to administer the appropriate serum, but in their animal experiments they had found that to be effective they had to give large amounts of serum. One might do harm with such large amounts of serum and their administration would scarcely be practical. It was not worth while trying a serum, unless one knew with which type of pneumococcus he was dealing and was sure that he was doing some good, until they had had further experience with the various types. The determination of the type was of great value in prognosis. Just yesterday Dr. Cole said he had seen a man, 65 years of age, who seemed to be in a very serious condition. The organism was found to belong to Group IV and he felt more cheerful as to the outcome of the case. In reply to the question as to how they determined the various groups, Dr. Cole said that all pneumococci were determined by the agglutination and protection tests. Any one of the types would not react against any of the other types. They made the tests by the simple method of injecting animals as he had described. In reply to the question as to whether a mixture of the sera of two groups had been found practical, Dr. Cole said they had used an unimmunized horse and titered to the type used to produce the immunity; as yet Type II showed a very low titer. If one could determine the type it was better to give the serum for that type alone. In reply to the question as to whether he thought pneumonia was a direct infection of the lung or a hematogenous infection, Dr. Cole said that from his experience he believed that it was a direct infection of the lung. Their experiments led them to believe that more than contact played a rôle in infection, that there was an autogenous factor.

Dr. Park said that Group IV as he understood it was not a group in the proper sense of the word; this group might embrace a large number of varieties of pneumococcus bacilli, and there might be some semi-saphrophytic ones. This was an important question with him as it had some relation to the present discussion in regard to subway crowding.

Dr. Cole said that in reply to the question as to whether there was any deterioration of the sera with time, he could not say as they had not kept their sera long enough as yet. Six months was the longest time they had kept any; it had not seemed to deteriorate in that time but it might do so later. Someone had asked as to the possibility of the transformation of one type of bacilli into another; in their experience they had never seen one type transformed into another. Type I had passed through one hundred and twenty-five animals and remained Type I always. Transformation might be possible, but they had never observed it. They had examined the types during the various stages of the disease and during convalescence and the agglutination tests always showed the same organism. What Dr. Park had said of Group IV was true; there might be one hundred and fifty varieties, but each was an individual type and absolutely distinct. They seemed to have found two types of organisms in South Africa that had not been observed here. In reply to the question whether a patient might have an infection consisting of organisms of more than one type, Dr. Cole said that he had never found Type I and Type II at the same time. If Type I and Type IV were both present, Type I came out and Type IV did not. Type I was more virulent and suppressed Type IV. One never got an "even up" mixture. In reply to Dr. Kerleys's question as to why the mortality was lower in children than in adults, he had made no observations along that line and had no theories to offer.

Pathological Society of Philadelphia.

At a stated meeting held February 1, Dr. S. W. Sappington presented (1) "Specimens of Duodenal Ulcer"; (2) "Myoma of the Stomach"; (3) "Polyp of the Stomach."

Drs. Moses Behrend and I. Valentine Levi presented a specimen from "A Case of Lymphangioma Congenitum Cysticum Multiplex." There had been no difficulty in the birth of the child, which presented a tumor on one side of the neck. The possibility of removal surgically was considered, but had to be abandoned. The conditions discovered after death showed that operation could not have succeeded on account of the deep and intricate ramifications of the growth about the great vessels and the nerves of the neck.

Dr. Moses Behrend presented a "Specimen from a Case of Recurrent Extrauterine Pregnancy." About a year after operation for intraabdominal hemorrhage due to rupture of an intrauterine pregnancy, the patient, again pregnant, presented symptoms of irregular bleeding from the vagina, and for the relief of which operation was undertaken. On this occasion the bleeding was found to come from a partially ruptured oviduct within which was still contained a fetus at an early stage of development.

Dr. Behrend presented also a specimen from "A Case of Traumatic Meningitis (Forceps Operation) in a Newborn Infant." Delivery was attended with considerable difficulty, and application of forceps was required. Some injury was inflicted upon the head and neck of the infant, which weighed ten pounds at birth. For a while no sequel was noted, but after the lapse of several days rigidity, opisthotonos and muscular twitchings developed together with elevation of temperature. Also a gland in the neck broke down and discharged. In a few days more death ensued, and post-mortem examination disclosed a fairly extensive meningitis of convexity and base, without evidence of hemorrhage or traumatism. From the exudate a diplococcus believed to be the pneumococcus was isolated.

Dr. Martin E. Rehfuss presented a communication entitled "Further Studies on Experimental Gastric

Ulcer." He succeeded in demonstrating that in guinea-pigs erosion or ulceration of the stomach could be induced by subcutaneous injections of various toxic substances, such as venom of heloderma, and different alkaloids and a number of microorganisms. The lesions developed rapidly, in the course of several hours, and soon resulted in perforation.

Dr. ALFRED GORDON presented a preliminary communication describing "A New Test on Blood-serum and Cerebrospinal Fluid in Cases of Syphilitic Involvement of the Nervous System." It was found that when to clear blood-serum from apparently healthy or at least non-syphilitic persons there was added a drop or two of a 1 per cent. solution of mercuric chlorid in water slight transitory turbidity might develop, but when serum from a syphilitic was treated in the same way a coagulum formed at the surface, and which in the course of twelve or twenty-four hours became denser and sank to the bottom. On the other hand when cerebrospinal fluid obtained by lumbar puncture was treated in a corresponding manner turbidity resulted when the fluid was obtained from a syphilitic and no change took place when the individual was non-syphilitic. Comparisons with the Wassermann reaction showed that there was a close correspondence in the results of the two sets of tests. Observations were made on a variety of forms of syphilitic infection, at varying stages and involving the nervous system and other structures as well.

Drs. JOHN A. KOLMER and E. L. MOSHAGE presented a communication entitled "The Schick Reaction as a Measure of Immunity in Diphtheria." The test consists in the introduction of a minimal amount of diphtheria-toxin into the skin, and it has been found that individuals who possess as little as one-thirtieth of a unit of antitoxin within their system yield no reaction, while those deficient in immunizing bodies yield a more or less well-marked reaction at the site of inoculation, marked by redness and induration. The test is useful in rendering unnecessary prophylactic the employment of antitoxin in the case of individuals exposed to infection or otherwise suspicious and who do not yield the Schick reaction. In a small epidemic of diphtheria in a hospital of a large number of those tested and found negative only one nurse who took part in the care of some of the actual cases, developed a mild attack of diphtheria. By means of the test it was possible also to demonstrate the brief duration of the artificial immunity induced by an attack of diphtheria or by injection of antitoxin or in both of these ways. It was found that within less than a montht such individuals responded to the Schick test in much the same proportions as did individuals under ordinary circumstances. Also it was found that a large proportion of children do not yield the reaction during the first year of life.

Erythema Due to Carbon Monoxide Poisoning.—I. J. Davies states that acute erythema occurred in nine of eighteen survivors rescued after an exposure to noxious fumes in a mine for twenty hours. The lesions most commonly involved the buttock and generally the skin over the tuberosity of the ischium was affected. In other situations the skin over bony prominences was most commonly affected. The patches were of irregular shape and attended by considerable swelling of the part, and of a brilliant cherry-red color which faded on pressure. The patients complained of considerable pain in the regions affected which were very tender. Absolute anesthesia was a marked feature throughout, and was still evident in some of the cases after a period of six months. These facts strongly suggested that the cutaneous lesions of carbon monoxide poisoning are of the nature of an angioneurosis, while pressure merely determined the situation of the lesions and was not the causal factor. Erythematous lesions similar to those described were found on several of the bodies brought up within a few days of the disaster. The remaining bodies were not brought out of the mine for several weeks, while some could not be removed from under falls of roof for several months. Thus systematic examination was impossible owing to decomposition, and the necessity for prompt removal after identification and certification of the cause of death. The facts described go far to support the view expressed by the writer that the cutaneous lesions were not primarily pressure phenomena, but true manifestations of after-damp poisoning.—*Proceedings of the Royal Society of Medicine.*

Therapeutic Hints.

Cosmetic Creams.—Max Joseph states that these dissolve sebaceous material and the fatty acids of the sweat, and by their saponifying action form an excellent vehicle for the suspension of dirt. They also impart to the skin a gloss, and make a dry, rough skin soft and pliant. The following is the formula of violet cream:

℞ White wax,
Spermaceti, āā 6 grams.
Oil of sweet almonds, 30 grams.
Rose water, 45 grams.
Oil of violets, 4 grams.
—"A Short Handbook of Cosmetics."

Treatment of Ophthalmic Migraine.—S. E. Jelliffe recommends the following for the evanescent abortive attacks:

℞ Antipyrine, ʒj.
Citrated caffeine, gr. xv.
Elixir of sodium bromide, ad ʒij.
M. Sig.: ʒj every fifteen minutes for three doses.

If the attack is in the chilly, creepy stage, with beginning scotoma, and before the headache begins, the following may be given:

℞ Antipyrine, gr. xv.
Nitroglycerin, gr. 1/10.
Elixir of pepsin, ad ʒj.
M. Sig.: ʒj every five minutes for three doses.

Acetylsalicylic acid may be given in doses of 5 grains every ten minutes with a little coffee.—"Modern Treatment of Nervous and Mental Diseases."

Chrysarobin in Psoriasis.—G. T. Jackson finds that the best method of using this drug is a modification of the combination recommended by Dreuw, as follows:

℞ Salicylic acid, 10 grams.
Chrysarobin,
Birch tar, āā 20 grams.
Lanolin,
Goose fat, āā 25 grams.

The chrysarobin reaction is usually mild.—"Diseases of the Skin."

Treatment of Loss of Hair.—R. Sabouraud recommends the use of pilocarpine, especially in the loss of hair so frequently seen in women. His formula is:

℞ Alcohol, 90 per cent., 250 grams.
Spirit of lavender.
Spirit of ether, āā 25 grams.
Pilocarpine muriate, 0.25 gram.
Water, q. s.
Ammonia water, 4 grams.
M. Sig.: For external use.

For Pruritus Ani.—P. Lockhart-Mummery has found the following an effective application:

℞ Bismuth subnitrate, ʒ ij.
Tincture of opium, ʒ j.
Cocaine hydrochloride, gr. xx.
Phenol, ♏v.
Dilute hydrochloric acid, ♏xx.
Lanolin, ʒ ij.
—"Diseases of the Rectum."

Glyceryl Trinitrate in Hemicrania.—M. T. Schnirer states that Mendel recommends the following:

℞ Glyceryl trinitrate, 0.1 gram.
Alcohol,
Phosphoric acid, āā, 10 grams.
M. Sig.: Two drops twice a day.
—"Taschenbuch der Therapie."

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 11.
Whole No. 2314.

NEW YORK, MARCH 13, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

FURTHER REMARKS ON SYPHILIS OF THE STOMACH.

BY MAX EINHORN, M.D.,

NEW YORK.

PROFESSOR OF MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

QUITE a number of years ago I wrote a paper[1] on syphilis of the stomach. In this article the more important literature on this subject may be found. Later on I wrote two additional papers[2,3] on syphilitic tumors of the stomach.

Since then the following clinicians have broached the question of syphilis of the stomach.

Siegheim[4] related a case of syphilitic tumor of the stomach, which he observed, and whose symptoms resembled those of carcinoma.

Myer[5] described two cases of gastric tumors, due to syphilis. In one patient, who was operated upon, an inoperable tumor was found, and in the other a tumor the size of half a fist was found in the epigastrium. Thorough antisyphilitic treatment caused the tumors to disappear in both cases.

Leven[6] reports two cases of syphilitic pyloric stenosis, which were entirely cured by antisyphilitic treatment. In one of these patients the Wassermann reaction was negative. Leven makes it a rule never to turn over a case to the surgeon before antiluetic treatment has been tried; in this way we may recognize the syphilitic nature of the trouble.

Hausmann[7] usually found anacidity in syphilitic gumma of the stomach. The combination of symptoms of ulcer with anacidity speaks for syphilitic ulcer.

In another somewhat later article Hausmann[8] described three cases of callous or penetrating syphilitic ulcers of the stomach, which he had observed himself and believed that they were not at all unique, and that similar cases are seen by surgeons, but are not interpreted correctly by them. The ulcers are accompanied by anacidity.

For the microscopical examination of gummatous tissues the usual methods of staining with hematoxylin eosin and Van Gieson are frequently insufficient. When we suspect syphilis it is necessary to study the changes of the vessels by means of a stain for elastic tissue and we must employ a stain with polychrome methlyene blue or pyronin methyl green.

Comite[9] described a case of syphilitic tumor of the stomach. It was the size of a pigeon's egg and felt hard, resembling a cancer in every respect.

Copelli[10] reported several cases of syphilis of the stomach, observed by himself, and believes that they are not so rare. He is of the opinion that in every case of severe affection of the stomach, that is not amenable to treatment, the possibility of syphilis must be considered.

The subject of gastric syphilis, although of great practical importance, is but scantily represented in the latest medical literature. For this reason I deem it of interest to publish my new experiences regarding this question. I shall, however, limit myself in citing some of my new cases serving as paradigmata, as a full description of all would be too lengthy.

At first I would like to describe two new cases of syphilitic tumors of the stomach. They are very rare, but most important, for they at times resemble a malignant neoplasm in the minutest details.

CASE I.—Fred B. J., 46 years old, colored was admitted to the Post-Graduate Hospital, Nov. 19, 1913. Patient had always been well until a year ago, when he noticed distress at night four to five hours after supper, usually lasting for about one hour. At first this came on occassionally but since about three months (August, 1913) it has been constant. The symptoms are relieved by eating or taking alkalies. He has never vomited blood or passed blood in the stool. The pain is usually localized in the epigastrium and now comes on three to four hours after meals. He has lost thirty pounds in the last six months. His habits are good, he does not drink or smoke.

Present condition; heart and lungs negative; in the epigastric region midway between ensiform cartilage and navel a resistant mass of 1½ inch thickness can be distinctly felt; liver slightly large. Reflexes and urine normal.

Examination of stomach contents one hour after a test breakfast, on Nov. 22, 1913 (180 c.c. recovered), reveals absence of free HCl, total acidity = 8, lactic acid faintly present; no blood.

Wassermann reaction is strongly positive.

Examination of stomach contents, on Nov. 28, shows in 100 c.c. of contents absence of HCl; total acidity = 7; lactic acid absent; blood moderate reaction. Feces show no blood.

Thirty c.c. of a retention meal are recovered and give a strongly positive blood reaction. Nov. 30, neosalvarsan, eight grains are given intravenously. Dec. 9 and 12, mercury salicylate, one grain intramuscularly. Nov. 15, *x*-ray reports evidence of calloused pyloric ulcer. Nov. 21, partial defect at pars pylorica. Stomach vertical orthotonic type. No residue at end of six hours. (Figs. 1 and 2.)* Intestinal hypomotility present. Pylorus is at level of umbilicus in the median line, lesser curvature being to left of median line.

Diagnosis from the *x*-ray examination by Dr. I. S. Hirsch: Carcinoma pylori.

Nov. 22. The thread test shows no bile, no blood (the duodenal bucket did not pass the pylorus). Nov. 25. Findings with thread same as on Nov. 22. Dec. 12. Thread test shows bile stain, but no blood (the bucket has passed the pylorus).

Weight: Nov. 22, 116½ pounds; Dec. 3, 119½ pounds; Dec. 12, 122½ pounds.

March, 1914, patient is presented at my lecture. He has gained 30 pounds in weight and feels perfectly well. He eats everything without any discomfort. The physical examination of the abdomen fails to reveal anything abnormal.

CASE II.—Nov. 19, 1909. J. L., about 47 years old, was troubled with pains and vomiting for the last five to six months and had lost 40 pounds. Examination

*I am indebted to Dr. I. S. Hirsch, radiologist at the Post-Graduate Hospital, for the two beautifully executed *x*-ray photographs.

of the abdomen revealed a resistant mass, occupying the left hypochondrium and extending from the costal margin for about two and a half inches downward. The mass was uneven and hard. The gastric contents showed absence of HCl. and presence of lactic acid and blood. The family physician reported that a Wassermann reaction had proved to be negative. Based upon these findings the diagnosis of cancer of the stomach appeared to be positive and an operation was recommended with a view of either excising the growth or at least establishing a gastroenterostomy.

FIG. 1.—X-ray photograph of stomach of Fred B. J. after ingestion of a bismuth mixture. The greater curvature near pylorus shows a distinct defect in outline.

At the operation an inoperable tumor of the stomach was found. Even a gastroenterostomy was not feasible on account of the technical difficulties. The patient got over the effect of the operation, but continued to suffer as before. About one month after the operation he called on me for relief. On examination I found the same mass as described before. Notwithstanding that the Wassermann reaction was negative, I decided to give him iodides. The drug acted almost like a charm and soon afterwards he began to feel better. Later on a regular antispecific regimen was rigorously carried out and the patient entirely recovered and is still living and well. The tumor has entirely disappeared.

Syphilitic tumors of the pylorus are already somewhat more frequent than those of the stomach proper. I have seen quite a number of them, but will cite one as a good representative of this affection.

CASE III.—February, 1910. Mrs. F. has been complaining for three years of occasional attacks of severe pains, accompanied by vomiting of large quantities of food. For the last five months the vomiting has increased in severity; she has also lost considerably in flesh. Upon examination the stomach was found to be extremely dilated, extending almost to the symphysis and a small tumor the size of a large walnut could be distinctly palpated in the pyloric region. Her stomach in the fasting condition contained over a pint of stagnating food; HCl was present, total acidity increased. A régime of lavage and liquid food failed to bring on any marked improvement.

Her stomach even then contained quite a quantity of gastric juice mixed with food particles in the fasting condition. The vomiting and pains likewise persisted. She was given iodides tentatively. After a while she began to feel better, her stomach was empty in the fasting condition, and the tumor appeared to be somewhat smaller. Mercurial inunctions were now added to the iodides. The patient was treated 4 or 5 months upon this régime. Her diet was increased, she gained in weight, her stomach continued to be empty in the morning, and after a while no resistance could be felt in the pyloric region.

Syphilis of the central nervous system associated with a probable duodenal ulcer was encountered in the following case:

CASE IV.—October, 1913. Mr. de T., about 35 years old, is troubled with severe attacks of periodic vomiting for the last two years. These attacks appear quite suddenly, and are accompanied by severe headache, violent pains in the gastric region, and continuous vomiting, lasting from 3 to 5 days. At times the vomited matter contained blood. While these attacks at first used to come on about every 2 to 3 months, lately the period of free intervals has been shortened and now they appear almost every 2 or 3 weeks. Between the attacks patient feels better, but not well. He then complains of pains 2 or 3 hours after meals and obstinate constipation. He has lost within the last eight months about 40 pounds in weight.

The examination showed a dilated stomach and an extremely emaciated man. The liver was not enlarged, the knee reflexes were exaggerated, and slightly impaired coordination was present. The gastric contents showed hyperchlorhydria. The thread test established the fact that the pylorus was permeable and no blood stain was found. The stomach in the fasting condition was never empty, containing a great deal of gastric juice (between 60-100 c.c.). A retention meal given at night had left the stomach completely in the morning. Occult blood was found in the gastric contents. The *x*-ray examination confirmed the diagnosis of a dilated stomach and also showed some irregularity in the outline of the cap, but no definite diagnosis could be made.

Patient was given bismuth and atropine in large doses, but as he felt no improvement, it seemed as if an operation (gastroenterostomy) would have to be resorted to. I advised a Wassermann, which was positive, and with an antiluetic treatment the patient was relieved of all his symptoms.

Syphilitic ulcers of the stomach are quite frequent. I shall describe but one case.

CASE V.—October, 1912. Mrs. E., about 36 years old, was troubled for the last eighteen months with severe gastric pains and vomiting. Six months ago she threw up a large quantity of blood (about 1 or 2 quarts). Since then all the symptoms were aggravated and she continually grew worse. Upon her arrival at the hospital she stated that she had lost over 50 pounds in flesh. She could not retain anything given by mouth.

FIG. 2.—X-ray photograph of same patient 6 hours later. the stomach is empty; a shadow in the form of an irregular line remained in the place of the defect, indicating hardened tissue groove to which the bismuth sticks.

The examination showed a dilated stomach, extending almost to the symphysis. A test breakfast examination revealed the presence of HCl in normal amount and occult blood. The duodenal bucket showed that the pylorus was permeable and the thread was blood-stained between 42 and 52 cm., indicating ulcerations within the stomach. A Wassermann reaction proved strongly positive. Patient was put on duodenal alimentation and was given antiluetic treatment besides. She rapidly improved and within six weeks had almost regained her former health.

Inasmuch as any recognized mode of treatment that is usually considered efficacious in gastric ulcer had had no effect whatever upon her, and the fact that she recovered quickly after antisyphilitic treatment, supplemented by an ulcer cure, make it fair to assume that the ulcer was due to a specific syphilitic lesion.

Organic lesions of the stomach are frequently found in syphilitic individuals. At first we are prone to ascribe the gastric lesion to a luetic process. After a while, however, we become convinced that the affection of the stomach is independent of the coexisting syphilis.

As a good instance of this kind, the following case may be briefly outlined:

Case VI.—Case of syphilis and cancer combined in one patient. May 24, 1914. Wm. W., 54 years old, watchman, had never had any illness until six years ago, when he became short of breath, which has continued. He could not walk half a block without stopping for breath. Six months ago the shortness of breath increased and he lost 35 pounds. He slept poorly and whenever he took alcohol he vomited; his appetite was poor; bowels were regular. Formerly he was a heavy drinker, smoked 6 or 7 cigars daily, denies syphilis, but acknowledges having had a soft chancre. He went to a hospital for his troubles, but did not improve.

I first saw him at my office in April, 1914, and found upon examination a dilated heart and large liver with induration; besides this a distinct resistant mass in the epigastrium, extending to the left of the mammillary line and appearing to be connected with the lesser curvature of the stomach. A diagnosis of carcinoma had been made at the hospital which I had to corroborate according to the clinical findings. The patient, however, had been so weak at that time that an operation could not be considered. Having the possibility of syphilis in mind, I put him on an antiluetic treatment. This régime was followed by marked improvement for 3 or 4 months, during which time he also gained in weight and strength and his heart action improved.

While the liver diminished in size and the general condition was better, the resistant mass in the stomach remained unchanged. Ascribing the improvement in his general condition and in the state of his heart and liver to a syphilitic process, while that of the stomach to malignant disease (cancer), I now advised patient to be operated, which was done in a New York hospital. The tumor could not be resected. When I later saw patient I found the resistant mass somewhat larger in size, but there was no reappearance of the growth in the liver.

The following is a case in which the diagnosis of syphilitic or cancerous tumor of the stomach is still not definitely decided:

Case VII.—November 15, 1914. K. M., 44 years old, began to be troubled with distress 3 or 4 or 5 or 6 hours after meals, since February, 1913. At times, however, patient felt perfectly well, when the distress usually reappeared. The appetite was good and bowels moved daily. For the last three months patient felt worse, suffering from the same distress in a severer degree and waking up about one o'clock at night with pain in the stomach. Patient lost slightly in weight and felt weak.

Present condition, October 20, 1914: In the epigastrium, about one inch below the ensiform process and from here to the left a distinct resistance can be felt. The size of this mass is about two and a half inches in length and three-quarters inch in thickness; it lies horizontally toward and beneath the left costal arch. It is movable and goes up and down with deep inspirations. The stomach extends to one finger below the navel. The gastric contents, one hour after Ewald's test breakfast, reveal absence of free HCl, presence of rennet ferment, and fresh blood, macroscopically visible.

The blood showed slight anemia, but no leucocytosis. Wassermann reaction is two + +. Abderhalden reaction for cancer proved to be negative. Patient, however, is not conscious of ever having been infected by syphilis. The *x*-ray examination of the stomach failed to show the presence of the tumor.

In view of the given data it was fair to assume that the mass which could be distinctly palpated was due to gummata. Patient was therefore given an intravenous salvarsan injection on November 25, and treated by a vigorous antiluetic régime. On December 15 the mass had increased considerably in size and it was then as large as a fist. It had an uneven surface and was quite hard. Patient complained of the same symptoms as before; he could not lie comfortably and experienced pains at night and also at times during the day late after meals. The examination of the gastric contents one hour after Ewald test meal showed absence of HCl, presence of blood, no lactic acid, rennet ferment present. The duodenal bucket test showed a permeable pylorus and a slight blood stain on the thread. The diagnosis at that moment appeared to be that of cancer of the stomach, notwithstanding the positive Wassermann and the negative Abderhalden reaction.

On Dec. 28, or two weeks later, after having taken all this time the red biniodide of mercury and potassium iodide, the patient was reexamined. He then looked much better, had very little if any gastric pain, had not lost any weight. Palpation revealed very little tenderness over the epigastrium, and the resistant mass was less than half its former size (smaller than half a fist). The diagnosis cannot yet be definitely settled, although it looks more than likely that the tumor is a syphilitic one.

Remarks.—In going over the above cases the following points appear to be of importance:

1. There is no absolute sign distinctive of gastric carcinoma (excepting a microscopic tissue section) which may not be encountered in a gummatous tumor of the stomach. In Cases I. and II. all clinical signs of gastric carcinoma were present in a clear-cut manner. In one of them even the Wassermann test was negative, and the macroscopic appearance of the tumor after opening the abdomen tallied with an inoperable carcinoma. In the other the *x*-ray findings, likewise, indicated the presence of a malignant neoplasm. The lesson to be learned from these cases is, not to forget the possibility of gumma, in making a diagnosis of cancer of the stomach.

2. A positive Wassermann reaction is helpful in establishing the diagnosis of a syphilitic lesion. Its absence, however, does not positively militate against lues; nor does its presence indicate that the gastric affection is a syphilitic one.

A rigorous antiluetic treatment carried out over an extended period of time (2 to 4 weeks or more) gives us the desired information with regard to the differential diagnosis. If there is general improvement and with it a perceptible decrease or disappearance of the tumor, then we are entitled to make the diagnosis of gastric syphilis. The antispecific treatment leaving the patient in a status quo, or perhaps increasing the symptoms, it will rather bear testimony against a luetic nature of the affection in question.

3. Patients with distinct syphilis frequently suffer from other organic lesions of the stomach which are entirely independent of the coexisting general lues. They, therefore, require the usual measures of procedure and treatment in addition to the antispecific régime.

REFERENCES.

1. Max Einhorn: Syphilis of the Stomach, *Philadelphia Medical Journal*, Feb. 3, 1900.

2. A New Case of Syphilitic Tumor of the Stomach, *Journal of the American Med. Ass'n*, Oct. 25, 1902.

3. A Case of Syphilitic Tumors of the Stomach and Liver with Recovery, *Int. Journ. of Surgery*, Jan., 1909.
4. Siegheim: Über Syphilis des Magens, *Deutsche med. Wochenschr.*, 1911, p. 148.
5. Jesse S. Myer: Syphilis of the Stomach with a Report of Two Cases of Syphilitic Tumors, *Interstate Med. Journal*, 1912, p. 974.
6. M. G. Leven: La Syphilis Gastrique. Bulletin Général de Therapeutique, Juillet, 1913, p. 62.
7. Th. Hausmann: Die Syphilitischen Tumoren des Magens, Ergebnisse der inneren Med. u. Kinderheilkunde, 1911. Bd. VII., p. 279.
8. Die ätiologische Rolle der Syphilis in manchen Fallen von Ulcus Callosum penetrans. u. bei einigen Tumoren, *Arch. f. klin. Chirurgie*, 1913. Bd. 101, p. 230.
9. F. L. Comite: Sifilide Gastrica simulante una neoplasia, *Gazzetta degli ospedali e dclla cliniche*, 1913, p. 266.
10. M. Copelli: Contributo alla conoscenza della sifilide gastrica, *Giornale Italiano delle malattic veneree e della pelle*, 1913, p. 289.

20 East Sixty-third Street.

THE TREATMENT OF PYORRHEA ALVEOLARIS AND ITS SECONDARY SYSTEMIC INFECTIONS BY DEEP MUSCULAR INJECTIONS OF MERCURY.*

By BARTON LISLE WRIGHT, M.D.,
SURGEON, U. S. NAVY,
AND
PAUL G. WHITE, D.M.D., A.A.,
DENTAL SURGEON, U. S. NAVY.

THIS very common and widespread disease has, until recently, been considered only in relation to its local destructive action, but the writings of Billings, Rosenow, and others have drawn attention to its importance as a source of serious systemic infection.

Among these infections may be mentioned malignant endocarditis, chronic arthritis, myositis, Hodgkin's disease, systemic antinomycosis, various stomach disorders, neuritis, and other diseases of the nervous system.

From this it is apparent that the cure of this disease, long regarded by the medical and dental professions as more or less incurable, is of most vital importance, not only to prevent its local ravages, but as a prophylactic measure against systemic invasion, with its serious and sometimes fatal results, or where this invasion has already taken place, to remove the source, thereby making the permanent cure of the systemic infection a possibility.

No one organism can be held responsible as the specific cause of this infection. Billings and Rosenow state that the dominant organisms concerned in its production belong to the streptococcus-pneumococcus group. In addition staphylococci, a fusiform bacillus, the *Bacillus aërogenes capsulatus*, and various saphrophytic organisms may be concerned. They believe that the streptococcus-pneumococcus group apparently comprise the important pathogenic bacteria related to systemic infection.

All of these organisms are vegetable parasites.

The theory upon which our treatment of this disease is based has been published† several times previously, and briefly is as follows:

*Read before the Portsmouth, N. H., Medical Society, February 2, 1915.

†MEDICAL RECORD, December 2, 1911. "The Treatment of Tuberculosis and Other Diseases of Vegetable Parasitic Origin by Deep Muscular Injections of Mercury."—MEDICAL RECORD, July 11, 1914. "The Treatment of Diseases of Vegetable Parasitic Origin by Deep Muscular Injections of Mercury."

For every vegetable parasite mercury is the chemical affinity, and when properly injected into the infected host will cure the specific disease. The multiplicity of the organisms concerned in the production of pyorrhea (and it is probable that in every case a multiple infection is present sooner or later) renders the specific treatment directed at any one organism of little if any value.

For the sake of argument, granting the correctness of the above-mentioned theory, then its practical application in the treatment of this particular disease would seem to be ideal, and it should result in the cure of a majority of the cases treated.

Not only this, but it should also cure any secondary systemic infection that might be present, whether caused by the same organisms, as found in the original focus of infection, or transmutation forms of these organisms, the possibility of which has been demonstrated by Rosenow, and, later, independently, by the Pasteur Institute of Paris; for no matter how changed the physical and specific characteristics of these transmuted organisms, it is a matter of biological impossibility for them to change their class; they remain vegetable parasites.

Further, any coexisting disease of vegetable parasitic origin, not related to the pyorrhea in any way, should be benefited and under certain conditions cured by the treatment.

Our faith in the correctness of the theory being absolute, we approached the treatment of this disease, its secondary systemic infections, and any coexisting complicating diseases produced by the vegetable parasitic organisms with supreme confidence.

Our results have been so uniformly and brilliantly successful as to demonstrate the correctness of the theory, both in the restricted sense as applied to this particular disease, and in the broader sense as applied to all diseases of vegetable parasitic origin.

So far we have treated twenty-eight consecutive cases, all of which have been completely cured in remarkably short periods of time. Of these, nine, or 32.1 per cent., had systemic infections in all probability secondary to the pyorrhea, six of these being chronic arthritis, one chronic grastritis, one chronic bilateral facial neuralgia, and one chronic laryngitis. In addition two others had gonorrheal arthritis.

All of these systemic infections, including the cases of gonorrheal arthritis, were also cured.

The longest period of time required to effect a cure was 41 days (Case 24), the shortest 4 days (Cases 9, 10, and 11), average 15 +. Greatest number of injections required to cure the primary infection in one one case 6, smallest number 1. Average 2.7.

The local treatment as administered by Dr. White embraces the following: Careful expression of the pus from the pockets, thorough removal of calcareous deposits and tartar wherever found, the extraction of hopeless teeth and roots, polishing of tooth structure, followed by applying to the margin of the gums equal parts of tr. iodine, tr. aconite, and chloroform, continued every other day.

The injections of mercuric succinimide should be commenced with the local treatment. The initial injection in a male patient should be gr. 5/5, repeated every seventh day, or, depending upon the condition of the patient, the dose of each succeeding injection may be slightly reduced. In females the dose should be from gr. 1/5 to gr. 2/5 less. The cooperation of the physician and dentist is most essential.

Case I. C——, E. W., chief carpenter. Came under observation May 4, 1914. Complaint: Severe pain, soreness, and stiffness of shoulder joints and of the feet and ankles. This condition had existed for some years. Treatment at different times had proven of little benefit. For the past few months had grown much worse; patient hardly able to get out of bed or dress himself. Was under treatment of A. A. Dental Surgeon P. G. White for pyorrhea, which Dr. White considered an extensive and bad case. A diagnosis of chronic infectious arthritis was made, infection probably due to the condition of the gums. Injections of mercuric succinimide were given as follows: May 4, gr. 7/5, slight gingivitis, feels better; May 11, gr. 5/5; May 19, gr. 4/5; May 23, entirely free from all symptoms, Dr. White reports pyorrhea cured; May 24, gr. 4.5. June 2, complains of pain in both hip joints, injection gr. 4/5; June 7, gr. 3/5; June 13, gr. 4/5; June 29, feels perfectly well, injection gr. 3/5. July 8, perfectly well, injection gr. 3/5. Patient states that a large patch of eczema which has been present on the chest for the past thirty years has also disappeared.

Case II. S——, W. H., sergeant, U. S. M. C. Case referred by Dr. White, with diagnosis of pyorrhea, gums soft, spongy, and retracted. Pus exuding from around every tooth. Has a chronic arthritis of left ankle which is considered an autogenous infection from the local infection of gums. Injections as follows: June 29, gr. 6/5; July 6, gr. 5/5, marked improvement; July 11, gr. 4/5; July 17, gr. 4/5, all pain and swelling in left ankle disappeared, gums normal; July 21, apparently cured. The following injections given as a precautionary measure: July 24, gr. 3/5; July 31, gr. 2/5.

Case III. R——, C. E., chief yeoman. Case referred by Dr. White, who has been treating the patient for about six weeks. Extensive and severe infection which has shown slight improvement. Injections of mercuric succinimide as follows: June 29, gr. 5/5; July 6, gr. 4/5; July 11, gr. 3/5; July 13, apparently cured. Three more injections were administered as a precautionary measure: July 17, gr. 3/5; July 24, gr. 2/5; July 31, gr. 2/5.

Case IV. K——, E., G. C. M. P. Referred by Dr. White. Patient presents soft spongy gums, which bleed freely, and are extremely tender and sensitive. Pus in large amounts discharges from around every tooth. Has a polyarthritis, both knees and both ankle joints being infected. It is thought that this condition is probably an autoinfection. Injections of mercuric succinimide as follows: July 28, gr. 5/5, followed by marked improvement; August 3, gr. 4/5. By August 6 all symptoms had disappeared. August 18, no evidence of pyorrhea present, but injections resumed as precautionary measure, gr. 4/5. August 24, gr. 4/5. Pyorrhea and arthritis cured.

Case V. K——, S. Pyorrhea, severe and extensive. Subacute gonococcic urethritis. Gonorrheal arthritis. Injections mercuric succinimide as follows: August 16, gr. 6/5; August 25, gr. 4/5; September 2, gr. 4/5; September 4, pyorrhea cured. September 9, gr. 3/5; September 16, gr. 3/5. No discharge from urethra for past ten days. Urine free from shreds. Arthritis cured.

Case VI. D——, A. W. Referred to Dr. White by P. A. Surgeon Wheeler for local treatment of a severe and extensive pyorrhea on August 19. Dr. Wheeler had on August 18 injected mercuric succinimide, gr. 6/5, the patient also having gonorrheal arthritis. August 19, gr. 5/5. Gingivitis followed; August 26, gums still slightly tender, but pus has entirely disappeared. September 2, gr. 4/5. Pyorrhea and arthritis cured.

Case VII. M——, J. J. Extensive and severe pyorrhea. Injections mercuric succinimide as follows: Aug. 18, gr. 5/5. Marked improvement followed immediately. August 24, gr. 4/5; August 30, cured; August 31, gr. 4/5, as a precautionary measure.

Case VIII. P——, L., Corporal of Marines. Pyorrhea, moderately severe case, involving processes of upper and lower central teeth. Injections mercuric succinimide as follows: August 27, gr. 5/5; September 2, gr. 4/5; September 4, cured. No further treatment.

Case IX. E——, W. C. Pyorrhea, mild. Polyarthritis. Both knees and both ankles involved. Injections mercuric succinimide as follows: September 14, gr. 5/5; September 17, pyorrhea and arthritis cured.

Case X. J——, E. S. Pyorrhea, mild, involving processes of all upper teeth. Injections mercuric succinimide as follows: September 25, gr. 6/5; September 28, cured.

Case XI. G——, T. J., P. M. Pyorrhea, mild, involving processes of lower teeth. Injections mercuric succinimide as follows: September 25, gr. 5/5; September 28, cured.

Case XII. S——, W. J., Chf. Quartermaster. Pyorrhea, severe, involving processes of all teeth, all of which are loose. Complains of indigestion and very poor appetite. Injections mercuric succinimide as follows: September 5, gr. 5/5; September 12, gr. 5/5; September 19, gr. 3/5; September 22, cured. Gastric symptoms disappeared. Has excellent appetite.

Case XIII. C——, R. B., M. A. Arms, lc. Pyorrhea, severe, involving processes of all teeth, all of which are loose. Abscess of right upper jaw and severe bilateral facial neuralgia. Abscess incised and drained. Injections of mercuric succinimide as follows: September 5, gr. 5/5; September 6, neuralgia disappeared; September 12, gr. 5/5; September 19, gr. 3/5, markedly improved; September 26, gr. 4/5; October 2, gr. 3/5, cured.

Case XIV. B——, E. Pyorrhea, moderate, upper and lower central teeth. Polyarthritis involving knees and ankles. Injections mercuric succinimide as follows: October 5, gr. 5/5; October 12, gr. 5/5; October 19, gr. 4/5; October 21, pyorrhea and arthritis cured.

Case XV. P——, O. S. Pyorrhea, severe, involving processes of all teeth. Injections mercuric succinimide as follows: October 8, gr. 5/5; October 15, gr. 4/5; October 21, cured; October 23, an injection, gr. 3/5, was given as a precautionary measure.

Case XVI. A——, L., Coxswain. Pyorrhea, severe, processes of all teeth involved. Gums, extreme recession, soft, spongy, and bleeding. Injections mercuric succinimide as follows: October 12, gr. 5/5; October 19, gr. 5/5; October 26, gr. 5/5; October 31, cured.

Case XVII. B——, J. E. Pyorrhea, mild. Injections mercuric succinimide as follows: October 20, gr. 5/5; October 25, cured.

Case XVIII. W——, J. F. Pyorrhea, severe, involving processes of all teeth. Injections mercuric succinimide as follows: October 26, gr. 5/5; November 3, gr. 5/5; November 6, cured.

Case XIX. R——, F. Pyorrhea, moderate in extent and severity. Injections mercuric succinimide as follows: October 31, gr. 5/5; November 7, gr. 5/5; November 9, cured.

Case XX. D——, D., P. M. Pyorrhea, mild, processes of upper molars and lower central teeth involved. Marked recession of gums. Injections mercuric succinimide as follows: November 4, gr. 5/5; November 11, gr. 5/5; November 14, cured.

Case XXI. M——, M., F. lc. Pyorrhea, severe, moderately extensive. Injections of mercuric succinimide as follows: November 3, gr. 5/5; November 10, gr. 5/5; November 17, gr. 5/5; November 20, cured.

Case XXII. M——, C. O., C. M. A. Arms. Pyorrhea, extensive calcareous deposit and gum recession. Free flow of pus from upper molars and lower central teeth. Injections of mercuric succinimide as follows: November 7, gr. 5/5; November 14, gr. 5/5; November 19, gr. 5/5; November 20, cured.

Case XXIII. O——, A. W. Pyorrhea, calcareous deposit and gum recession extreme. Discharge of pus from around every tooth. States that he is subject to frequent attacks of laryngitis and tonsillitis. Injections mercuric succinimide as follows: November 14, gr. 5/5; November 21, gr. 5/5; November 28, gr. 5/5; November 30, cured.

Case XXIV. F——, L. P. Pyorrhea, extremely severe, very extensive calcareous deposit under the gums, which are extremely tender and sensitive, free flow of pus from around all teeth. Severe arthritis of knee joints. Injections of mercuric succinimide as follows: November 2, gr. 6/5; November 9, gr. 5/5. These were followed by an immediate and marked improvement in the arthritis. By November 16 the joint symptoms had entirely disappeared, and he was referred to Dr. White for local treatment. Injections of mercuric succinimide were continued as follows: November 16, gr. 5/5; November 24, gr. 5/5; December 1, gr. 5/5; December 8, gr. 5/5; December 12, cured.

Case XXV. S——, G. W. Pyorrhea, severe, large amount of pus discharging around every tooth. Injections of mercuric succinimide as follows: November 21, gr. 6/5. This was followed by severe gingivitis and angina. On the twelfth day following, December 3, gr. 3/5. This was followed by rather severe abdominal pain, diarrhea, and rectal tenesmus, patient evidently having an idiosyncrasy for mercury. December 13, gr. 2/5; December 20, gr. 2/5; cured.

Case XXVI. A——, K. E. Pyorrhea, moderately severe, pus from around all molars, which are loose. Injections mercuric succinimide as follows: December 5, gr. 5/5; December 12, gr. 5/5; December 19, gr. 5/5; December 20, cured.

Case XXVII. Mrs. X——. Pyorrhea, moderately severe, gums soft, spongy, tender and with tendency to bleed. Condition had existed some time. Since middle of August had been receiving local treatment from a local dentist. In latter part of August developed a perialveolar abscess above left upper first molar. Old filling removed and root canals treated and tooth refilled. Later the abscess was incised, drained, and cavity swabbed with pure iodine, without improvement. November 11, 1914, condition of gums as above, over left upper first molar, a chronic perialveolar abscess was present, discharging pus through a patulous operative sinus, with a free discharge of pus from around tooth, which was quite loose. The upper right bicuspids were loose, with a free discharge of pus from around them. Injections of mercuric succinimide as follows: November 12, gr. 7/10; November 16, gr. 1/2. Following these pus entirely disappeared, the abscess sinus closed; November 24, injection, gr. 3/5; November 26, cured; November 31, gr. 2/5 as precautionary measure.

Case XXVIII. McC——, L. P. Pyorrhea, severe, extensive calcareous deposit about the neck of every tooth, free flow of pus from around all teeth. The injections in this case were given by P. A. Surgeon G. E. Thomas, U. S. Navy, at the Naval Prison, and through some oversight, three were given before local treatment was commenced on November 28. Injections of mercuric succinimide as follows: November 13, gr. 5/5; November 20, gr. 5/5; November 27, gr. 5/5; December 4, gr. 4/5; December 14, gr. 4/5; December 16, cured. There has not been a recurrence of pyorrhea, secondary systemic infection, or complicating infection in any of these cases.

ORAL OSTEITIS IN ITS RELATION TO ARTHRITIS.*

By BYRON C. DARLING, A.B., M.D.,

NEW YORK.

INSTRUCTOR IN ORTHOPEDICS, COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY; ROENTGENOLOGIST, ST. VINCENT'S AND RUPTURED AND CRIPPLED HOSPITALS.

The need for exact diagnosis and the removal of the focus of infection as the first step toward the treatment of a particular condition, is becoming more generally recognized by the medical profession. A study of the literature discloses active measures being carried on along this line in each branch of the profession. Rosenow, Billings, Hastings, Camac, Joseph Collins, and others, each an authority in his particular field, have recently contributed valuable articles on the subject.

The *need* for exact diagnosis is generally admitted, but the hidden focus often baffles definite localization, and treatment, consequently, has been lacking in directness and efficiency. This paper is written from the angle obtained by the use of the *x*-ray. The field of the *x*-ray is constantly widening and its diagnostic value increasing as its technical perfection is increased and its findings assimilated and checked up.

Some of these hidden foci of infection, while not of a virulent nature, are often of a chronic and incapacitating character and of most serious import. Their clinical manifestations in the order of ther importance, are, first, because more frequent, those of the chronic joints, single or multiple, usually progressive with periods of improvement, directly related to the increase or decrease of the resistance of the patient. That there is a great need for definite diagnosis in these cases is evidenced by a statement made recently by J. B. Murphy, that there had been no advance in the treatment of chronic joints in fifty years, the treatment being expectant and palliative. Next in order, shown notably by the work of Rosenow, are ulcers of the stomach and intestines, endocarditis, myocarditis, myositis, migraine, neuralgia, neuritis, and neurasthenia.

*Read before the Medical Section of the Academy of Medicine, October 20, 1914.

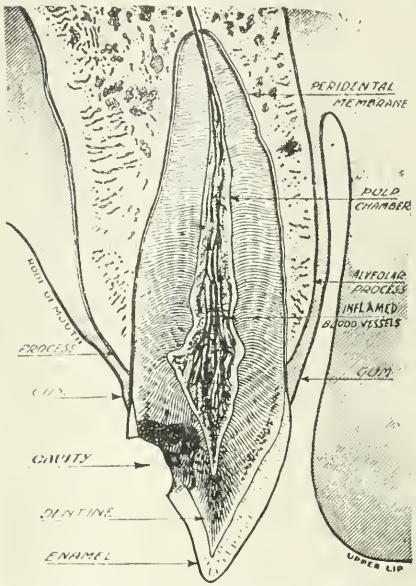


Fig. 1.—Diagram: The anatomical relations of a tooth and the first stage of apical osteitis—infection and inflammation. (Diagram by courtesy of the Ransom & Randolph Co., from "Seven Stages of Decay.")

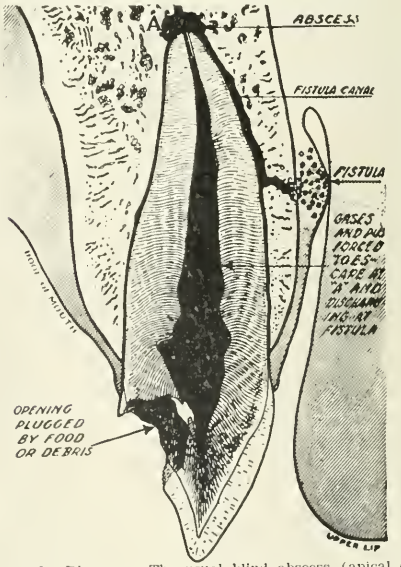


Fig. 2.—Diagram: The usual blind abscess (apical osteitis) has developed the less common fistula and gumboil. (Diagram by courtesy of the Ransom & Randolph Co.)

Much has been written by physicians and dentists upon the mouth as a source of infection in all of these conditions, and it is with this aspect of the

value of the *x*-ray as a means of exact diagnosis that this paper chiefly deals.

The teeth fall between the province of the dentist and that of the physician, who seldom meet for co-operation in diagnosis. Whether the patient, child

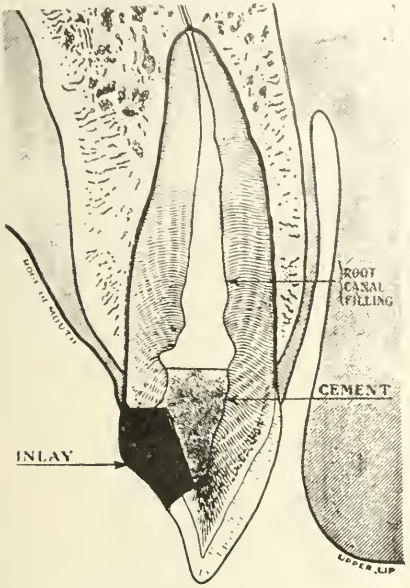


Fig. 3.—Diagram: The root canal has been emptied of septic material; the osteitis, drained, has healed; and the canal, filled, is now aseptic. The root filling (white in diagram), more opaque than the tooth, shows clearly in the radiograph. (Diagram by courtesy of the Ransom & Randolph Co.)

or adult, has ever had a dentist or not, the preponderance of possibilities points to the roots of the teeth, the gums, and the jaws, as harboring some focus of infection. The teeth being some thirty-two in number, having from one to three

Fig. 5.—Wet specimen: 1. Snags or roots, a frequent source of apical osteitis. 2. Extensive pyorrhea (Riggs' Disease). Note the receded ulcerated gum, due to disease and absorption of the alveolar process beneath.

roots to the tooth with pulp above, its nerve in the canal of each root below, and the root socket about each root (Fig. 4), it follows that any decay extending to and causing the death of the pulp or nerve becomes a source of infection which, if untreated, must result in a root abscess, osteitis, with or without fistulas (gum-boils) (Figs. 1, 2, 3).

In the gums and alveolar process where Riggs' disease (pyorrhea alveolaris) is present, an *x*-ray examination is of great importance, showing

Fig. 4.—Dry specimen (child): The normal alveolar process closely surrounds necks of teeth, roots, and apices. Here several teeth have as yet blunt, unformed apices.

as it does the absorption of the aveolar process about the root, varying from an open space the width of a line between the tooth and the socket to that shown by a tooth loose in a bed of swollen and inflamed gum with disappearance of the adjacent bone (Figs. 5 to 8). But more important is the demonstration of the root abscess cavities, early and minute or large with fistulas (Figs. 9 to 12); and finally, the *x*-ray will show if a root has been properly filled to its apex by the dentist. Wherever any suspicious condition brings the teeth into question, the matter should be looked into thoroughly by both the physician and the dentist, leaving no hidden focus undiscovered. Frequently a patient will say, "I have been to the dentist and he says my teeth are in perfect condition"; and yet an *x*-ray examination will show definite lesions (Figs. 13 and 14).

Fig. 6.—Dry specimen: Stripping of all the teeth from alveolar absorption, especially the molars, which have become loose foreign bodies. Compare with Figs. 1 and 5.

To identify the invading germ and prove its derivation from these foci is a laboratory task beset with many difficulties; but the successful work already done by Rosenow, Hartzell, Hastings, and others, supports the idea here emphasized.

The writer does not assert that the mouth is the sole source of infection in arthritic conditions but is mindful of the many foci of infection from which virulent poisons may enter the system. In ascertaining some of these foci of infection, the *x*-ray is of equal diagnostic value. With no attempt at arrangement in order of importance, but rather to recall the various sources of infection and to advocate the necessity of making the search thorough—for any one case may be the sum total of several infections—a routine search may well begin at the head, where we have, first, in the respiratory tract: nose, throat, and tonsils; middle ear and mastoid; accessory sinuses; glands of the neck; lungs, mediastinal glands. An *x*-ray examination is recognized by the otologist as of the greatest value in mastoid condi-

Fig. 7.—*X*-ray in the living: Extreme stripping from pyorrhea (Riggs' Disease). Even the ends of the roots, as well as the entire alveolar processes, are absorbed. Note the uncleanly bridge on the lower front incisors. Compare with Figs. 1, 5, 6, and 8.

Fig. 9.—Dry specimen: 1. Small apical necrosis. 2. Larger area over molar. Compare with Fig. 14 (*x*-ray in the living).

Fig. 11.—Dry specimen: 1 and 1a. Decay of canine. Infection extending to the apex produced large area of necrosis anterior to the antrum. 2. Alveolar absorption from pyorrhea. Other teeth likewise.

Fig. 8.—*X*-ray in the living: Long history of arthritis. 3 and 4. Crowned teeth with root canals not filled, showing slight apical osteitis. 5, 6, and 7. Crowned fifteen years; roots completely stripped from alveolar absorption (pyorrhea) or from extension of apical osteitis; canals never emptied or filled. 8. Root lost through disease.

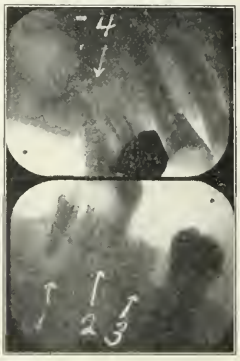


Fig. 10.—*X*-ray in the living: 1, 2, and 3. Snags, no dental treatment. These small foci the only known cause of chronic arthritis of the hip, incapacitating a vigorous working man; the other hip is now involved. 4. First bicuspid. Root canals, not completely filled, show apical disease.

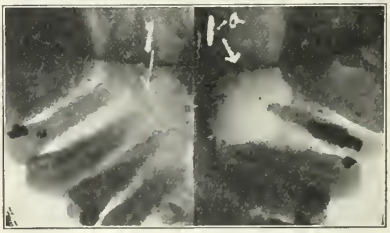


Fig. 12.—*X*-ray in the living: 1. Normal side showing cancellated bone detail. 1a. Large apical abscess (osteitis) following porcelain crown and pivot: infection caused by failure to empty and fill the canal. Such "whited sepulchres" must become diseased. Compare with Fig. 11.

tions, and by the rhinologist as of considerable value in sinusitis. In lung conditions it is the sole means of demonstrating the glands at the root of the lung, as well as supplementing greatly the physical examination of the lungs themselves.

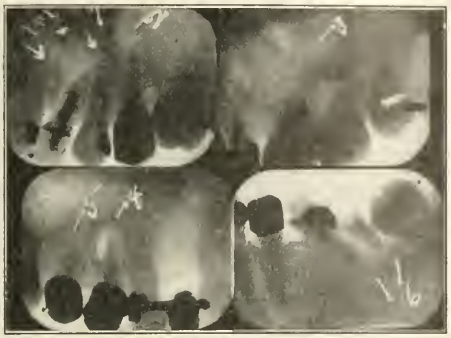


Fig. 13.—*X*-ray in the living: Patient has optic neuritis and total blindness, not syphilitic: no sinus or other infection found. 1, 2, 3, and 4. Crowned, but root canals not emptied or filled: marked areas of apical osteitis. 5. First bicuspid; only one of the two canals filled; whole fused root diseased. Compare with Figs. 10 and 11.

Second in the order of search is the alimentary canal. In the stomach and duodenum, Rosenow has shown that the streptococcus viridans injected into the blood stream of animals will produce ulcers, which, theoretically, at least, may be located anywhere in the gastrointestinal tract. The *x*-ray in its possibilities for the localization of these menacing lesions is commanding attention.

In the recently rediscovered field of intestinal stasis, with its so-called autointoxication, the kinks and adhesions can often be demonstrated by the *x*-ray. This field is too new to be free from errors of judgment in interpretation, and it would seem as if the surgical procedures advocated are too capital, if not entirely wrong, and should be withheld, at least until every other possible source of relief has been tried out and has failed. The possibility of autointoxication from retention of the stomach contents due to pyloric obstructions, duodenal kinks, atony of the muscalature, or gastroeroptosis, can be shown by *x*-ray examination.

In cases of infected gall-bladder, for showing the presence of biliary calculi, the *x*-ray examination is becoming more and more dependable, showing gallstones where they have sufficient calcium salts in their composition. Claims are being made recently for from 50 to 74 per cent. positive results (Pfahler).

In the genitourinary system with its foci, such as abscesses in the kidney from calculi, or possible ulcerations from abrasions caused by calculi in passage through the ureter, the *x*-ray findings are especially satisfactory. Following these as foci of infection are pyelitis, cystitis, urethritis, prostatitis, and seminal vesiculitis, in the diagnosis of which the urologist and bacteriologist have made great strides in recent years.

All these various foci of infection must be carefully considered in order to make an exact diagnosis, no one of them as yet having a monopoly as a focus of infection in arthritic conditions.

In summing up, all mouth conditions should receive the most searching and scientific attention. It is of the greatest importance that there be established a clinical attitude which will insist that no treatment of these obscure diseases is complete without putting the teeth in order by dentistry that is beyond question.

I am indebted to Dr. Virgil P. Gibney for the

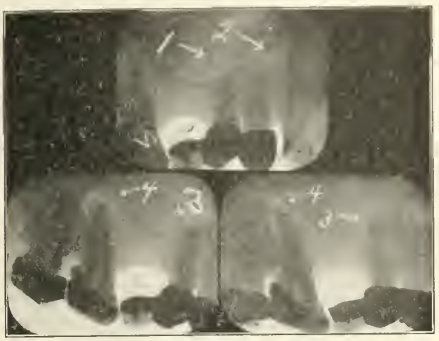


Fig. 14.—*X*-ray in the living; long history of arthritis; many dead teeth and much dentistry, but no root canals emptied or filled; neither pain nor external evidence of disease. 1, 2, 3, and 4. Varying stages of apical osteitis. Compare with Fig. 10.

privilege of showing *x*-ray examinations of the teeth of some of his private patients; to Dr. W. H. Haskin for the use of illustrations from his comprehensive collection of wet and dry specimens; and to Dr. R. Ottolengui, dentist and editor of the *Items of Interest*, for advice and encouragement.

Conclusions.—1. As a first rather than as a last resort, special attention must be paid to the condition of the teeth. The hidden focus of infection may be a blind alveolar abscess (osteitis).

2. Good health demands the constant close attention of a conscientious and scientific dentist.

3. Much old and unscientific dentistry, such as bad crown and bridge work and root fillings that are not scientific, must be removed, and the conditions remaining properly treated; failing this, merciless extraction and false teeth but a clean mouth.

4. Pyorrhea alveolaris (Riggs' disease) is a menace to good health; it is a chronic ulcer of the gum and finally of the bone, and assuredly a focus of infection.

5. There should be cooperation with mutual recognition of responsibility between the physician and the dentist.

6. The search for the hidden focus of infection, while being very extensive and careful in the oral cavity, should not be confined to it but should extend over every possible seat of infection.

7. Even though the hidden focus be found and the cause of the systemic infection removed, the seed of the disease has already been sown broadcast and many expedients will be required before a recovery is effected.

122 East Thirty-fourth Street.

The Albumin Reaction of the Sputum.—L. Löwenbein states that in the differential diagnosis between an uncomplicated chronic bronchitis and tuberculosis an albumin content in the sputum of one per cent. or more indicates the presence of tuberculosis. The increase and the decrease in the albumin content are of greater value in prognosis than the mere size of this content. The regular estimation of the albumin content is of value in gauging the effect of an artificial pneumothorax. At least 5 cubic centimeters of sputum are necessary for the proper estimation of the albumin content.—*Zeitschrift für Tuberkulose.*

NEGLECTED LATERAL CURVATURE.*

By MAX STILUNSKY, M.D.,

NEW YORK.

We have progressed in every branch of medicine, but in the method of diagnosing incipient scoliosis we stand still. This in spite of the fact that we have had for some time the school system of examination by corps of physicians who are appointed for the distinct purpose of detecting diseases and deformities in children at the earliest possible stage. In spite of this, however, lateral curvature, which is so serious and which is the most widespread deformity that affects the human race, falls still to the lot of the mother, teacher, or dressmaker for an early diagnosis, just as was done hundreds of years ago.

Unlike tuberculosis of the spine, which causes systemic disturbances such as pain, sweats, night-

Fig. 1.—Type of Class I.

cries, etc., which compel the parents to seek medical advice, thereby causing a discovery of the "knuckle," lateral curvature usually produces no disturbances at all in the incipient stage. The future sufferers may even enjoy perfect health. Most important of all, the child does not know, and is generally wholly unconscious, that he is the victim of this deformity. It is not at all an uncommon experience to see a youngster who hears for the first time that his spine is not straight, quickly feel with his fingers his scapula and his shoulders, blush with surprise, turn round to inspect himself in the mirror, hardly believing his senses that there is anything wrong with his back. And yet perhaps for years changes of the most serious nature have been progressing in the victim's vertebræ, intervertebral discs, ribs, spinal ligaments and muscles, gradually compressing the lungs, displacing the heart and the viscera. They were moulding the patient's stature to the form which was surely to be his in the near future—namely the twisted spine, the tilted trunk, the squat figure.

There is a regulation made by the Boards of Education that no child's spine is to be exposed. The school physician, therefore, in examining for scoliosis, can only feel the child's back through the clothing. Such an examination at best can only reveal gross changes in the trunk, but cannot detect early lesions. Even when the spine is exposed, unless one has a sound orthopedic judgment, cases will be passed over as normal when in reality serious deformity exists. This happens when the spinous processes are bent in the opposite direction to the rotation of the vertebræ. In such instances, if one judges from the direction of the spinous processes, the spine is pronounced straight when in reality the rotation of the vertebræ, which is the serious element of the trouble, is advanced far. Such conditions are frequently illustrated by roentgenograms and pathological specimens in the museums.

We must not forget that the muscles, ligaments, and adipose tissue have a tendency to hide the deformity, while the patient's compensatory attitude, which he unconsciously assumes, minimizes the prominence of the curves. This is the reason why scoliosis is so much worse in the skeleton, as revealed by the roentgenograms, than appears when one merely examines the patient's back. We often stand aghast at the gross deformities of a spine and trunk, as revealed by the *x*-ray of patients who seemingly have but a slight curve.

What chance, therefore, has a child for an early diagnosis when the spine is examined through the clothes? Especially as it has been demonstrated of late that in so many instances the trouble begins in the sacrum and in the first lumbar vertebra, in which region the clothes are the thickest. No wonder, therefore, that in the thousands of cases which I have examined the fact which is most conspicuous in the history of practically all the cases is the accusing truth that the trouble was not detected in its incipiency, as should have been done in a civilized society, but rather the deformity was allowed to develop to the point of discovery.

In other words, the deforming forces undermined the symmetry of the skeleton to that extent that in spite of the covering of the soft tissues and the clothes of the patient, the trouble was discernible even to the eyes of the layman. How many thousands of children are there even now in every city who carry in their spinal columns rachitic vertebræ or malformed vertebræ which will be the cause of scoliosis in the future? How much harm is done these children in not exploring their spines as a routine! For without an examination of the back, anatomical weaknesses as they begin to manifest themselves cannot be suspected. As the result of this neglect, harmful influences which often precipitate the entire catastrophe, are even encouraged. For instance, these children are forced to sit up in school for hours at a time, when their spines can but ill afford to support their superincumbent weight. Also by our indifference to the welfare of the children's spines, we necessarily rob the future scoliotics of the benefit of early treatment. This has yielded such excellent results that supporters of early treatment challenge any medical or surgical condition where an early treatment has proved

*Patients exhibited before the Harlem Medical Association, February 3, 1915.

more efficacious than in scoliosis. At the stage when scoliosis is "discovered," structural changes have already advanced so that children face years of tedious treatment by gymnastics or torturing jackets. And though the results are more encouraging now with the use of the Abbott method than with the jackets applied in the erect position, as advocated by Schulthess, Schanz and Lovett, still the patient with structural changes, in the vast majority of cases, must carry his pathology and his invalidism to the grave. For there is no treatment which can bring back a segment of a vertebra once really atrophied, or make flexible that part of the spine which has become ankylosed, or bring back that part of an intervertebral disc which, due to pressure, has entirely disappeared.

The harm which results to patients from our indifference to this problem falls into three classes. I append photographs and histories of patients taken from the dispensary of the Hospital for Deformities and Joint Diseases, illustrating each class.

Class I.—M. T. has a giant scoliosis with rigid structural changes. Though her trouble was recognized seven years ago, nothing at all was ever done for the child in the way of treatment. Her people believed that she would outgrow her trouble, and they simply did not know that a condition of that kind was in need of attention. We have a number of patients of that kind. It only shows the dire necessity of popularizing the early treatment of scoliosis.

Class II.—C. P. has a giant scoliosis. Her deformity was recognized at the "beginning," and her father immediately bought her a brace which she wore for a year, but the trouble grew rapidly worse. Braces do harm in early scoliosis, and consequently fate is even more cruel to patients of this class. The majority of cases are now treated in that slipshod fashion. The parents are anxious to do everything to prevent their child from

Fig. 2.—Type of Class II.

becoming a cripple. The voice of the instrument-maker with his sure "guarantee" is always to be heard. The child lands in some turn-verein where it performs perfunctory exercises, and the short but fruitful period where good results might have been attained from scientific treatment is thus gambled away.

Class III.—C. G. has a large curvature with advanced structural changes. Though her deformity is of a chronic type, both she and her mother assured me that the trouble was only discovered two weeks ago by the dressmaker, and up to that time they never had the slightest inkling that her spine was not straight. It

Fig. 3.—Type of Class III.

seemed unbelievable that such an advanced case could exist for so long a time without being detected. But such are the facts; and I can reproduce any number of cases with similar histories.

Practically all cases of scoliosis fall into this class, more or less. For all cases, even when they are brought to us in their "incipiency," could have been detected earlier if a routine examination of the school child's back by competent orthopedists had been installed.

236 West Seventieth Street.

SOME OBSERVATIONS ON CLINICAL TREATMENTS FOR SYSTEMIC GOITER (GRAVES' DISEASE).*

By MARY SUTTON MACY, M.D.,

NEW YORK.

NEUROLOGIST, DEMILT DISPENSARY.

In presenting these observations on clinical treatments for systemic goiter, frequently called exophthalmic goiter, hyperthryroidism, Basedow's or Graves' disease, the author lays no claim to originality or to wide experience in handling exophthalmic cases. The facts (1) of having a number of similar cases under observation at one time, and (2) of the great divergence of opinion amongst authorities as to kinds of medicinal or surgical methods of treatment, suggested a line of ob-

*Read before the Women's Medical Association of New York City, at the New York Academy of Medicine, February 17, 1915.

servation and investigation which is here reported. The name "systemic goiter"—introduced by Bainbridge—seems to me more scientific than other terms and for this reason is here given preference.

Of the forty-four cases included in this presentation, two were males, and forty-two were females, varying in age from twenty years and eight months to forty-three years and three months at the time of coming under treatment; eleven cases were under fifteen years of age, one of which was a boy; seventeen cases between fifteen and twenty-five years, included the second male case; ten cases between twenty-five and thirty-five, and six cases over thirty-five years of age.

The whole number are divisible into six series, chiefly according to kind of medicinal treatment used, though each series differs from the others in certain particulars of history as well. For the sake of brevity, only one case history from each group is given to illustrate the series, and each illustrative case was selected at random from amongst the others of the group.

Series I.—Ten cases, all females. (1) Bad family history. (2) Early pubertal shock. (3) Enlarged thyroid gland. (4) Persistent and observable thymus. (5) No heart murmur. Pulse under 120. (6) Hemoglobin under 90 and over 75. (7) Mononuclear leucocyte count under 3500; polymorphonuclear over 3500. (8) Urinary findings negative. (9) No exophthalmos present. (10) Tremors and muscular weakness both present. (11) Mentally unchanged or slightly emotional or irritable. (12) Personality unaltered. (13) Medicinal treatment chiefly Iodic Acid and Osmic Acid injection, or Hydrobromate of Quinine. (14) Results: 6 discharged cured; 3 improved, still under treatment; 1 death, from pneumonia.

Case cited: N. D. Case 21, female, age 30 years; under treatment April 29, 1913, to July 31, 1913. No return of symptoms since then.

Series II.—Nine cases, all females: (1) Good family history. (2) Late pubertal shock. (3) No enlargement of thyroid gland. (4) Thymus not observable clinically. (5) Heart, negative. Pulse over 120. (6) Hemoglobin under 75. (7) Mononuclear leucocyte count under 2000; polymorphonuclear over 3500. (8) Urinary findings negative or slight traces of albumin; no glycosuria. (9) No exophthalmos present. (10) Tremors very marked. Great muscular weakness. (11) Mentally depressed, emotionally disturbed. (12) Personality changed. (13) Medicinal treatment, chiefly Sodium Glycerophosphate or the Iodides. (14) Results: 1 spontaneous cure; 2 improved and lost track of; 3 improved and still under treatment; 1 unimproved, probably a surgical case; 2 died, 1 of scarlet fever and 1 of nephritis.

Case cited: D. H. Case No. 13, female, age 16 years 6 months; under treatment from March 27, 1914, to June 29, 1914, spontaneous cure at that time; no recurrence since.

Series III.—Eight cases, all females: (1) Bad family history. (2) Early pubertal shock. (3) Enlarged thyroid gland. (4) Persistent and observable thymus. (5) No heart murmur. Pulse under 120. (6) Hemoglobin under 100 and over 85. (7) Mononuclear leucocyte count over 3500; polymorphonuclear over 3500. (8) Urinary findings negative, or slight glycosuria; no albumin. (9) No exophthalmos present. (10) Tremors and slight muscular weakness both present. (11) Mentally depressed and emotional. (12) Personality altered. (13) Medicinal treatment chiefly Beebe's Iodothyreoglobulin Serum. (14) Results: 4 discharged, cured; 2 improved, still under treatment; 2 lost sight of.

Case cited: D. N. N. Case No. 8, female, age 32 years; under treatment since Jan 17, 1913. Improvement marked until relapse while away and not under strict regulation, Aug. 20, 1913. Since return to City, and resumption of rigid treatment, Sept., 1913, lost ground regained and improvement continued until she moved away from town and was lost sight of in March, 1914.

Series IV. Eight cases; 1 male, 7 female: (1) Family history negative. (2) Late pubertal shock. (3) Thyroid enlargement slight. (4) Presumably persistent thymus. (5) Organic heart murmur. Pulse under 115. (6) Hemoglobin normal. (7) Mononuclear leucocyte count under 4000; polymorphonuclear over 4,000. (8) Urinary findings negative. (9) Exophthalmos present. (10) Tremors marked and muscular weakness present. (11) Mentally irritable. (12) Personality changed. (13) Medicinal treatment chiefly Pituitary Gland. (14) Results: 4 discharged, cured; 1 improved, still under treatment; 1 lost sight of; 2 deaths, 1 of acute Bright's Disease; 1 of pneumonia.

Case cited: J. D. Case No. 12, female, age 18 years 9 months; under treatment since March 12, 1913, until discharged, cured, Jan. 25, 1914.

Series V.—Six cases; 1 male, 5 female: (1) Family history negative. (2) Early pubertal shock. (3) Enlarged thyroid gland. (4) Thymus not observable. (5) Organic heart murmurs. Pulse over 120. (6) Hemoglobin normal, or above 95. (7) Mononuclear leucocyte count under 2500; polymorphonuclear over 3500. (8) Urinary finding negative or slight albuminuria. (9) Exophthalmos present. (10) Tremors and slight muscular weakness both present. (11) Mentally depressed. (12) Personality changed. (13) Medicinal treatment chiefly thymus gland. (14) Results: 4 discharged, cured; 1 improved, still under treatment; 1 dead, acute Bright's disease.

Case cited: C. M. Case No. 20, female, aged 13 years, 5 months; under treatment from April 7, 1913, till Oct. 10, 1913. Transferred to hospital with acute Bright's disease at that time; died Oct. 16th.

Series VI.—Three cases, all female: (1) Family history good. (2) Early pubertal shock. (3) No thyroid enlargement. (4) No observable thymus. (5) Heart negative. Pulse over 120. (6) Hemoglobin under 75. (7) Mononuclear leucocyte count under 3500; polymorphonuclear over 4000. (8) Urinary findings negative. (9) Exophthalmos present. (10) Tremors present but no marked muscular weakness. (11) Mentally irritable and emotional. (12) Personality altered. (13) Medicinal treatment symptomatic or none. (14) Results: 1 discharged, cured; 2 improved, still under treatment.

Case cited: R. L. Case No. 9, female, aged 15; under treatment since Jan. 29, 1913, till discharged, Oct. 7, 1913, as cured. No return of symptoms since that time.

Series I. Case 21—N. D., female, single, stenographer, aged 30; diagnosis—Systemic Goiter, made April 29, 1913. *Family History.* Bad. Father, neurasthenic, dead. Mother, insane, dead. Brother, epileptic. Sister, neurasthenic, married, two children. Tuberculosis in collaterals on maternal side. Epilepsy on paternal. *Personal History.* Normal birth; oldest child; breast fed. Walked and talked normally at one year. Teeth, both sets, normal. Childhood diseases; no convulsions. Menstruation began at thirteen, irregular for three years, with a period of complete absence for six months, during illness of fourteenth year; regular since sixteenth year at five week periods; little pain except prior to and during appendical attack, (at twenty-two), which was operated. History of mental shock—fright—at fourteen, followed by illness of eight months, with weakness, headaches, tremors, dyspnea, tachycardia, general nervousness, including tearfulness and various emotional disturbances, amenorrhea, and intermittent febrile condition. At eighteen had second attack of measles, followed by marked aggravation of myopia, first evidenced during former illness. Eyes, prior to fourteen years of age, were apparently normal and vision good. At twenty-two attack of appendicitis; operated, good recovery, but marked nervousness and emotionalism a concomitant and a sequel.

History of present illness. Onset slow. Thyroid gland enlarged slightly on right side and isthmus, and considerably on left side. Thymus percussable and obviously persistent. Frequent periods of marked dyspnoea, due to "weight on chest." Height, 5 feet, 7 inches. Weight 125 pounds net. Heart normal, no murmurs. Blood pressure 110-115; radial pulses, synchronous, soft, smooth, rapid—varying from 98-110—regular. Hemoglobin 85. Red blood corpuscles, 3,850,000; white blood corpuscle count 6500; polymorphonuclear, 55%, or 3575; lymphocytes 40%, or 2600. Temperature, constantly subnormal, 96-98. Urinary findings usually negative, occasional traces of albumin, usually explainable by indiscretions in diet. Bowels

regular, no constipation, rather tendency to diarrhoea. No exophthalmos, but extreme myopia, and a persistent diplopia, which does not readily or constantly yield to prisms. Marked hypersensitiveness to light and sound, especially at menstrual periods, but not to smell, taste or contact. Mentally irritable and emotional, attentively restless, though not physically so, at times almost apathetic for voluntary motor activity.

Tremors marked, especially in smaller groups and in quadriceps extensors of left thigh. Frequent pains in shoulders and hips, with sudden accessions of muscular weakness. Nutrition, generally good, loss of weight at first; digestive functions normal. Menstruation regular, but scant. Prespiration profuse. Skin and hair dry, latter falling and turning gray. Urticaria, intermittently present, dermographia constant. Hypersensitive to cold. Frequent attacks of bronchitis.

Treatment. Medicinal. Digitalis was tried to point of physiologic action, with little beneficial effect. Hydrobromate of quinine 5 gr. and ergot 1 gr. (Forchheimer method) resulted in considerable benefit, but after a while lost its effect. Tri-weekly hypodermic injects of iodic acid 1 per cent. sol. in 2 minim doses alternated with osmic acid 2 per cent. sol. in 2 minim doses, gradually increasing to 5 minims each, successfully effected a cure.

Hygienic. Complete rest in bed, with alternating daily treatments of electricity (high frequency, low vacuum tube and short spark), and of hot and cold packs; massage; simple, plain diet, without stimulants, during the early months of the treatment. Later complete rest for several hours each day, and cool or cold baths, with continuation of massage and generous diet. Moderate exercise and rest period spent in the open air—suggestion used throughout to control emotionalism.

Result. Improvement marked in first four weeks of treatment; cure attained in three months. No recurrence of symptoms since.

SERIES II.—Case No. 43. D. H., female, single, age 16 years 6 months. Diagnosis, systemic goiter, made March 27, 1914.

Family History. Good. Parents living and well. Sister living and well; no other sisters or brothers. Tuberculosis amongst paternal collaterals. Father had slight attack of tuberculosis as an eighteen year old lad, but by living on a farm for a year and a half, was completely cured.

Personal History. Normal birth; first child; breast fed. Teeth, talking and walking, all normal. Childhood diseases; no convulsions. Menstruation began at fourteen, normal and regular. Studying hard at school for past year preparatory to taking college entrance examinations; ambitious to enter college Fall of 1915. Sudden death of playmate, last summer following an accident, had an unusually disturbing effect upon girl, who was slightly feverish, restless, and irritable for several days following.

Present Illness. Onset gradual. Thyroid gland not enlarged but a visible arterial thrill over gland on both sides. Thymus not percussable. Height 5 feet 3 inches. Weight 110 pounds net. Lungs and heart negative. Blood pressure 120-135, radial pulses, synchronous, rapid, soft, compressible, no thrills, rate 120-136. Hemoglobin 60; red blood corpuscles 4,500,000; white blood corpuscles 6000, polymorphonuclear, 65 per cent., or 3900, lymphocytes 30 per cent. or 1800. Temperature persistently over 100°, running as high as 101°. Urinary findings, slight traces of albumin in all voided specimens, but negative in all sterile specimens; diarrhea persistent. Abdomen and pelvis negative. Slight leucorrhea present and constant since illness in summer. Tremors marked, especially of tongue, hands and thighs. Hypersensitive to heat and light. Change of disposition marked. Has become irritable and exacting, easily angered, and inclined to be pensive, none of which traits were characteristic or noticeable before illness. Menses normal, no pain. Eyes show no exophthalmos, though von Graefe's and Möbius' signs were both present. Vision, normal prior to illness and no changes appreciable now.

Treatment. Medicinal. Iodides in material doses produced some beneficial effects before they were withdrawn. Sodium glycerophosphate in 20 gr. doses *t. i. d.* constituted the chief medicinal treatment. Hygienic. Complete rest in bed and massage with regulation of diet. Baths for reducing febrile condition. Suggestion used to palliate the emotional phenomena.

Results. Cure spontaneous thirteen weeks after diagnosis, with no recurrence of symptoms since.

SERIES III.—Case 8. D. N. N., female, single, kindergartener, aged 32 years. Diagnosis—Systemic goiter, with hysteric complication, made Jan. 17, 1913.

Family History. Bad. Father insane, epileptic, living. Mother, neurasthenic, dead—of pneumonia. Five brothers living, three of them married, two neurasthenic—1 dead, of diphtheria. One sister living, psycho-epileptic, one dead of diphtheria. Tuberculosis and cancer on maternal side. Epilepsy on paternal side.

Personal History. Normal birth, fifth child, breast fed. Teeth, walking, talking, etc., normal. Tonsils and adenoids removed 17th year. No convulsions. Menstruation began at thirteen; irregular for several years, always painful, occasionally too profuse. Alone at home with father in an epileptic attack when only fourteen; had never previously witnessed a seizure, though aware of this occurrence; was badly frightened and suffered later from the shock. Ill for several days and very nervous and timid for many months. Operated for appendicitis and cystic right ovary at twenty-seven, having previously been thrown from horseback and under osteopathic treatment for several months for fractured coccyx. Two operations on nose, one a submucous resection (at thirty), for relief of chronic catarrhal conditions of nose and larynx; from the latter a small cyst was removed at that same time. Has worn glasses for a marked myopia since about fifteen, but no history obtainable of headaches or other evidences of eyestrain prior to fourteen years of age.

Present Illness. Onset gradual. Thyroid gland enlarged slightly and enlargement fluctuates at times, being bilaterally prominent, at times unilateral and occasionally unobservable. Thymus persistent and percussable. Height 5 feet 9 inches. Weight 128¼ pounds net. Frequent attacks of "laryngitis" and a chronic "bronchial cough." Except of occasional dry bronchial räles over trachea and large bronchi, lungs are negative. Heart, normal size, no murmurs. Blood pressure 115-125. Radial pulses synchronous, rapid, soft, no thrills, rate varies from 96-120. Hemoglobin 80, red corpuscles 4,000,000 and white blood corpuscles 8,000, polymorphonuclear, 45 per cent. or 3,600, lymphocytes 50 per cent. or 4,000. Temperature, never normal, varies from 94.6° to 97.8°. Bowels constipated. Urinary findings negative. Abdomen negative, except for sensitive spot over right ovary, which is worse just prior to menstrual period. No exophthalmos. Marked myopia. Diplopia, which yields to prisms, except when generally over fatigued. Emotionally very irritable. "Hysterical" over trifles. Marked dermagraphia, constant eruptions on neck or chest. Tremors marked, especially in small muscles, eyelids and tongue. Hypersensitive to heat. Mentally inclined to introspection and self-conscious. Morbidly affected by sounds and light. Religious and erotic. Menses irregular, profuse, painful. Leucorrhea constant, especially aggravated when up and about.

Treatment. Medicinal. Digitalis tried, with no results, and abandoned for hydrobromate of quinine 5 gr. and ergot 1 gr. Slight improvement, followed by relapse in August, 1913, when away from the city and not under strict medical supervision and control. Beebe's iodothyreoglobulin serum method used for three months prior to relapse, with good preliminary reactions. Patient was still receiving serum tri-weekly when lost sight of. Russian mineral oil controlled constipation. Since return to city in September, 1913, lost ground had been regained, though her teaching had had to be resumed and rest could not be strictly enforced.

Hygienic. Complete rest in bed. Dietetic regulation to adjust bowels and decrease emotional excitement. No stimulants allowed. General massage for a period. Hot baths and hot packs for soothing effect. Suggestion carried to point of mild hypnosis to control hysterical symptoms and eroticism. Financial status of patient made necessary premature return to her teaching, but general hygiene was controlled and rest enforced as much as possible. Still under treatment—fourteen months after diagnosis—when she moved away from the city.

Results. Marked improvement immediately prior to relapse, which was not as serious as it might have been. Since then convalescence slow but appreciable at the time she was lost sight of in March, 1914.

SERIES IV.—Case No. 12. J. D., female, single, musician, age 18 years 9 months. Diagnosis, systemic goiter, made March 12, 1913.

Family History. Negative. Parents dead, mother of pneumonia and father of jaundice. Three brothers

living, all married and well. Two sisters dead, of exanthemata, as children. No history of tuberculosis, epilepsy, nervous disease, syphilis, or cancer obtainable.

Personal History. Normal birth, presumably, as patient never heard to the contrary; youngest child. Mother died when she was two years old; breast fed. Teething, walking, talking, presumably normal. Childhood diseases, only diphtheria and measles. Menstruation began at twelve, irregular, not painful; intercurrent leucorrhea for first three years, none since; flow scanty always. In a runaway accident two years ago. Had been studying very hard at her music and gone to the country to rest before beginning to teach music. Has been nervous and "fidgety" ever since accident, though never so before that time. Frequent attacks of dyspnoea since then, and at such times "feels frightened" without cause.

Present Illness. Onset sudden, following fright. Patient paid little attention to symptoms until she became engaged, then observed that her symptoms were apparently worse at some times than at others. Thyroid gland fluctuates, at times enlarging markedly while under observation, then receding. Left side enlarged very slightly at all times. Thymus percussable and persistent. Height 5 ft. 8 in. Weight 120 lbs. net. Frequent cough, said to be caused by "weight on chest." Heart, slightly hypertrophied, mitral murmur, compensation adequate. Blood pressure 125-140. Radial pulses, synchronous, rapid, small, rate from 98-112. Hemoglobin tests not made; no clinical signs of anemia. White blood corpuscles 8,000. Polymorphonuclear, 50 per cent. or 4,000 lymphocytes, 45 per cent. or 3,600. Temperature 98.2°-99.6°. Bowels alternately constipated and diarrhoea. Urinary findings, negative. Abdomen and pelvis negative. Slight exophthalmos; von Graefe's sign present. Slight hyperopic astigmatism, corrected by glasses since fourteen years old. Tremors present, dermagraphia present. Hypersensitive to heat, smell, and light. Mentally and emotionally introspective, irritable, easily fatigued, apprehensive, tearful, slightly erotic—complains of erotic dreams—timid, and anxious.

Treatment. Medicinal. Sodium glycerophosphate in 15 gr. doses, followed by pituitary gland substance 2 gr. *b. i. d.*

Hygienic. Rest, dietetic, temporary cessation from visits of fiance. Warm baths—suggestion to control emotionalism.

Results. Marked improvement. January 16, 1914, patient discharged as cured, and told to report bimonthly for one year. No recurrence of symptoms.

SERIES V.—Case No. 20. C. M., female, single, age 15 years 5 months. Diagnosis, systemic goiter, made April 7, 1913.

Family History. Negative. Parents living, foreign born—Spanish, apparently well. Only child, only pregnancy. No history of psychosis, tuberculosis, syphilis, or epilepsy obtainable.

Personal History. Normal birth. Breast fed. No convulsions, but poorly nourished, "ailing" baby, though "not sick." Talked one year, walked eighteen months, teeth, ten months. Childhood diseases, rheumatism and pneumonia. Tonsils and adenoids removed at eleven years. Menstruation began five months ago; regular, no pain, normal flow. Bad fright with fire in neighborhood four months ago, followed by onset of present trouble.

Present Illness. Onset sudden but insidious. Thyroid gland enlarged, more on left than on right side. Thymus not percussable. Height 5 ft. 4 in. Weight 125½ lbs. net. Lungs negative. Heart showed functional murmur at apex—not always present. No hypertrophy. Blood pressure 130-145. Radial pulses, synchronous, hard, full, rate 120-125. Hemoglobin tests not made, no clinical symptoms of anemia. Red blood cells 4,000,000, white blood cells 6,000, polymorphonuclear, 60 per cent. or 3,600, lymphocytes 35 per cent. or 2,100. Temperature 97.9° to 99.8°. Abdomen and pelvis negative. Urinary findings, traces of albumin—insufficient to quantitate. Bowels constipated, slight exophthalmos, von Graefe's, Möbius', and Stellwag's signs all present. Hyperopic astigmatism, for which glasses have been worn for four years. Marked increase in general adipose since appearance of menses. Tremors marked in all superficial muscle groups. Dermagraphia. Hypersensitive to cold and sound, but not to light. Mentally irritable, timid, melancholic; formerly vivacious and fearful.

Treatment. Medicinal. Thymus gland preparations 5 gr. daily. Russian mineral oil to control bowels.

Hygienic. Rest. Diet regulated to control adipose and to regulate bowels. Tri-weekly treatments with galvanism.

Results. Marked general improvement and decrease of hyperthyroid symptoms, prior to development of an acute Bright's six months after diagnosis, of systemic goiter. Patient transferred to a hospital and died within the week. No post-mortem could be obtained.

SERIES VI.—Case No. 9. R. L., female, age 15 years. Diagnosis, systemic goiter, made January 29, 1913.

Family History. Good. Parents living and well. Three sisters living and well—two married. Two brothers dead, one in infancy, of convulsions, and the other of pneumonia, aged twenty-three. Collateral and ancestral histories negative.

Personal History. Normal birth. Fifth child, breast fed. Walked, one year; talked, ten months; teeth, nine months. Considered a precocious child. Childhood diseases, no convulsions and chorea. Tonsils and adenoids removed, aged 11. Operated for appendicitis five years ago. Menstruation began two years ago (1911); regular, no pain, normal. Badly frightened a year ago (1912) when little sister was knocked down by an automobile and hurt while children were on their way home from school. Since then her disposition has changed. Previously was thoughtful, considerate and quiet; now restless, constantly stealing off to moving picture shows, craving excitement, irritable, and sleeps badly.

Present Illness. Onset gradual. Thyroid gland not enlarged. Thymus not percussable. Height 5 ft. 6 in. Weight 100 lbs., net. Heart negative. Blood pressure, not taken. Radial pulses, synchronous 124-138, soft, compressible, irregular. Hemoglobin, 65; red blood cells, 4,000,000; white blood cells, 8,000, polymorphonuclear, 50 per cent. or 4,000, lymphocytes, 40 per cent. or 3,200. Temperature normal. Bowels normal. Urinary findings negative. Abdomen and pelvis, negative. Slight exophthalmos, von Graefe's and Stellwag's signs both present. Diplopia, which yields to prisms in glasses, myopic astigmatism. Tremors marked. Knees frequently give way beneath her. Fatigues easily. Mentally and emotionally restless and irritable. Dermographia and acne both present.

Treatment. Medicinal. Symptomatic.

Hygienic. Rest and isolation. Massage. Dietetic, hot baths and hot packs, and later, triweekly, galvanism. Later still suggestion.

Results. Disappearance of all but mental symptoms in six months. Emotional and mental conditions have since yielded to suggestion. Patient discharged in Oct., 1913. No return of symptoms since.

From a psychiatric point of view the following analysis of conditions existing in the whole number of forty-four cases is of interest.

6 or	14%	showed definite history of a psychopathic taint in the family, and
18 or	41%	presented a neuropathic family history.
24 or	55%	showed a psychoneurotic family history.
36 or	82%	developed positive emotional disturbances with the systemic goiter.
34 or	78%	showed actual reversal of previous personal characteristics.
19 or	43%	were highly irritable.
23 or	53%	developed depressive states.
17 or	39%	were apprehensive.
13 or	30%	developed excitable states.
7 or	16%	had hallucinations.
13 or	30%	had a genuinely psychopathic make up.
44 or	100%	gave history of nervous shock during puberty followed by a more or less prolonged period of illness either diagnosed immediately as systemic goiter and treated as such, or appearing as a masked hyperthyroidism at the time.
27 or	62%	suffered from shock immediately before onset of symptoms of systemic goiter.
17 or	39%	gave history suggesting a hyperthyroidism masked for ten years or more, and of these 15 (or 34 per cent. of all cases) had suffered from an infection immediately before onset of systemic goiter symptoms.

Of the cases suffering from shock immediately before onset of symptoms, 22 (or 50 per cent. of all cases) were under sixteen years of age.

Of the thirty-six cases giving positive emotional disturbances, twenty-six had marked enlargement of the thyroid gland, and eight more showed slight enlargement thereof; in only two of these cases was no increase in thyroid observable. Of the twenty-six markedly enlarged thy-

roids in this group, eighteen had likewise a persistent and evident thymus enlargement, and in six more many symptoms suggested it, but it could not be positively so diagnosed clinically.

These figures have been of interest to the author for three reasons:

1. Bainbridge, Kocher, Marine, Mayo, and other surgical authorities agree that a markedly enlarged thymus contraindicates surgical measures, although Osler states that surgical measures should be considered if patient is not better after three months careful medical treatment, and makes no mention—that the author has observed—of enlarged thymus as a contraindication to surgical interference. In eighteen (or 41 per cent.) of the forty-four cases here reported, there was positive clinical evidence of decided thymus enlargement, and in twenty-six cases (or 59 per cent.) the signs were positive (see 18 noted above) or so suggestive as to be considered possible cases of thymus enlargement. It has also been the experience in this series of cases that those presenting enlarged thymus were usually the most obstinate and resistant to medicinal treatment.

2. MacCallum states: "The only lesions in this disease which are palpable and constant, are those of the thyroid; and of the lymphoid apparatus and thymus." Marine and Lenhardt state: "The constancy with which lymphoid hyperplasia occurs in exophthalmic goiter, the definite parallelism between the degree of lymphoid hyperplasia and the thyroid hyperplasia in their progressive stages, cannot now be passed as accidental." Mackenzie states: "It seems probable that in Graves' Disease, the thyroid, for some reason, at present obscure, takes on an increased functional activity." Joffroy and Acard found no distinction in the thyroid glands of Basedow patients and those of simple bronchocele. Greenfeld found proliferation of the tubular spaces and a mucoid material replacing the colloid matrix. Oswald believes there is a condition of thyroid insufficiency because of the scant colloid and relatively small amount of iodine holding secretion. Marine sums up the problem of the pathology and medicinal therapy based thereon as follows: "(1) Neither specific nor constant anatomic changes in the thyroid of exophthalmic goiter have as yet been demonstrated. (2) The iodine content, the storage of iodine in the gland and the involution of active hyperplasia by the use of iodine are, so far as is at present known, identical with those iodine relations common to other clinical relations. (3) The thyroid of exophthalmic goiter has no different pharmacological action on animals, or therapeutic action on patients with exophthalmic goiter than thyroid preparations of other clinical associations with like iodine contents." The bulk of authorities appear to disagree in their therapies, each citing some existing pathological condition as evidence for the special treatment advocated. Simple hormone therapy has forceful advocates (Mackenzie, Solis Cohen, and others); Kocher reports good results with iodides; Rodgers and Beebe are devoted to the iodothyreoglobulin serum; Starr gained results with sodium glycerophosphate, and so on *ad libitum*. The only common ground appears to be rest, since not all agree as to the value of hydrotherapy, or of electrotherapy, or the manner of dietary regulation.

3. The relative constancy of emotionalism, clinically enlarged thyroid and thymus, and anemia, especially when associated, as they have been in 54 per cent. (24) of these cases, with the tall, slender, willowy type of individual, suggest to the author a clinical picture perhaps best expressed as a "pathologically persistent puberty."

It is possible that there exists an etiological significance in the resemblance between the physiological picture of puberty and the symptom syndrome of systemic goiter.

Puberty, as is well known, is characterized by emotionalism, and a physiologically enlarged or hyperplastic thyroid is not uncommon. Seitz states: "The thyroid gland, in which a congestive and parenchymatous swelling occurs before or during puberty, causing an increase in the organ of 15 per cent. and at the time of menstruation frequently 60 per cent. (Fischer, Freund), has also a decided influence upon bony growth." Jones and Grawitz have shown that the blood at puberty has a relatively small hemoglobin content, and Bayer is authority for the fact of a normally increased leucocyte count at that time. Seitz further states "In the circulatory system disturbances frequently arise at puberty in the form of a cardiac palpitation, sensations of pressure, vertigo, syncope, and shortness of breath. Only when alcohol, nicotine, kidney disease and over-exertion can be excluded as causes, is a direct connection with puberty to be considered. . . . A complete disappearance of cardiac symptoms generally follows the completion of puberty, by virtue of a readjustment of the equilibrium." Gibson, in an address to the British Medical Association, cites an interesting case of the effect of thyroid treatment upon growth. The eighteen-year-old son of a medical man, anxious to enter Woolwich, was one inch short of five feet. His only opportunity to achieve his desired end was six months away. By thyroid feeding he grew seven inches in the six months, and the fact that he attained one of the highest places in the entrance examinations, proves, in Dr. Gibson's opinion, that he was not intellectually injured by the treatment.

It is of passing interest to notice that nitrogen metabolism is increased during puberty and that the basic principle of the thyroid treatment of obesity is the fact that physiologically thyroid causes a destructive metabolism of fat and proteins with a consequent diuresis and loss of weight.

Kocher has suggested that an increased metabolism in the nervous system, such as might be produced by sudden or prolonged nervous exhaustion, brings toxic substances through the circulation to the thyroid gland, and so gives rise to irritation and reaction, causing increased activity of the parenchyma.

Bradford claims that the fact that the thyroid gland in Graves' disease has "a microscopic structure analogous to that seen experimentally when a fragment of the gland is left and undergoes enlargement, has suggested to some observers that the thyroid in exophthalmic goiter is not primary but secondary and arises in response to some need of the economy."

Seitz states, "The thyroid gland in puberty not infrequently shows a strumous degeneration in addition to the temporary or periodic congestive tumefaction which has been noted. This is sometimes noticed in earliest childhood on the basis of inherited predisposition, but is most commonly

observed in the fourteenth or fifteenth year, or in the two following years. It is more frequent in females in whom this gland is from the beginning more developed (Demme). While the physiological congestion is transitory in puberty, mechanical causes at this time may give rise to a chronic congestion." If mechanical causes may produce such a chronic physiological congestion, may not nervous exhaustion do likewise?

Mackenzie mentions the coincidence that, "occasionally Graves' disease in a well marked form, rapidly follows a severe or sudden shock to the nervous system, suggesting that the starting point of the disease may be a derangement of the emotional nervous system, and that with this there is sooner or later associated an altered or perverted condition of the thyroid gland, which serves to keep up many of the characteristic symptoms." He further states that "the assumption that there is a derangement of the emotional nervous system would account for most of the symptoms, but not for the enlargement and overactivity of the thyroid, nor for the persistence and hypertrophy of the thymus." He also claims "the persistence and enlargement of the thymus is certainly a very frequent, if not constant, feature of the disease. . . . Possibly every case in which there is a thymus persisting into adult life is one of potential or latent Graves' disease."

In the light of (1) such parallelisms in the picture of pubertal physiological balance and hyperthyroid symptoms and (2) the general admission of most authorities, that shock is an etiological factor, and the history of pubertal shock in 100 per cent. of the present series of cases, the author would suggest as a possible theory in the etiology of systemic goiter, that it is a pathological syndrome, secondary to a profound disturbance of the physiological pubertal balance by exhaustion of the nervous system either rapidly by strong emotions (such as fear, grief, and the like), or more slowly by overstrain through long sustained effort to gratify ambition (intellectual or physical).

The occasional cases of hyperthyroidism recorded in children under the extreme low variation of normal pubertal age (which the author believes is accepted as seven years), may be due to some similar condition which must account for the equally occasional cases of menstruatio præcox and other abnormalities of infantile sexual maturity.

The fact that so many systemic goiter cases are not recognized—or, as some claim, do not appear—until the third, fourth, or even fifth decade of life, does not, in the author's opinion, disprove the above theory, since all authorities admit that hyperthyroidism is frequently masked for years or misdiagnosed as neurasthenia, hysteria, chronic laryngitis, etc., prior to the appearance of the exophthalmos and the marked thyroid enlargement.

If the above etiological theory will bear dissection and proof, it will serve to explain in large measure why so many widely different types of therapy meet with similar successes and failures, dependent largely, if not entirely, on the extent to which rest as a therapeutic measure is carried and enforced as an accompaniment.

In closing, a word should be said as to the kind of rest necessary in reestablishing the normal physiological balance to a systemic goiter patient. Rest, if both physical and mental, affords unhampered opportunity to the *vis medicatrix naturæ* to restore the physiological balance and produce a cure. In such a regimen, drugs, serums, hormones, and other therapies take their proper places, as crutches, prescribed to sustain *pro tem.* some crippled portion of the organism and should therefore be given symptomatically and not as remedies for the hyperthyroidism *per se.* Rest, if properly enforced, requires considerable of the physician's time and personal attention, because only a very limited number of patients—and perhaps fewer physicians—know *how to rest.* The art of muscular relaxation and passive innervation of the muscles is a difficult one to acquire, and a still more difficult one to teach a "nervous patient," whose whole personality is an expression of active innervation and of muscular tension, and this kind of rest must be minutely taught to a systemic goiter case. In America, and especially in the City of New York, it is more difficult still to teach patients—or physicians—the art of mental relaxation, and this too is an essential lesson for a hyperthyroid case. However, it is not only to our systemic goiter cases, and to our neuropaths generally, but also to our municipal population as a whole, that we need to teach and ourselves to learn the meaning of the German word "gemütlichkeit," or, if a very free translation be allowed, the art and science of contented, rational living.

101 West Eightieth Street.

A NEW METHOD OF INCREASING THE EFFICIENCY OF VACCINES AND OF PRODUCING ANTISERA.

By J. SHERMAN WIGHT, B.S., M.D.,

BROOKLYN, N. Y.

ASSOCIATE VISITING SURGEON TO THE LONG ISLAND COLLEGE HOSPITAL.

THE matter here presented concerns a new method for the production of specific antisera to be used in the treatment of bacterial infections. It involves the problem of bacterial immunity. There are certain primal principles governing bacterial immunity which are recognized as established by all authoritative workers in this field. Such of these as are germain to the subject in hand are herewith stated.

The production of active immunity and a protective serum does not always follow the invasion by bacteria of a susceptible animal. When such an invasion takes place the factors at work can be definitely divided into two groups: (1) Factors relating to the invading bacteria. (2) Factors relating to the defensive mechanism of the animal invaded.

1. Factors relating to the invading bacteria. These are toxins. The toxins produced by bacteria are of two kinds: (*a*) Toxins produced exterior to the bacteria in the tissues and fluids in which the bacteria grow. It is now generally thought that these toxins are formed by parenteral digestion of the proteins in the body tissues by bacterial products. These toxins are properly called exotoxins. Their formation in the invaded animal is accompanied by an elevated temperature. They give rise to the production of antitoxins by the animal body.

(*b*) Toxins produced and contained within the bacterial cell. These toxins are firmly united with the bacterial protoplasm and are only freed therefrom when the bacterial cell is broken down and its

protoplasm disintegrated. These toxins when liberated in the animal are highly diffusible and produce many of the clinical phenomena caused by alkaloidal, vegetable, and mineral poisons. They are properly called endotoxins. They do not give rise to the production of antitoxins in the animal body.

Different species of bacteria vary greatly in their content of endotoxin. All pathogenic bacteria probably contain some endotoxin; most pathogenic bacteria contain a good amount of endotoxin; a few species contain an excessive amount.

From a consideration of these two classes of toxins it is evident that the invaded animal may suffer death from one of three causes: (1) Excessive breaking down of the bacterial cell within the animal body freeing the endotoxin and causing death with rapid fall of temperature, convulsions, and symptoms of collapse. (2) Excessive production of exotoxin, rise of temperature and death with the usual clinical manifestations of high temperature. (3) A combination of (1) and (2).

II. Factors relating to the defensive mechanism of the animal invaded. In response to bacterial invasion, the defensive mechanism of the animal invaded produces a variety of defensive or antiproducts. These products are found in the blood serum or body fluids or contained within the leucocytes. Their primary origin is probably in the leucocytes. These products are present in small amount in the normal animal, but are only increased in amount as the result of bacterial invasion. For the purpose of the present discussion the following antiproducts need special consideration.

Bacteriolytic Products.—These products are directed against the integrity of the bacterial cell, that is, they break down the bacterial cell and disintegrate its protoplasm (parenteral digestion), thus freeing the endotoxin united thereto. For such bacteriolytic action the combined action of two products is necessary: (1) Immune body or amboceptor. (2) Complement.

Amboceptor is present only in small quantity in the normal animal. It is increased in amount in the invaded animal. It is specific, both in normal and invaded animal serum; that is, each species of bacteria has its own amboceptor by which alone it is acted upon. Amboceptor is thermostable, withstanding a temperature of 56° C. The amount of complement in normal and invaded animal sera is always the same. It is non-specific. It is thermolabile, being destroyed by a temperature of 56° C.

Antitoxin.—This product is operative only against the exotoxin. It "anchors" the exotoxin molecule, according to Ehrlich, and thus prevents the toxin molecule from uniting with and damaging other proteins. It is specific. It is thermostable to a temperature of 56° C. It is produced only in the presence of exotoxin.

If we now consider the various antisera which have been produced for the treatment of animal bacterial invasion, we find that they may be classed under two divisions: (1) So-called immune sera. (2) Antitoxic sera.

1. Immune Sera.—These are sera which will protect an animal from invasion with many times the lethal dose of a given bacterium. As to what is required in such a serum to protect the animal will depend, of course, on the endotoxic power of the invading bacterium. If the invading bacterium has no endotoxic power, an immune serum which is simply bacteriolytic will amply protect the invaded animal, for such a serum upon inoculation will destroy all the invading bacteria. If, however, the invading bacteria are endotoxic to any degree the inoculation of a simple bacteriolytic serum will be disastrous to the invaded animal, as it will break down rapidly the invading bacteria, thus freeing the bacterial endotoxin and killing the animal by endotoxemia.

From these considerations it is seen that a bacteriolytic serum may be made powerless by heating to 56° C. This destroys the complement and the serum is inactivated. By adding normal animal serum to the inactivated serum the latter is reactivated. Experimental work *in vitro* has shown that for the highest bacteriolytic action certain quantitative relations between amboceptor and complement are necessary. If to a given amount of complement a small amount of amboceptor is added so that the bacteriolytic action is low, this may be increased by increasing the amount of amboceptor. If now amboceptor is added until the maximum bacteriolytic action is obtained, any further addition of amboceptor reduces the bacteriolytic action; that is, any change in the quantitative relation of amboceptor and complement is followed by a decrease in the bacteriolytic action, and such a decrease holds true whether amboceptor is proportionately diminished or increased to complement.

Opsonins.—These are products which act on the protoplasm of the bacterial cell and render it more susceptible of ingestion and digestion by the leucocytes. They are present in small amount in the normal animal serum and are increased in amount in the invaded animal serum. They are specific in both normal and invaded animal serum. They are generally thermostable, except normal opsonins. They are produced in increased amount only as a result of the presence of the bacterial cell. In proportion as the invading bacteria are endotoxic an immune serum must contain an abundant supply of opsonins in order to give protection. Such a serum through the action of its opsonins will cause the bacteria to be taken up and digested by the leucocytes and prevent endotoxemia. Immune sera are therefore operative directly against the bacterial cell, breaking it up and causing it to be taken up by the leucocytes in which it is digested and its endotoxic products rendered harmless. The test of the power of any immune serum is the number of bacteria against which such a serum will protect the animal body when bacteria and serum are simultaneously injected.

2. Antitoxic Sera.—These sera are operative only against the exotoxin which arises from bacterial growth. Their protective power may be demonstrated *in vitro* by mixing suitable quantities of homologous, antitoxic sera and toxin, or *in vivo* by their inoculation into a susceptible animal which has been inoculated with the homologous toxin, or by inoculating a susceptible animal with the bacterial species which produces the homologous toxin and allowing such bacteria to grow in the animal and produce toxin. Antitoxic sera are specific and cannot be inactivated by heating to 56° C.

Bacteriological examinations of human beings who have recovered from bacterial infections show that when clinical recovery from bacterial infection has taken place the bacteria still remain alive in the body for a variable period. This period is from a few days or a week to many years, sometimes throughout the life of an individual. This is well known to occur after recovery from tuberculosis, typhoid fever, pneumonia, and diphtheria.

It is now necessary to state the theory that was followed in the work here presented. This theory relates to the changes in the defensive mechanism of the animal from the time that the inoculation takes place to the time infection is established. When bacteria such as those of tuberculosis, pneumonia, and typhoid fever gain entrance into the animal body through its open passages they are outside of the body so far as the body cells proper are concerned. Hence, in these locations the invading bacteria stimulate in no way the protective mechanism of the invaded animal. If the bacteria meet favorable conditions for growth in these locations they multiply and then begin to gain entrance into the blood stream. When this occurs the protective mechanism of the invaded animal is established and specific amboceptor is increased in amount, making the blood plasma more bacteriolytic. In this manner the first bacteria which gain entrance into the blood stream are destroyed. There is, however, a continual entrance of more bacteria from the focus in the open body passages. As this process continues the blood plasma increases in bacteriolytic value. If the supply of bacteria from the open passages is sufficient a maximum bacteriolytic value of the plasma is eventually reached. Now, if the supply of bacteria still holds good, any further introduction of bacteria into the body tissues proper increases amboceptor past the optimum for bacteriolytic action, and just as soon as this occurs the bacteriolytic value of the plasma decreases. With the further introduction of bacteria a still further decrease in bacteriolytic value takes place. During this time the bacteria become herded in the various tissues of the body where they have been carried in the blood stream; here they are more free from attack by the bacteriolytic substances in the blood stream and multiply and produce their exotoxins. The fate of the bacteria still in the blood stream as well as those bacteria which pass back into the stream from the herds, is determined by the bacteriolytic value of the plasma and the leucocytic digestion which is now being stimulated by the opsonins which have become increased in amount. As long as there are bacteria in the blood, the herding process continues. The clinical course of the case is determined by what takes place in the herds influenced of course, to a certain extent, by the action of the toxin united with the bacterial protoplasm and freed by parenteral digestion.

The term infection is restricted in this discussion to mean that state in which bacteria have gained a foothold in the animal body, are multiplying and producing their exotoxins with a rise in temperature and the attending pathological lesions. When, therefore, infection has taken place there is a condition in which the bacteria are growing in the infected animal and producing toxin. When this occurs the infected animal brings into play a new defensive factor, namely, antitoxin. We then have in operation against the infecting bacteria, bacteriolytic bodies, opsonins, and antitoxin. At this stage there does not seem to be any reasonable doubt that the mechanism for the production of antitoxin plays a chief part while the forces for the disposal of the bacterial bodies take a secondary rôle. This is forced upon us by the results of animal experimentation. Animals that have recovered from infection with known bacteria show the presence of these bacteria with capacity for growth and exotoxin production. The clinical improvement dates from the moment an antitoxic immunity is established, and so long as such an immunity is maintained the presence of bacteria in the body is harmless. Such an animal takes its time and slowly rids its body of the bacteria with immunity to itself. The value of antisera bears out these contentions. Immune sera are relatively inefficient in the treatment of animals running a course of infection. None have ever been produced which have acted with regularity, while, on the other hand, antitoxic sera act with uniform regularity and success.

It has been universally recognized that antitoxic sera are the most efficient agents for the treatment of bacterial infection. Except, however, in the cases of diphtheria and tetanus it has been impossible to obtain such sera. This is because for the production of antitoxic sera toxin in hand is a necessity and only from the diphtheria and tetanus bacilli has it been possible to obtain such toxin in sufficient quantities for this purpose.

If the blood cells of an infected animal produce the specific bodies, these substances are present in the serum in varying amounts, according to the stage of the disease and their release from these cells. In order to meet a bacterial invasion through this protective mechanism, these substances must not only be produced but they must not remain locked up in the cells. Their release may be fatally delayed. In fact, an earlier release in many cases would hasten recovery. The serum from an infected animal is of no value as an antiserum when it meets only its own demand for specific substances. It must contain a great excess to be a valuable biological product.

The problem that presents itself is how to obtain a supply of specific substances in serum rich enough to make a valuable product. We believe the solution lies with the serum of a strong young infected animal operating a powerful protective mechanism that has had his blood cells broken down at the height of their efficiency. We must find a way of breaking down the cells *in vivo* since nature stops short of the wholesale destruction required. We believe this can be accomplished with sodium hydroxide.

The remarkable results of the intravenous injection of sodium hydroxide in cases of infection, hemophilia, anemia, and cancer, have shown its use to be safe; they seem to the writer to be due to the release of specific bodies through the breaking up of the blood cells and have led him to make a series of animal experiments to prove its action.

Sodium hydroxide was injected into the tissues and veins of normal rabbits and guinea-pigs in the first series of experiments. There was a loss in the total number of leucocytes in the first five hours. Then the total leucocytes and polynuclears increased in number till the end of twenty-four hours, the coagulability of the blood was increased, and normoblasts appeared. At the end of six hours the leucocytes, especially the polynuclears, began to break down and this reached a maximum in twenty-four hours. Repeating the sodium hydroxide renewed these phenomena. The serum from these animals and normal serum were titrated and both were 1.75 alkaline.

The serum from these animals was diluted and one loopful of twenty-four-hour culture of bacteria added to each dilution and incubated for twenty-four hours. One loopful of twenty-four-hour culture of bacteria was added to normal serum in the same dilutions and incubated for twenty-

four hours for comparison with the previous set. In the first set the highest dilution showed the least growth. In the last set there was no difference in the growth in any of the dilutions and they all showed more growth than the highest dilution of the first set. The undiluted sera used in these two sets were injected into the peritoneum of normal animals and produced no effect.

The second series of experiments was performed on susceptible animals injected with pyocyaneus. The control animals had a rise in temperature in the first six hours, some got well in twenty-four hours, and some died of endotoxemia in from twelve to forty-eight hours. It was found that when normal serum was injected into the peritoneum at the same time with the pyocyaneus, the reaction of the animal did not change, but when the serum from the animal that had been treated with sodium hydroxide was injected into the peritoneum at the same time with the pyocyaneus, the temperature fell and he showed evidences of endotoxemia; but when this same serum was injected after the animal's temperature had risen, the temperature stayed up or rose higher and he ran a course of infection with fever for several days, while normal serum injected into the peritoneum of an animal after his temperature had risen, depressed the temperature so that he showed evidences of endotoxemia. Heating the normal serum destroyed this action. Heating the serum from the animal that had been treated with sodium hydroxide increased its effect.

It would appear from these experiments that the serum from the normal animal contained a very little immune body with complement and that sodium hydroxide increased the amount of immune body in the serum. The results of the foregoing experiments are readily explained by bacteriolysis, especially the endotoxemia when normal serum was given after the temperature had risen following the injection of pyocyaneus.

The third series of experiments were performed on susceptible animals inoculated with pyocyaneus. They were injected with sodium hydroxide. A nonlethal dose caused death when sodium hydroxide was given at the time of the inoculation. A nonlethal dose infected an animal only when sodium hydroxide was given several hours after the inoculation. An animal was saved from a lethal dose of pyocyaneus when sodium hydroxide was given several hours after the inoculation. Animals that had been infected were given a large dose of sodium hydroxide and then killed and the serum drawn off to be used in a fourth series of experiments. One of these products was bacteriolytic and another contained antitoxin. The others were immune sera.

It must be remembered that we are operating with endotoxic bacteria and susceptible animals. These bacteria are broken up by parenteral digestion freeing the toxin. The animal will recover and get rid of the invader if the toxin liberated is small in amount, otherwise he will die of endotoxemia.

In this series the animal that received the bacteriolytic serum heated at the same time he was inoculated with pyocyaneus, reactivated it with his own serum and died sooner than the control. The animal that received this same serum heated several hours after his inoculation lived and became infected. This last animal had his own antibody added to that in the bacteriolytic serum, making an excess over what was present in the animal that died and he also had more bacteria, so would also have died of endotoxemia if bacteriolysis had not been lessened by the antibody being carried over the optimum. The immune serum was given heated at the time of inoculation with a lethal dose of bacteria to an animal and he was saved.

In the third series of experiments the serum becomes gradually more bacteriolytic when sodium hydroxide is given at the time of inoculation with bacteria, as the antibody is freed from the cells as fast as it is formed and causes endotoxemia; but when it is given several hours after the inoculation a large amount of antibody has been stored up in the cells, is freed at once in the serum, carries it over the optimum, and lessens bacteriolysis so the animal is saved. The optimum point is delicately balanced.

We believe that these four series of experiments established a fundamental principle in the action of sodium hydroxide on the blood cells, and taking this as a point of departure an attempt was made to produce multiple antisera from mixed sputa. Sodium hydroxide was used to aid in the sensitizing of animal blood cells with bacteria and to hasten antitoxic immunity.

These experiments were performed on animals injected with a mixed sputum from cases of pulmonary tuberculosis and pneumonia. All the tuberculous animals that were treated with sodium hydroxide outlived the controls by many weeks. One animal that had a tuberculous ulcer on the side had lost five ounces, had a temperature of 104°, and was going down rapidly. He was given sodium hydroxide on the same day that the control died, his temperature dropped to normal and he improved, the ulcer began to heal, and he gained weight. In a month he had gained back his original weight and the ulcer was entirely healed.

A series of animals were injected with mixed tuberculous sputum and treated daily thereafter with sodium hydroxide. They ran early temperatures, due to mixed infection, from which they recovered, and about the twenty-first day developed tuberculosis. These were carried along for about two weeks and when their temperatures were down they were given very large doses of sodium hydroxide and killed to get their serum. This was injected into tuberculous animals and promptly brought the temperature to normal and it stayed normal. The serum was obtained from rabbits and injected into guinea-pigs, and the same sputum was used to infect both animals, so that the product was a multiple antiserum, specific for that particular mixed infection. When it was used for the mixed infection of another sputum it did not work as well.

A series of experiments was performed with a mixed sputum from cases of pneumonia. Animals were injected with this mixed sputum and treated with sodium hydroxide; all the animals thus carefully treated developed pneumonia in two days to a week and when autopsied the lung was found consolidated. All the controls died except those that had a small enough dose given to them; these prompty got well without pneumonia. It was necessary to use a small dose of bacteria that the animal could take care of alone in order to give him pneumonia with sodium hydroxide. This partially immunized him and the bacteria were herded in the lungs. It was impossible to give the animals pneumonia without sodium hydroxide, except by the method of Wadsworth. One of the pneumonia animals got well on the twenty-sixth day under sodium hydroxide injections. The serum was taken from

these animals with pneumonia after the cells had been broken down with sodium hydroxide and it was injected into other pneumonia animals during the high fever when the temperature promptly dropped to normal but did not stay there. This was a specific multiple antiserum, but as rabbits were the only animals used it was not powerful enough to produce permanent antitoxic immunity.

When all the preceding facts are correlated it appears to us that our premise has been proved, that sodium hydroxide injected into the animal system increases the number of leucocytes, then breaks down the blood cells and releases the specific bodies they contain.

Reasoning from the results of our animal experiments we further conclude that bacteria sensitize animal cells. The toxin breaks down the cells. This frees all the protective substances they contain. In a chronic disease the cells contain its specific bodies, but do not give them up in sufficient quantity. The acute attack of a different infection will, however, benefit the chronic disease, since its specific bodies are released with the new specific substances but are seldom enough to cure. This explains the increase of specific ferments by Coley's fluid. It is doubtful if defensive products exist in the body until bacteria have sensitized the cells.

Vaccines sensitize animal cells and stimulate the production of protective bodies. These do not always appear in the serum, which makes their action uncertain, unless combined with sodium hydroxide. Vaccines should be used to prevent disease or to stimulate the blood cells that fail to respond to bacteria that have long been present in the body tissues, but never during the active stage of infection, as they do harm by adding foreign waste material, unnecessarily sensitizing the cells, and increasing the danger of endotoxemia. What holds true actively for vaccines is true passively of immune sera. The use of specific multiple antisera must be continued until the system can get its own protection under way, since they do not rid it of the invader.

An animal that has a powerful protective mechanism should take care of itself, but would be protected sooner with sodium hydroxide and lessen the chance of exhaustion. An animal that has its protective mechanism weakened will be saved by a powerful antiserum, and an animal that has its protective mechanism exhausted will die anyway. In pneumonia the bacteria are herded in the lungs from the circulation and not the air passages.

I wish to acknowledge the aid given me in this work by Dr. H. A. Higley.

BIBLIOGRAPHY.

Nuttall: *Zeit. f. Hyg.*, I, 1886.
Joachim: Pflüger's Archiv, XCIII.
Behring und Kitasato: *Deut. med. Woch.*, 1890, No. 49.
Ehrlich: *Archiv f. Physiol.*, 1879; Gesammte Mittheil, Berlin, 1891.
——*Deut. med. Woch.*, 1891, 1898.
——Das Sauerstoffbedürfniss des Organismus, Berlin, 1885.
——Klin. Jahrbuch, VI, 1897.
Metchnikoff: *Annales de l'Institut Pasteur*, 1895, 1898.
Wadsworth: *American Journal of the Medical Sciences*, May, 1904.
Hiss and Zinsser: Text-book of Bacteriology.
Martin and Cherry: Proc. Royal Soc., London, LXIII, 1898.
Pfeiffer: *Zeit. f. Hyg.*, XL, 1892.

30 Schermerhorn Street.

A SIMPLE SYRINGE METHOD FOR THE TRANSFUSION OF CITRATED BLOOD IN CHILDREN.

By ABRAHAM ZINGHER, M.D.,

NEW YORK.

(From the Research Laboratory and the Willard Parker Hospital, Department of Health, New York City.)

The purpose of this paper is to present a simple method for the transfusion of citrated blood in young children. Transfusion has often been strongly indicated in a variety of medical and surgical conditions in these children, but the necessity for special skill in its performance, and the frequency of failure, have greatly limited its use.

The use of citrated blood in human transfusions was first practised in 1914 by Hustin, who injected in one case a mixture of citrated blood and glucose. Citrated blood in human transfusions was not used again, however, until R. Weil, in December, 1914, recommended the use of 1 per cent. sodium citrate. R. Lewisohn found that 0.2 per cent. sodium citrate will keep the blood fluid, and used that concentration successfully in a few human transfusions at Mt. Sinai Hospital. The method he employed for obtaining and citrating the blood consisted in allowing it to run from the vein through an ordinary cannula into a glass jar containing the proper amount of sodium citrate. The blood was then poured into an ordinary glass funnel and the usual intravenous infusion made. Frequently there is difficulty in obtaining the blood from the donor in this way on account of clotting from the slow flow of blood through the cannula. In the method described below the requisite amount of blood can be rapidly obtained, citrated in several small containers, and easily reinjected even into the small veins of young infants. The main part of the outfit consists of two Record syringes, two suitable needles and some sterile 10 per cent. solution of sodium citrate. In a series of experiments we were able to corroborate the statement that 0.2 per cent. of sodium citrate will keep human blood fluid, whereas 0.1 per cent. failed to prevent clotting. As an additional safety margin 0.33 per cent. is recommended.

It is interesting to note that R. Weil has injected as much as 5 grams of sodium citrate intravenously into adults, and the only effect noticeable was a transient polyuria. He also made the rather important observation that the sodium citrate temporarily hastened rather than delayed the coagulation of the blood.

Twelve transfusions were performed by us successfully on small children, eleven at the Willard Parker Hospital on the service of Dr. Louis Fischer, and one on a seven-weeks-old private patient of his. The median-cephalic vein in this infant, though very small, was readily exposed by means of a small incision in the skin, and the transfusion completed without difficulty.

The following technique is recommended:

Donor.—A suitable donor free from syphilis and tuberculosis is chosen. For small children one of the parents or some close relative will be found most suitable. The serum of the donor should not agglutinate or hemolyze the patient's red blood cells, or *vice versa*. This is conveniently determined by the method of Ottenberg and Epstein.

Instruments and Apparatus.—(*a*) One 30 c.c. and one 10 c.c. improved Record syringe.

(*b*) A platin-iridium or steel needle, 1½ inches

long, No. 18 B. & S. gauge, with which the blood is obtained from the donor.

(*c*) A Goldenberg salvarsan needle (George Tiemann & Co.) for transfusing the blood into the patient.

(*d*) 6-12 sterilized wide-mouthed bottles, in which the blood is collected from the donor.

(*e*) A number of sterile beakers or ordinary tumblers.

(*f*) A 10 per cent. and a 1 per cent. sterile solution of sodium citrate.

(*g*) A piece of rubber tubing and artery forceps as a tourniquet.

Obtaining the Blood from the Donor.—Into each of several 100 c.c. bottles we first introduce 2.5 c.c. of the 10 per cent. solution of sodium citrate. In a glass beaker some 1 per cent. solution of the citrate is kept ready for rinsing out the syringe.

The donor should be placed in a recumbent position and the tourniquet applied to the arm. The platinum needle, attached to the larger Record syringe, is now inserted into the tense median-cephalic vein, and a syringeful of blood quickly aspirated. An assistant now fixes the needle, while the operator quickly detaches the syringe and emp-

Goldenberg salvarsan needle.

ties it into one of the 100 c.c. bottles. During this interval the assistant keeps the needle free of blood by attaching the smaller Record syringe and injecting a few drops of the 1 per cent. solution of sodium citrate. If two large Record syringes are kept on hand, the aspiration of the blood can become almost continuous. Experience has taught us, however, that even with a single syringe a large quantity of blood can be obtained within a few minutes. There is a decided advantage, also, in the intermittent withdrawal of blood, as it allows the donor's circulation to accommodate itself to the fairly rapid depletion, and avoids a sudden cerebral anemia.

Several syringefuls of blood can be readily obtained before it is necessary to rinse the syringe out with the 1 per cent. sodium citrate. Seventy-five c.c. of blood are put into each 100 c.c. bottle, making the final dilution of sodium citrate 0.33 per cent. It is important that with each addition of blood the entire contents be rapidly shaken, in order that the citrate may come into intimate contact with each amount of blood added.

Within ten minutes from 8 to 16 ounces of blood, if needed, can thus be obtained, and is ready to be transfused into the patient.

Transfusion of the Blood.—The blood is aspirated from the bottles by means of a pipette and is collected into a large beaker, or ordinary sterile glass tumbler. It is kept at body temperature by partly immersing the container in warm water. The top of the beaker is covered with a pad of sterile gauze. The best vein for the injection of blood is usually the median-basilic or the external jugular. In older children the salvarsan needle can be inserted through the skin directly into the vein. In very young children, and especially in infants, it is preferable, and even necessary to expose the vein by a small incision, although occasionally one may be able to enter the external jugular vein without an incision. By exposing the vein, however, we are certain that the needle used for the transfusion is properly entering the vein, where it can be safely secured. A catgut or silk ligature is applied to the distal part of the vein; a similar ligature is slipped under the proximal part, but is not tied.

The large Record syringe which has been resterilized is now filled with blood from the beaker. If there is any tendency for the red cells to settle, the blood may be rapidly stirred with the end of the syringe. The Goldberg salvarsan needle is attached to the syringe, and carefully passed into the lumen of the vein, proximal to the tied ligature. This ligature serves to steady the vein, while the needle is being inserted. If care is taken, one can be successful even with the very small veins of young infants. The presence of the needle within the lumen of the vein is tested by first injecting a few drops of blood. If there is no leakage the assistant ties the upper ligature around vein and needle, and thus secures the latter in place. The blood is now slowly injected. As soon as the syringe is emptied, the assistant firmly fixes the needle, while the operator detaches the syringe and refills it with blood. The transfusion is continued until the required amount of blood has been injected.

It is important to be careful not to overburden the patient's circulation with a relatively large amount of blood, and it is therefore advisable not to inject more than 1 to 2½ ounces of blood in infants up to six months of age; 3 to 4 ounces up to one year, and 4 to 6 ounces up to two or three years of age. If necessary, the transfusion may be repeated at intervals of two to three weeks.

After finishing the transfusion, the needle is removed while the proximal ligature is firmly tied. The very slight wound is cleaned with sterile saline and the edges approximated with a strip of sterile adhesive plaster.

Where one desires to use non-citrated blood, the technique can be followed along very similar lines. Two assistants are needed. After securing the salvarsan needle in the patient's vein, we aspirate with a 20 c.c. Record syringe a syringeful of blood from the donor, detach the syringe and promptly inject the contents into the patient's vein. The needles in both donor and patient are kept free of blood by the assistants, who attach small (5 c.c.) Record syringes, filled with sterile normal saline and inject a few drops of the solution. The syringe used for the transfusion of blood is rinsed out with normal saline each time. If two syringes are used, the transfusion becomes almost continuous.

The ease and simplicity of the method would recommend its use in a variety of surgical and medical conditions. The large number of surgical indications need hardly be enumerated. The acute, subacute and chronic anemias, the hemorrhages in hemophilia and purpura, in jaundice, from gastric and duodenal ulcers, typhoid ulcers, etc., will readily suggest themselves. In the treatment of chronic primary anemias, as well as in marasmic and anemic children, successive small transfusions are often considered beneficial and may at times be life-saving. In the treatment of toxemias, like that of scarlet fever, transfusion is indicated, if a suitable convalescent donor can be found.

The outlook would be sufficiently hopeful, if a method for the transfusion of blood, which is easily carried out, could be placed in the hands of the general practitioner. The technique of the handling of syringes is easily acquired, and it should, no doubt, be taught to every medical student.

Conclusions.—1. A simple method is here presented for the transfusion of blood in young infants and children with an outfit which consists mainly of two Record syringes, two suitable needles and a sterile solution of sodium citrate.

2. The advantages claimed for the method are its simplicity, the rapidity with which the blood is obtained and citrated in several small containers, the complete control over the rapidity of the injection of the blood and the amount of blood injected, and the applicability of the method, even to very young infants.

I wish to thank Dr. Louis Fischer for the cases referred to me for transfusion. A detailed report will soon appear by Dr. Fischer and the author on the clinical aspect of the cases transfused. I also wish to thank Mr. David Soletsky for valuable assistance during the transfusions.

3915 Broadway.

A NEW BABY BOTTLE.

By Rudolph Duryea Moffett, M.D.,
New York.
Assistant Visiting Physician in the German Hospital and Dispensary, the Dr. A. Jacobi Children's Division; Attending Physician to the Children's Department of the German Hospital Dispensary, Assistant Attending Physician Babies' Hospital Dispensary.

The many varieties of baby bottles which have been used for a number of years have had three common objections, namely; inability of easy cleansing, inaccurate graduation, and wide opening requiring the use of excessively large nipples.

Being impressed with these objections I have

sought to overcome them by (1) having a bottle constructed without a neck, the body of the bottle converging to its opening at the top as per illustration; (2) each bottle being accurately graduated and the lines of the ounces and half-ounces etched on the glass; (3) the body of the bottle, by converging to a small opening, as per illustration, requires only the usual size nipple. This bottle is made by the Kimble-Durand Glass Co., of New York and Chicago, and meets all the above requirements, and demonstrates its superiority over other types of feeding bottles, which have heretofore been so difficult to clean. The illustration shows the shape of the bottle, which is made of very hard glass similar to that used for laboratory purposes, stands great changes of heat and cold, and therefore can be thoroughly sterilized.

830 Park Avenue.

Medicolegal Notes.

Hypothetical Questions—Actual Cause of Death.—Upon a trial for uxoricide two distinct theories were urged as to the cause of death. The State urged that it was caused by strangulation; the defense, that it resulted from accidental fall from the porch of the defendant's house. The evidence tending to sustain both theories was almost entirely circumstantial, but there was substantial support for both. Aside from the presence of the defendant at or nearby at the time to the place where death occurred no witness testified to facts immediately connected with it. Upon the theory of the State the death was feloniously caused, and because the defendant was the only one shown to have been in such proximity to the scene as to permit connection with the alleged act, coupled with statements and silence when accused, which were claimed to have the legal effect of admissions, and with evidence upon which was based the claim of the existence of a motive by him, the ultimate question upon which the prosecution relied as demanding a conviction was that the death resulted from strangulation and from wounds made in connection with such act at the hands of the defendant acting wilfully through malice, deliberation, and premeditation with the intent to take his wife's life. Medical witnesses were examined as experts. Shortly after the death an autopsy was held, and the physicians who were present and assisted in it testified in detail as to the condition of the body, the internal organs, and the blood vessels. A hypothetical question was propounded to the several witnesses called by the State to testify as experts, some of whom had not assisted at the autopsy, each being asked as a part of the question whether upon the assumed facts thus stated he would be able to give an opinion as to the cause of death. It was objected that the question called for a conclusion and opinion of the witness as to his own ability to pass upon a matter such as was embraced in the inquiry. The objection was not sustained, it being held that the answer to the question would be merely the statement that the assumed facts were such that to the trained mind they carried knowledge upon which an opinion could be based. The question was quite different from an interrogatory as to whether the witness was in fact qualified to testify as an expert. Nor did it invade the province of the jury, the ultimate question for the jury being whether the death was felonious. It was held that the witnesses were not restricted to stating what was the probable cause of death, but might state what in their opinion was the actual cause of death.—State vs. Hessenius, Iowa Supreme Court, 146 N. W. 58.

Right to Publish Medical Advertisements.—The police power of the state is limited to enactments which have reference to the public health or comfort or the safety or welfare of society, consequently the Colorado Supreme Court holds that Rev. Stat. 1908, Sec. 6068, authorizing the State Board of Medical Examiners when any practitioner causes the publication of any advertisement relative to any disease of the sexual organs, to revoke his license, is unconstitutional, being in violation of Const. U. S., Amend. 14, and Bill of Rights, Art. 2, Sec. 3, prohibiting the deprivation of life, liberty, or property without due process of law, for the right to practice medicine is a valuable right and the statute in question would authorize the revocation of a license for conduct which would not necessarily be immoral or injurious to the public. The statute was also held to be so indefinite as to be invalid; neither it nor dictionaries nor general usage defining the term "diseases of the sexual organs." As the offense of causing the publication of immoral advertisements is a public one the statute is invalid as class legislation, being discriminatory. —Chenoweth vs. State Board of Medical Examiners, Colorado Supreme Court, 141 Pac. 132.

Matters to Which Physician May Testify.—Where the plaintiff in an action for personal injuries alleged to have been sustained by the negligent sudden starting of a street car which she was boarding testified that she suffered a miscarriage in consequence of her injuries, a physician called as a witness for the plaintiff may properly be asked whether he made an examination for any conditions that might result from a miscarriage, the inquiry relating to a subject within the issues of the case.—Powers v. Chicago City Ry. Co., 185 Ill. App. 158.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 13, 1915.

THE PHYSIOLOGY AND PATHOLOGY OF INFANCY.

APPARENTLY for the first time in the history of medical education, there has been established at the University of Paris a chair of hygiene and clinical medicine of infancy. The first occupant of this chair, A. B. Marfan, in his inaugural address published in the *Presse Médicale*, January 7, 1915, points out how two events more than any other in France at the present time emphasize the importance of the conservation of child life, namely, the diminishing birth-rate and the vast destruction of life incident to the present war. These circumstances impart a special significance to the foundation of a chair of infant hygiene in a university subsidized by the French government.

Infancy has its peculiar problems in physiology and pathology, a correct conception of which problems demands a subdivision of childhood into three stages: the "petite enfance," extending from birth to the end of the first dentition at the age of two and a half years; the "moyenne enfance," extending from this period to the beginning of the second dentition at six or seven years; and the "grand enfance," extending from the sixth or seventh year to the twelfth or sixteenth year. Each of these periods has its own problems, but those of the latter two are mere modifications of those of adult life, while the problems of the "petite enfance" are distinctively different and constitute a separate branch of medicine. There are no English terms which correspond exactly with the French expressions; possibly the same connotation is attached to the terms, infancy, early childhood, and later childhood.

There are three principles underlying the morbid reactions of infancy: (1) an acute disease in an infant previously healthy causes an intense and a diffuse reaction out of all proportion to the benignity and localization of the acute disease, as may be seen in the case of acute inflammation of adenoid growths. (2) An infectious disease occurring in an infant does not remain localized at the point of entrance of the infectious agent: there is a wide extension chiefly by way of the lymphatic apparatus. (3) Chronic diseases in the infant, unlike those of the adult, are characterized by modifications of the general condition rather than by predominantly local changes. The general manifestations are the arrest of growth and weight, a peculiar anemia resembling that of chlorosis, and a morbidly increased activity of the hemolymphatic apparatus, particularly of the bone marrow. It is the last reaction which Marfan regards as the essence of rachitis, or as he terms it, "osteolymphatism."

The retardation in growth and weight seems to be the most conspicuous fact in infantile pathology, but there are associated phenomena which are usually overlooked. One of these is the disappearance of the power to react to acute infections. In an atrophic infant these may arise without fever or nervous manifestations. Even the local signs may be all but wanting, as in the case of bronchopneumonia occurring in an athreptic infant, when careful and prolonged auscultation may be necessary in order to elicit the physical signs.

The older conception of infantile atrophy as a definite clinical entity has given place to one in which the atrophy is regarded as the constitutional reaction to vicious feeding, either insufficient, excessive, or inappropriate; to such chronic infections as syphilis, tuberculosis, and prolonged pyodermatitis; or to a subacute or relapsing bronchopneumonia.

At first glance, some of the observations made by Marfan may appear commonplace or even hackneyed, but on closer examination, one can perceive how the touch of genius, guided by unusual experience, imparts to these observations a new light and a new meaning. It is only by a full realization of the underlying principles of infantile pathology that one can hope to combat the awful mortality at the threshold of life. In these days when politics and science vie with each other in a wholesale slaughter of the flower of manhood, the necessity of conserving the newborn, the heritage and the hope of the race, receives an added importance.

VARIETIES OF PNEUMOCOCCUS AND THEIR RELATION TO LOBAR PNEUMONIA.

IT it now over a year since Dochez and Gillespie showed that pneumococci derived from lobar pneumonia might be divided into four well-defined groups according to their immunological reactions. The first three groups, pneumococcus type I and type II and the *Pneumococcus mucosus*, are made up of individuals that have a definite biological relation to each other; that is to say, each member possesses immunity reactions which are identical with those of the other members of that group. The fourth group is peculiar "in that it seems to consist of a series of independent varieties which do not cross in their immune reactions with members of group I, II, or III, or with each other." Since that publication the work has been continued and extended. In a recent paper (*Jour. Exper. Medicine*, 1915, xxi, 114) Dochez and Avery report the results of their further activity in this direction. In a study of the pneumococci found in the mouths of healthy individuals who had not been exposed to cases of pneumonia they found that, so far as they were able to tell, the organisms belonged to the heterogenous group IV. In persons

who had been exposed to cases of pneumonia, the more virulent types were usually found, corresponding to the type of organisms infecting the case in question. After such exposure the virulent type may persist for a variable length of time, during which period the individual is a true carrier. Examination of the mouths of patients after recovery from an attack of pneumonia showed that within from twelve to ninety days the "virulent type" is replaced by a strain belonging to group IV. "In general, when typical organisms persist for a long time, there is delay in the healing of the lung lesion. If recovery is prompt, as a rule, the virulent types disappear rapidly." The organisms belonging to group IV are of low virulence, being responsible for about twenty per cent. of the cases of pneumonia. The mortality percentage is much lower in this group than in the others.

It is thus apparent that the majority and the more virulent of the cases of pneumonia are caused by a strain of the pneumococcus which is not found in normal mouths, a result which tends to negative the former belief that, under favorable conditions, the pneumococci living in the mouth are enabled to invade the organism and produce the disease. On the contrary, it is much more probable that "the majority of cases of pneumonia are dependent upon either direct or indirect contact with a previous case." Of course the predisposing causes are none the less important. The authors obtained five strains of pneumococcus which were responsible for pneumonia as it occurs in South Africa and found that three of them belonged respectively in groups I, II, and III. The other two, however, were independent strains indicative of new groups which are probably not represented in this country. They suggest that in especially susceptible persons, such as the native negroes, some of the normally non-virulent strains of group IV may acquire virulence and develop into clear cut types. The development of a racial immunity would soon limit the number of new types which might arise.

This work emphasizes in a way not hitherto equaled, the importance of exposure in any consideration of the epidemiology of pneumonia; and it should be remembered always in planning out the treatment of any case of pneumonia, especially in private practice.

TYPHUS FEVER.

The outbreak of the European conflict has again demonstrated that freedom from pestilence is a matter of hygiene and civilization, and that if from any cause there is a retrogression previously dormant disease breaks out with renewed vigor. Very few physicians, other than those engaged in public health work, ever have the chance to see such diseases as plague, yellow fever, cholera, leprosy, the comparatively common smallpox and typhus fever—the diseases quarantinable by the national government. Yet it is quite recently that every one of these conditions prevailed in epidemic proportions, and contributed to the large death rates and short span of life.

Of the quarantinable diseases typhus fever was thought to be particularly rare until the investigations of Anderson and Goldberger of the Hygienic laboratory showed that the disease described as a result of the keen observation of Dr. Nathan Brill of New York was in fact a typhus fever of mild course, and was identical with the type of typhus existent in Mexico. This Brill typhus is found to be confined almost entirely to immigrants from Russia, though in a severer form the disease has been discovered among immigrants arriving from the east.

Typhus has been reported to have broken out with a great deal of severity among some of the belligerents in Europe, and with somewhat of the dread consequences of the typhus of old. With the resumption of immigration, especially from these localities, the introduction of a more severe strain of typhus infection will be a matter to guard against. The mild course of typhus in this country may be due to a possible attenuation of the organism or virus causing the disease, although with the exception of a little preliminary work in the isolation of the specific organism, little is known of either; or it may be due to the better hygienic and social conditions of the people—better at least than in the places where the diseases are endemic. Yet the introduction of a severer strain or the lowered resistance of the victims might be provocative of a very serious epidemic.

With all its epidemicity the disease is yet very preventable, since it is fairly well established that it is transmitted almost solely by the body louse. The proverbial residence of this insect on the vestments of the soldier in the field accounts for the prevalence among military units. Care in the disinfection or destruction of the clothing and linen of patients will prevent spreading to others and to the attendants. The nocturnal character of the body louse must also be borne in mind in relation to transmission of the disease. It has been established by experimentation on monkeys that the organism seems to be filtrable, that the blood contains the virus, and that the body louse is the intermediary host. It should not therefore be difficult to destroy the insect, isolate the patient, and thus prevent the spread of the disease.

Diphtheria Toxin and Blood Pressure.

Of considerable clinical importance is the problem as to what effect the diphtheria toxin has upon the blood pressure. This problem has been studied by H. Zondek (*Zeitschrift für klinische Medizin*, Vol. 81, Nos. 1 and 2), who found that the blood serum of rabbits acutely poisoned by the diphtheria toxin causes a reduction of blood pressure when injected into healthy rabbits. In a parallel set of experiments normal rabbit serum had no such effect. The blood serum of rabbits in which a nephritis has been set up by the injection of uranium or chromium salts, causes a distinct rise in the blood pressure in rabbits in which the blood pressure had been lowered by the diphtheria toxin. The degree of the blood-pressure reducing power of the diphtheria-treated rabbit sera depends upon the length of time to which these sera have been under the influence of the diphtheria toxin. The maximum of this power is reached in ten hours, and at the end of twenty hours there is a marked reduction. The effect of the diphtheria serum upon the blood pressure is

more prolonged if this serum is removed from a rabbit in which a nephritis has been set up. In such an animal the histological changes in the kidney are more pronounced after twenty hours than after ten hours. In all probability a coincident nephritis tends to counteract and to compensate for the blood pressure reducing effect of the diphtheria toxin. The above mentioned experiments have an eminently practical bearing inasmuch as they indicate the need of blood pressure observations as an aid in gauging the intensity of a diphtheritic infection and also as a means of enabling one to suspect an intercurrent nephritis.

Treatment of Gangrenous Wounds with Artificial Gastric Juice

The use of both natural and artificial gastric juice in the treatment of ulcers and suppurative processes is quite old, especially the first named which was applied for this purpose long before the nature of the secretion was understood. During the present war an attempt has been made to introduce the use of an artificial product on a large scale for the treatment of foul gangrenous lesions. Freund of Vienna reported his experience before the Royal Imperial Medical Society of Vienna last December (*Münchener medizinische Wochenschrift*, January 12.) To a 0.1 or 0.2 per cent. solution of hydrochloric acid he adds pepsin to make 2 to 5 per cent. The wound surface may simply be irrigated or dressed with moistened gauze. The solution should not have stood for over 48 hours and cannot be heated above 45° C. (113°F). It may be used twice daily after previous disinfection with hydrogen peroxide. If nerves or vessels have been exposed by the gangrenous process or the traumatism itself, these structures should be protected from the solution by petroleum ointment. At the same meeting Gagstatter stated that he had used the solution in 80 cases, often with astonishing results. The necrotic tissues were promptly removed.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—During the past two months there has been a falling off in contributions to the general fund for Belgian relief from over $300,000 in November to less than $100,000 in February. There is therefore all the more need for generosity on the part of medical men. It cannot be impressed too forcibly on the members of our profession that their colleagues in Belgium need their help even more now than when the subscription lists were first opened. The establishment by the Germans of a "war zone" around Great Britain has deprived the starving Belgians of the supplies formerly sent them from England, so that they must look more than ever to this country for help. There are now three American committees asking aid for the Belgian physicians, the other two being the one appointed by the New York Academy of Medicine and that established by the editor of *American Medicine*, and we would urgently appeal to our readers who have not yet responded to send a donation, no matter how small —or how large—to one or the other of these relief organizations—it matters not which. The objects of each committee are the same and the members of each will rejoice to see its own collection exceeded in amount by its rivals in this great and appealing work of charity. Contributions may be sent to the editor of the Medical Record, or preferably to the treasurer of the committee, Dr. F. F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Pa.

The following is from a letter to Dr. Simpson from Dr. J. M. T. Finney of Baltimore: "Madame DePage was in Baltimore for a short time last week. I told her something of the work that the medical men in this country were doing for their confrères in Belgium. She was much interested and most grateful for what had already been done. . . . Her account of conditions in Belgium is pathetically interesting. The needs of her country beggar description. While so much is being done and has already been done by this country, much more must be done in order to save from starvation many hundreds of men, women, and children. I wish it were possible for everyone to hear her account of what the Belgians are doing for themselves and of their gratitude for what is being done for them and, at the same time, get some sort of an appreciation of the magnitude of the need for more and immediate assistance. I feel sure it would result in a more prompt and generous response on the part of the profession than that which has already been made."

The treasurer reports the following contributions received during the week ending March 6, 1915:

Dr. Grace Wolcott, Boston, Mass.	$10.00
Dr. Harold E. Perry, New Bedford, Mass.	10.00
Pittsburgh College of Physicians, Pittsburgh, Pa.	45.00
Dr. Daniel R. Robert, Brooklyn, N. Y.	5.00
Mrs. Charles E. Paddock, Chicago, Ill.	5.00
Dr. Chas. S. Wright, Acting Asst. Surg., U. S. A., Portland, Me.	5.00
Dr. E. C. S. Taliaferro, Norfolk, Va.	30.00
Dr. William H. Wilder, Chicago, Ill.	25.00
The Thunder Bay Medical Society, Ontario, Canada.	25.00
Garland Co., Hot Springs Medical Society, Hot Springs, Ark.	25.00
Dr. J. Shelton Horsley, Richmond, Va.	5.00
Dr. E. F. Dodds, Missoula, Mont.	5.00
Dr. George R. Little, Wichita, Kansas.	25.00
Dr. James A. Jackson, Madison, Wis.	5.00
Total for week ending March 6.	$225.00
Previously reported	4,386.50
Total receipts	$4,611.50
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
352 standard boxes of food at $2.30	809.60
	$4,384.60
Disbursements week ending March 6, 100 boxes of food at $2.30 per box	230.00
Total disbursements	$4,614.60
Deficit	$3.10

Health of the Canal Zone.—The report of Dr. Charles F. Mason, Chief Health Officer, for December states that the number of deaths among the employees in the Panama Canal Zone was 19, of which 11 were from disease, giving a rate of 3.64 per thousand as compared with 1.61 for the preceding month and 5.24 for December, 1913. There were no deaths from disease among white employees. The diseases causing the largest number of deaths were as follows: Lobar pneumonia, 2; tuberculosis of the lungs, 2. No other diseases caused more than 1 death. The constantly noneffective rate was 10.57, compared with 10.82 for the preceding month and 14.33 for the corresponding month of last year. The total admission rate for malaria, in hospitals and quarters, was 60.95, compared with 69.08 for last month, and the total noneffective rate 1.18, compared with 1.53 for last month, each of these rates being lower than for the same month last year.

Death Rate in New York City.—The number of deaths from all causes reported during the week ending February 27 was 1,518, which is 294 less than for the same week of 1914. The death rate for the first nine weeks of 1915 was 13.91 per thousand of population, as compared with 15.08 during the same period in 1914.

Life Saving in New York State.—The State Charities Aid Association says that a saving of more than 2,000 lives in the State outside of New York City is indicated by the decrease of five points in the death rate, from 15.8 per 1,000 population in 1913 to 15.3 in 1914. These figures are based on the United States Census estimate of population. This was the lowest rate in the history of the State, and the State Department of Health declares that 25,000 persons can be saved from death by improved hygiene in New York State within the next five years.

Deaths from Street Accidents.—According to the report of the National Highways Protective Society, eighteen persons were killed in February by automobiles on the streets of this city, nine of these being children under 17 years of age. During the corresponding month of 1914 eight were killed by automobiles. During the month trolley cars caused the death of five and wagons four, as compared with ten by trolley cars and two by wagons last February. Six persons met their death by automobiles, three by trolley cars, and one by wagon on the streets and highways of New York State, outside of Greater New York, as compared with three by automobiles and four by trolley cars last year. In New Jersey six persons were killed by automobiles and one by trolley car the past month. During the same period twelve persons were killed at highway railroad grade crossings in New York State and six in the State of New Jersey.

American Posture League.—The second annual luncheon of this association will take place at the Hotel Astor on Saturday, March 13, at half-past 1 o'clock. The first annual luncheon was exclusively for the honorary boards of the League, but proved so helpful that this year invitations have been extended to the general membership of the League and to a number of others interested in the movement. The after-luncheon program will set forth the educational, scientific, and welfare aspects of the work of the organization. The president and founder of the league, Miss Jessie H. Bancroft, will preside and will speak on the "History, Plan, and Work of the American Posture League"; other speakers will include Dr. Frederick R. Green of Chicago, first vice-president of the League; Dr. Joel E. Goldthwait, second vice-president, and Dr. E. G. Brackett, both of Boston; Dr. Eliza M. Mosher, Dr. Henry Ling Taylor, secretary, and Dr. S. Josephine Baker of New York. Dr. Percy W. Roberts will present a report of original research conducted by the league; Dr. Anna L. Brown will tell of the national contest on posture being conducted by the Young Women's Christian Association, and Mr. Harry O. Bullock will speak for the Brooklyn Rapid Transit Company, relative to the seats in the new subway cars, which the Posture League designed in cooperation with the construction engineers of the company.

The Medical Society of the State of New York will hold its one hundred and ninth annual meeting in Buffalo, April 27-29. All the sessions, general and sectional, will be held in the 65th Regiment Armory. A restaurant will be conducted in the building, and there will be ample space for commercial and scientific exhibits.

Civil Service Examination.—An examination will be held on April 3 to fill the position of assistant attending surgeon, New York State Hospital for the Care of Crippled and Deformed Children, West Haverstraw. Salary $800 per annum. The appointee will be required to attend the hospital twice a week. No written examination will be given, but candidates will be rated on their age, education, preliminary training, and experience, as determined from the sworn statements in their application, and by inquiries which the commission may make. Applications must be received in the office of the State Civil Service Commission, Albany, N. Y., on or before March 26. No application blanks will be sent out by mail after March 24.

Surgeon-General Gorgas has been promoted to the rank of Major-General in recognition of his work in the sanitation of the Canal Zone.

Dr. Hugo O. Peterson has been appointed city physician in Worcester, Mass.

Dr. Frederick J. Ripley has been reappointed health officer for Brockton, Mass.

Dr. John J. Deacy has been appointed health board physician in Lawrence, Mass.

Dr. W. S. Wheeler has resigned the office of health commissioner of Kansas City, Mo.

Dr. Adelaide Brown of San Francisco has been appointed a member of the California State Board of Health, to succeed Dr. O. Stansbury.

Dr. Horace Grove Deming has been appointed professor of chemistry and chief of the department in the University of the Philippines, filling the vacancy occasioned by the death of Dr. Paul Caspar Freer.

Dr. Andrew Hunter has resigned the position of biochemist, U. S. Public Health Service, in order to accept the chair of pathological chemistry in the University of Toronto.

A Proposed Vaccination Test.—An antivaccinationist in Jersey City has offered to give $2,000 to any charity or medical society under the following conditions: Five of the medical staff of the Jersey City School Board are to vaccinate themselves and after it has taken (if they are not already protected) must submit to inoculation with smallpox virus. If three out of the five do not have smallpox the money will be paid.

Hospital Notes.—An effort is being made by business men in Wall Street to establish a general and emergency hospital on Broad street with an endowment of $1,000,000. An option on four floors of an eight-story building has been secured, with the understanding that the four remaining floors may be used. The hospital will be known as the Broad Street Hospital in the City of New York.

Announcement is made that a new hospital will be built for the medical department of Ya-li (which is Chinese for Yale) College in Chang Sha. Twenty acres of land have been purchased outside the city and on it will be erected the hospital building, a dormitory, a chapel, and four buildings for professors.

By the will of the late Marietta Flower of Chester, Pa., the sum of $5,000 is bequeathed to the Chester Hospital, together with the residuary estate. Also by her death the hospital will come into possession of the entire estate of her brother, amounting to $150,000.

Award of the Samuel D. Gross Prize.—The

Samuel D. Gross Prize of the Philadelphia Academy of Surgery for the year 1915, to the value of $1,500, has been awarded to Dr. John Lawrence Yates of Milwaukee, Wis., for his essay entitled "Surgery in the Treatment of Hodgkin's Disease."

The Campaign Against Rabies.—An important legal decision has just been rendered by Mr. Justice Lehman of the Supreme Court upholding the right of the Department of Health of this city to enact and enforce an ordinance providing for the muzzling of all dogs in the streets and other public places of this city. The department has always insisted, however, that the enforcement of the dog muzzling was only part of the campaign necessary to eradicate rabies from this community. Equally important is the destruction of stray dogs and cats. In this city this work is in the hands of the American Society for the Prevention of Cruelty to Animals. During the year 1914 this society destroyed 18,510 dogs and 49,940 cats, and in 1913, 16,180 dogs and 51,678 cats. The Health Department Bulletin states that there has been a decided falling off in the number of dog-bites in this city during the past six months. Moreover, laboratory examinations indicate also a decrease in the number of rabid animals.

Medical Passengers on "La Touraine."—On the French steamer *Touraine*, which was on fire off the coast of Ireland last Saturday were Dr. and Mrs. J. C. Walker of the American Ambulance Hospital, Paris, and Drs. John S. Irwin, W. G. Braddock, and A. O. Jimenis with ten nurses and an orderly from the French Hospital, New York, who are to establish a military branch at Passy in France. Dr. J. S. Wheelwright of this city, who will have charge of a hospital in France, was also a passenger.

Medical Society Elections.—The Association of Southern Medical Women held its second annual meeting in Richmond, Va., on November 10, electing the following officers: *President,* Dr. Mary E. Lapham, Highlands, N. C.; *Vice-President,* Dr. Mary A. Parson, Washington, D. C.; *Secretary-Treasurer,* Dr. L. Rosa H. Gantt, Spartansburg, S. C.

The Dubuque County (Iowa) Medical Society, at the annual meeting held January 12, elected the following officers: *President,* Dr. I. E. Bigelow; *First Vice-President,* Dr. Lilly Kinnier; *Second Vice-President,* Dr. H. M. Pahlas; *Treasurer,* Dr. L. H. Fritz; *Secretary,* Dr. C. A. McGuire; *Librarian,* Dr. W. P. Slattery; *Delegate to the State Society,* Dr. J. C. Hancock; *Alternate,* Dr. H. G. Langworthy; *Board of Censors,* Drs. J. M. Walker, B. Michel, and W. Becker.

The Winona County (Minn.) Medical Society held its annual meeting in Winona on January 5, and elected the following officers: *President,* Dr. H. C. Bear, St. Charles; *Vice-President,* Dr. B. P. Rosenberry, Winona; *Treasurer,* Dr. W. R. C. Heise, Winona; *Secretary,* Dr. H. F. McGaughey, Winona; *Delegate to the State Society,* Dr. E. S. Muir, Winona; *Alternate,* Dr. E. M. McLaughlin, Winona.

American Association of Anatomists, at its annual meeting, re-elected the following officers: *President,* Professor G. Carl Huber, University of Michigan, Ann Arbor, Mich.; *Vice-President,* Professor F. T. Lewis, Harvard Medical School, Boston, Mass.; *Secretary-Treasurer,* C. R. Stockard, Cornell University Medical College, New York City.

The Philadelphia Medical Club, at a stated meeting held January 15, elected the following officers for the ensuing year: *President,* Dr. McCluney Radcliffe; *First Vice-President,* Dr. Alexander MacAllister; *Second Vice-President,* Dr. William Martin; *Secretary,* Dr. William S. Wray; *Treasurer,* Dr. Lewis H. Adler, Jr.; *Governor,* Dr. George A. Knowles, for a five-year term.

The Northern Medical Association of Philadelphia, at a stated meeting held January 8, elected the following officers for the ensuing year: *President,* Dr. Victor A. Loeb; *Vice-President,* Dr. Moses Behrend; *Secretary,* Dr. Samuel Axilbund; *Treasurer,* Dr. John W. Millick.

The Escambia County (Fla.) Medical Society, at a meeting held January 12, elected the following officers: *President,* Dr. Louis deM. Blocker; *Vice-President,* Dr. W. D. Nobles; *Secretary,* Dr. F. A. Brink; *Treasurer,* Dr. M. A. Lischkoff; *Board of Censors,* Drs. George Kilpatrick, Mallory Kennedy and J. H. Fellows.

The Dinwiddie County (Va.) Medical Society, at its regular meeting held in Petersburg on January 14, elected the following officers: *President,* Dr. E. W. Perkins, Petersburg; *Vice-President,* Dr. H. G. Leigh, Petersburg; *Secretary,* Dr. D. C. Mays, Church Road; *Treasurer,* Dr. A. F. Bagby, Petersburg; *Delegate to State Society,* Dr. J. Gordon Rennie, Petersburg; *Censors,* Drs. R. A. Martin, Petersburg, E. W. Young, McKenney, and G. S. Fultz, Butterworth.

The Thomas County (Ga.) Medical Society, at a special business meeting held in Thomasville, January 21, the following officers were elected: *President,* Dr. J. N. Isler; *Vice-President,* Dr. J. B. Palmer; *Secretary and Treasurer,* Dr. S. L. Cheshire; *Delegate to the State Convention,* Dr. A. D. Little; *Alternate,* Dr. J. N. Isler.

The Stark County (Ohio) Medical Society, at its annual meeting in Canton on January 20, elected the following officers: *President,* Dr. G. W. King, of Alliance; *Secretary and Treasurer,* Dr. L. A. Buchman, of Canton; *Corresponding Secretary,* Dr. G. C. Goudy, of Canton.

The Utah County Medical Society held its annual meeting in Provo on January 13, and elected the following officers: *President,* Dr. Frederick Dunn, Springville; *Vice-President,* Dr. H. G. Merrill, Provo; *Secretary and Treasurer,* Dr. Walter T. Hasler, Provo; *Member Committee on Membership,* Dr. O. E. Grua, Pleasant Grove; *Delegates to the State Society,* Drs. J. W. Aird and A. J. Stewart, Provo, Heber Robinson, American Fork, and J. W. Hagan, Spanish Fork.

The Fresno County (Cal.) Medical Society met on January 5 and elected the following officers: *President,* Dr. J. L. Maupin; *First Vice-President,* Dr. H. J. Craycroft; *Second Vice-President,* Dr. R. M. Jones; *Secretary,* Dr. L. R. Willson; *Assistant Secretary,* Dr. C. D. Sweet; *Delegate to State Society,* Dr. C. O. Mitchell; *Board of Governors,* Drs. G. H. Aiken, D. H. Trowbridge, W. T. Barr, J. R. Walker, and L. R. Willson.

The Venango County (Pa.) Medical Society, at a meeting held at Franklin on January 19, elected the following officers: *President,* George B. Jobson, of Franklin; *Vice-President,* Sydney A. Slater, of Grandview, Oil City; *Secretary,* J. L. Zerbe, of Franklin; *Treasurer,* John F. Davis, of Oil City; *Censor,* J. B. Siggins, of Oil City.

The Elkhorn Valley (Neb.) Medical Society, at a meeting held at Omaha on January 20 and 21, elected the following officers: *President,* Dr. R. D. Davies, Arlington; *Vice-Presidents,* Drs. H. G. Morris, Creston, and H. L. Wells, West Point; *Secretary,* Dr. A. P. Overgaard, Fremont; *Treasurer,* Dr. E. L. Brush, Norfolk. Columbus was chosen as

the place for the next meeting, to be held in midsummer.

Obituary Notes.—Dr. Dwight Reed of Honesdale, Pa., a graduate of the New York University Medical School, New York, in 1848, died at his home on February 21, aged 90 years.

Dr. Malcolm J. Farrish of Sherburn, Minn., a graduate of Trinity Medical College, Toronto, in 1891, died at his home from tuberculosis, on January 22, aged 60 years.

Dr. Francis Hustace of New York, a graduate of the College of Physicians and Surgeons, New York, in 1874, died as the result of an accident on February 17, aged 64 years.

Dr. Albert Samuel Cooke of Brooklyn, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1901, who had been serving as a volunteer physician in the military hospital at Valemevo, Servia, is reported to have died there recently. Dr. Cooke was 36 years of age.

Dr. Charles L. Powers of Coffeyville, Kan., a graduate of the Hahnemann Medical College and Hospital, Chicago, in 1878, died at his home on February 3, aged 70 years.

Dr. Dudley Sharpe Reynolds of Louisville, Ky., a graduate of the University of Louisville, Medical Department, in 1868, and a member of the American Medical Association, the Kentucky State Medical Association, the Jefferson County Medical Society, and the American Academy of Ophthalmology and Oto-laryngology, died suddenly at his home from angina pectoris, on February 4, aged 72 years.

Dr. Amos Hagar Peirce of Merrimac and West Newbury, Mass., a graduate of the Boston University School of Medicine in 1882, and a member of the American Medical Association, the Massachusetts Medical Society and the Essex District Medical Society, died at his home after a short illness on February 9, aged 56 years.

Dr. William H. Rowe of St. James, Minn., a graduate of the Rush Medical College, Chicago, in 1882, president of the St. James Hospital, a member of the American Medical Association, the Minnesota State Medical Association, and the Watonwan County Medical Society, and formerly mayor of St. James, died at the hospital on February 4, aged 56 years.

Dr. Paul Pomeroy Allen of Chambersburg, Pa., a graduate of the Medico-Chirurgical College of Philadelphia in 1909, and a member of the Medical Society of the State of Pennsylvania and the Franklin County Medical Society, died at his home from pneumonia, on February 10, aged 29 years.

Dr. Richard Flavel Woods of Philadelphia, a graduate of the Medical Department of the University of Pennsylvania, Philadelphia, in 1895, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, the Philadelphia County Medical Society, the Philadelphia Academy of Surgery, and the Obstetrical Society of Philadelphia, died on February 10, aged 42 years.

Dr. Henry Cecil Haven of Stockbridge, Mass., a graduate of the Harvard University Medical
ary 19, aged 60 years.
School, Boston, in 1879, died at his home on Febru-

Dr. James Joseph Scannell of Boston, Mass., a graduate of Tufts College Medical School, Boston, in 1905, a member of the Massachusetts Medical Society and the Suffolk District Medical Society, and director of the bacteriological laboratory of the Boston Department of Health, died at his home from pneumonia following an operation for gastric ulcer, at the Carney Hospital, Boston, on February 19, aged 39 years.

Dr. Loyal B. Griffin of Greenfield, Ind., a graduate of the Medical College of Indiana, Indianapolis, in 1890, died suddenly at his home on February 17, aged 56 years.

Dr. Omar Alpha Flint of Dracut, Mass., a graduate of the University of Vermont College of Medicine, Burlington, in 1885, a member of the Massachusetts Medical Society and the Middlesex North District Medical Society, and formerly on the staff of the State Infirmary at Tewksbury, died at his home, after a lingering illness, on February 16, aged 71 years.

Dr. Marshall Jacob Brown of Kingston, Ont., a graduate of Queen's University Medical Faculty, Kingston, in 1856, died at his home on February 14, aged 83 years.

Correspondence.

PRIORITY IN THE USE OF CITRATED BLOOD FOR INFUSION.

To the Editor of the Medical Record:

Sir:—In the article on "Transfusion of Blood by the Gravitation Method," published in No. 9 of The Medical Record, Dr. Rueck states that he infused 250 c.c. of citrated blood in May, 1914, and says: "Since Dr. Lewisohn acknowledges that he has experimented with sodium citrate solutions only for the last few months, since my experiments are of a much older date, and since I explained my method to the staff of St. Francis Hospital and several medical friends last summer I claim to be the originator of this method of blood transfusion."

As I stated in my article (Medical Record, January, 23, 1915) the priority for using citrated blood in the human blood-transfusion belongs to Hustin of Brussels, who reported his method nearly one year ago. This fact settles any discussion on priority between Dr. Rueck and myself.

Richard Lewisohn, M.D.

New York.

TROPICAL IRRITABILITY.

To the Editor of the Medical Record:

Sir:—In observing a number of symptoms which are peculiar to certain individuals living in the tropics we may be able to frame up a pathological picture that may be called "Tropical Irritability." Describing this condition we may say that we are dealing with a case of nervous hypertension. It is seen in adults, both male and female, of any race and social standing, but it is noticed especially in the lower classes.

The patient is generally pale, thin, and with a worried expression. His talking is exaggerated and accompanied by rhythmical movements of hands and eyes, placing himself in a somewhat dramatic posture. Outside of these peculiar points the patient is normal in all his functions and faculties.

Discussing the etiology of this condition we may blame many causes for it, as inheritance, hard life, climate; but I am inclined to believe that the most important factors are tobacco and coffee used in excess, as by withdrawing these two substances and giving a general tonic, the patient gets well in a short time.

A. Montalvo Guenard, M.D.

Mayaguez, P. R.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

PUERPERAL ECLAMPSIA DISCUSSION—THE WAR; SIR J. FRENCH'S DISPATCH ON TWO MONTHS' HOSTILITIES —NATIONAL SCIENCE RESEARCHES—TYPHOID AND PARATYPHOID FEVERS—INOCULATION—OBITUARY.

LONDON, Feb. 19, 1915.

THE Midland Medical Society had a special discussion at Birmingham on the 27th ult. on puerperal eclampsia. This was opened by Dr. C. E. Purslow, who is obstetric officer to the Queens Hospital, consulting surgeon to the Maternity Charity, and lecturer on midwifery and diseases of women at the University of Birmingham. For the purpose of discussion, he spoke of the subject under these three sections: 1, Prophylactic treatment; 2, treatment of the fits and of the toxemia; 3, obstetric treatment.

1. As regards the first he had no doubt that when threatened the disease may in many cases be warned off, success depending on early recognition of the symptoms of the pre-eclamptic state. These are numerous, but the most constant and important are albuminuria, persistent headache, and edema. Other symptoms may be disturbances of vision and hearing, and vomiting. Epigastric pain is not common as a prodromal symptom, but when present Dr. Purslow looked upon it as most unfavorable from the prognostic point of view. Pronounced albuminuria in the later months of pregnancy (eclampsia in the earlier period being rare) was dangerous for both mother and child. The danger is increased by its being too often unrecognized and so untreated until a convulsion suddenly occurs. He advised a rule to examine every pregnant woman at intervals, shorter as the time approaches. Such rule would diminish the death rate of eclampsia. A haze may be due to mucous discharge, so when present it should be confirmed by a catheter specimen. When albumin is present he thought microscopic examination and estimation of urea advisable. When albumin is in considerable amount the patient should at once be sent to bed on strict diet. A good plan was no solids, nothing whatever but water for the first forty-eight hours. Afterward milk, well diluted until there is distinct improvement in the function of the kidneys. Free purgation should be added, jalap or sodium sulphate every two hours until full action; then the bowel washed out with normal saline fluid. If in spite of this no improvement in the renal secretion occurs or if the prodromes of eclampsia come on, the difficult question of the induction of premature labor arises. On the whole, Dr. Purslow is not in favor of it, as he has seen very satisfactory cases of the foregoing treatment followed by spontaneous delivery without eclampsia, which had seemed on the very verge of occurrence.

2. During the fit, and the practitioner is usually sent for then, often not before, as neither the patient nor her friends have suspected anything wrong in her state. Bed at once in a darkened room, preservation from any irritation as far as possible, an efficient nurse to be instructed that if another fit occurs watch patient to see that no harm befalls her, as suffocation by bedclothes, falling out of bed, biting the tongue (a wedge). Putting one side of the bed against the wall make control easier. In the coma which follows the head should be brought to the bed's edge and turned over so as to let the saliva escape and not get access to the trachea. For the poor admission to a maternity hospital is most desirable in these cases. If the patient can swallow, water, but no food may be allowed, not even milk. A quick-acting aperient—ol. croton, ♏ ij, is one of the best, put on the tongue; a copious enema, soap and water, may be added, and when this has acted one of 2 ounce magnesia sulphide in four of water. Washing out the stomach is also good. Most writers agree in addition on the value of saline injections (subcutaneous or intravenous), and Dr. Purslow says Horrocks' small apparatus should be carried in every midwifery bag. Of other treatment Dr. Purslow spoke of (*a*) chloroform, to be used whenever any operative interference is contemplated, even so slight as puncture of the membranes, but he opposed attempting to control convulsions by its continuous administration. (*b*) Morphine—he has tried its hyperdermic use as advocated of late years but is not convinced of its advantages and says as much of venesection. Thyroid, nitroglycerin, veratrum viride were mentioned with their advocates but do not seem to have given him much satisfaction, while he pronounces pilocarpine dangerous. Oxygen inhalations seemed desirable if cyanosis were marked symptoms. Cold baths might be useful if hyperpyrexia was present. Decapsulation of kidneys and lumbar puncture have been practised to a limited extent, but without striking success.

3. Obstetrical authorities are divided into two hostile camps. The Rotunda school believes the toxin is elaborated from the mother's food by fault in her metabolism. The German school blames the fetus, the former advise little interference, the others advocate the most active measures. Dr. Purslow himself, if labor has started and can be terminated quickly, under chloroform, by forceps would not hesitate, but the difficulty is in severe cases, fit succeeding fit, with no lucid interval, and cervix closed or not taken up. He has tried both plans. Three years ago in Latham and English's system he thought results were slightly better with no interference. Now with further experience he seems to incline to the other side. But he is emphatic that if interference be decided on it should be by rapid methods under anesthesia such as dilatation by Bossi's dilator or vaginal or abdominal cæsarean section. But a good trial of milder methods, he thinks, would lead to better results than have been obtained by heroic operative procedures.

In the course of an elaborate dispatch our commander in chief, Sir John French, F. M., gives an account of the last two months' fighting at the front. In this he says that from the commencement of hostilities the work of the Royal Army Medical Corps has been carried out with untiring zeal, skill, and devotion. Whether at the front under conditions when casualties were heavy and accommodation had to be improvised, or on the line of communications, where an average of 11,000 patients have been daily under treatment, the organization of the medical service has always been equal to the demands made upon it. The careful system of sanitation introduced into the army has, with other measures, kept the troops free from any epidemic. Since the commencement of the war only some 500 cases of enteric have occurred. The organization for the first time of motor ambulance convoys is due to the initiative and organizing powers of Surgeon-General J. T. O'Donnell, D. S. O., ably assisted by Major P. Evans, R. A. M. C. Two

of these convoys, composed entirely of Red Cross Society personnel, have done excellent work under the superintendence of regular medical officers. Twelve hospital trains ply between the front and the various bases. The field marshal says he visited several of these trains when halted in stations, and found them conducted with great comfort and efficiency. During the more recent phase of the campaign the creation of Rest Depots at the front has materially reduced the waste of men on the line of communications. Since October the medical arrangements have been in the hands of Surgeon-General Sir A. T. Sloggett, C. M. G., K. H. S., under whom Surgeon-General T. P. Woodhouse and Surgeon-General T. J. O'Donnell have been responsible for the organization on the line of communications and at the front respectively.

Drs. Drezer, Walker, and Gibson, working for the National Medical Research Committee, have found it extremely important to distinguish between cases of typhoid and paratyphoid fever. If this is not done the statistics as to the protection of inoculation will become unreliable. They found no case of typhoid among the inoculated. But of six of paratyphoid three were in such subjects, so if they had been returned as "enteric" the statistics would have shown less value in the protective. So far as these cases go paratyphoid has occurred with equal frequency in inoculated or non-inoculated persons. This agrees with the findings of Kabeshima and others who found antityphoid inoculation afforded no appreciable protection against paratyphoid infection. His recent work in the Japanese navy shows the great protective value and innocuous character of paratyphoid inoculation. He used a mixed vaccine containing equal numbers of typhoid and paratyphoid (A and B) bacilli, inoculating about 12,000 men. He says when a vaccine is made thus of the three organisms in equal proportion, and given in dose equal to a dose of antityphoid alone, the effect is not significantly greater and it seems certainly better than immunizing against each organism successively. The conclusions offered by these three observers are that it is of the utmost importance that our troops be protected against paratyphoid infection as well as *B. typhosus*. This can be done by using a mixed vaccine. Men who have been inoculated against the *B. typhosus* should take the further protection against the paratyphoid infection. The epidemics of typhoid reported from time to time after inoculation are probably epidemics of paratyphoid. Unless all cases of enteric are properly differentiated into typhoid and paratyphoid the value of our statistics in the present war will be most seriously vitiated.

The War Office after consultation with the local governing board have decided that a special record shall be kept by military sanitary offices of every case of enteric fever among our soldiers. Material will thus be provided for further inquiry when multiple cases occur, will afford comparison with the experience of various military units, and enable a summary to be prepared of the experience of the army as a whole and in different parts of it. The scheme involves the co-operation of the medical officers of health in the sanitary districts where troops are stationed with the military medical officers in tracing the sources of infection and removing any conditions favoring the spread of the disease.

The Home Office has drawn the attention of local authorities to the importance of enforcing strictly the provisions of the Factory Act as to home work in connection with clothing for the army. Great care should be taken to see that the work is not done in premises where there is infectious disease. The local authorities have full powers, and the Secretary of State hopes where they have not already they will at once arrange for close and special attention being paid by their officers to premises where army clothing is made.

The medical committee of the Science Guide has passed a resolution of extreme dissatisfaction at the publication of an advertisement dissuading soldiers from inoculation against typhoid—an invaluable procedure for the preservation of the health of the troops in the field. The advertisement is injurious alike to humanity and the conduct of the war.

The usual meeting of members of the British Medical Association, which had been fixed for Cambridge, will not take place this year on account of the war. The statutory meeting and the meeting of representatives will be held as usual.

Dr. Henry Montague Duncan, probably the senior medical man in London, died on Wednesday at the age of 92. He was a University College student, in general practice in Buckingham Palace Road from 1850 to 1880. He retired in 1900.

Progress of Medical Science.

Boston Medical and Surgical Journal.

February 25, 1915.

1. Experimental Use of Magnetism for Locating Needles in the Tissues. A Preliminary Report. G. H. Monks.
2. A Study of Disturbances of the Stomach. H. F. Hewes.
3. Plastic Surgery in Procidentia with Report of Twenty-Five Case. F. W. Duckering.
4. Some Observations Upon Diverticulum of the Bladder. H. Cabot.
5. Thackeray's Physicians. W. P. Coues.
6. A Water-Tight Ureteral Catheter Tip. F. H. Lahey.

1. Locating Needles in Tissues.—G. H. Monks has demonstrated the feasibility of locating needles in tissues with the aid of magnetism. The procedure is as follows:—(1) The buried needle is magnetized by passing a magnet over the locality where this needle is supposed to be. The best results are obtained when the long axis of the magnet is in the same line as the axis of the needle. (2) The examining needle (suspended in the middle from a fine silk thread) is then slowly passed over the same locality. In the event that it passes over the buried needle,—provided that needle is not too far away from the surface—one end or the other of the examining needle will be attracted and will dip in the direction of the buried needle somewhat in the same manner as the "divining rod" is said to do, when that rod is brought to a place on the ground under which water can be found. As the buried needle, after it has been magnetized, has two poles (N and S), and as the examining needle has also two poles (N and S), it follows that (according to the physical law, that "like magnetic poles repel one another, unlike poles attract one another") the N pole of the examining needle is attracted to the S pole of the buried needle, and the S pole of the examining needle is attracted to the N pole of the buried one.

4. Diverticulum of the Bladder.—H. Cabot notes that some confusion has arisen through failure to separate the different types of pouches or diverticula which are found in the urinary bladder. Thus the small hernial protrusions between the muscular fibres which occur in the subjects of chronic urethral obstruction bear no relation to true diverticula. They are simply the result of weakness of the bladder wall when put under strain; are directly due to the obstruction and lose

their importance when that obstruction is removed. The pouch connecting with the vertex of the bladder, due to failure of closure of the urachus, should also be distinguished from the genuine type of diverticula since it is in and of itself a perfectly definite failure of development, occupies a constant position and is comparatively unimportant in the surgery of the bladder. The word "diverticulum" should be confined to those cases of pouches, always of congenital origin, occurring most frequently in certain positions, but occasionally seen in almost any portion of the bladder and not due to defective development or lack of closure of any recognized structure. The author does not agree with the view expressed by Chute in a recent paper, that they originate in the little pouches normally seen just above the ureteric orifice, and that they become important only when this pouch is exaggerated as the result of obstructive pressure. Diverticula are frequently found in individuals in whom obstruction is totally absent, in whom in fact the symptoms of obstruction are due, not to any obstruction, but to the diverticulum. When found in individuals with urinary obstruction, they are an accidental finding and of no etiological significance. That they are due to some embryonic defect is clear, but there is no adequate explanation of their formation beyond the fact that they are associated with peculiarities of the closure of the cloaca, perhaps with a tendency to budding from this structure.

New York Medical Journal.

February 27, 1915.

1. The Nature and Pathogenesis of Epilepsy. L. Pierce Clark.
2. The Medical Treatment of Pituitary Disease. W. Reber.
3. Chronic Interstitial Nephritis. W. H. Good.
4. The Treatment of Chronic Nephritis. F. J. Dever.
5. The Relationship and Value of the Systolic, Diastolic, and Pulse Pressures. F. A. Faught.
6. An Analysis of Narcotic Drug Addiction. E. S. Bishop.
7. Narcotic Drug Addiction. G. E. Pettey.
8. Drug Habitues. S. Block.
9. Double Mastoiditis with Septic Sinus Thrombosis. C. H. Smith.
10. Catharsis After Operation for Appendicitis. L. B. Meyer.

1. Epilepsy.—L. Pierce Clark contends that neither the present accepted pathological anatomy of marginocortical gliosis nor its postulated pathogenesis, a still earlier chemicotoxic state, is really sufficiently constant in variation and extent to account for essential epilepsy; that one must seek for an alteration in some more fundamental process of life, absence of which shall be sufficiently dynamic to cause the mechanism of the epileptic fit in all cases of the genuine disease; that a definite defect in the emotional or affective side of the mind in epileptics is constant though variable; that the fit is a striving for expression of the libidinous energies in the unconscious; that the fit is therefore a libidinous outlet of the primal sexual energies and should be considered as essentially a pathological functioning of the unconscious; that this state is due to a condition of mental infantilism caused by or coincident with a libidinous fixation in the earlier stages of psychosexual development of the epileptic; that the most constant fixation defect is one of more or less rigid attachment to the parent of the same sex as the epileptic himself; that other libidinous objects of attachment or fixation may be shown at the same time to be narcissistic and homosexual; and that the prognosis and treatment of the malady should be based upon the strength of the primary, secondary, and tertiary libidinous energies, and upon how far they may be made to assume a proper normal direction of development in subrimation.

10. Catharsis after Appendicitis Operation.—L. B. Meyer describes his routine management of the bowels after laparotomy for peritonitis or for uncomplicated appendicitis as follows: (1) Not to bother the patient for forty-eight hours unless he is uncomfortable or there are evidences of progressing distention. (2) At the end of forty-eight hours, or before if necessary, a low soapsuds enema is given. If effectual, a similar enema is given once in twenty-four or forty-eight hours, according to necessity. If ineffectual, a high oxgall enema is given, to be followed every three or four hours by high enemas containing various medicaments, supposedly helpful in such cases, as peppermint, turpentine, asafetida, milk and molasses, etc. The application of hot turpentine stupes during this time is very helpful. If these means prove ineffectual (and this happens very rarely), the question of secondary operation with possibly enterostomy comes up. The author has used atropine and eserine with only indifferent success.

Journal of the American Medical Association.

February 27, 1915.

1. Cancer of the Breast. W. L. Rodman.
2. Buyo Cheek Cancer, with Special Reference to Etiology. G. G. Davis.
3. Cavernous and Cystic Lymphangioma of the Cecum, with Report of a Case. E. A. Babler.
4. The Intravenous Use of Colloidal (Gelatin) Solutions in Shock. J. J. Hogan.
5. The Influence of Changes in the Chemical Environment on the Life and Growth of Tissues. L. Loeb.
6. Report of Typhoid Epidemic Occurring Three Months After the Use of Prophylactic Vaccine. E. H. Trowbridge, B. F. Finkle, and E. M. Barnard.
7. Medical Inspection of Open Air Schools. J. Aikman.
8. The Use of Citric Salts in Congestive Dysmenorrhea, and the Relation of the Latter to the Vagotonic State. B. L. Spitzig.
9. The Abderhalden Reaction. A. A. Eggstein.
10. Mercuric Chlorid Poisoning in Animals Treated Unsuccessfully by Parenteral Administration of Hall's New Antidote. H. G. Barbour.
11. Human Serum in Urticaria. A. W. Swann.
12. Pulsus Alternans Detected by the Sphygmomanometer. J. B. Herrick.
13. Ruptured Appendix at Full Term Pregnancy. C. J. Wallace.

6. Typhoid Prophylaxis.—E. H. Trowbridge, B. A. Finkle, and E. M. Barnard state that typhoid fever may be contracted by individuals who have received the prophylactic and who subsequently show a positive Widal. The course of the disease is not appreciably shortened in vaccinated individuals. The mortality is markedly reduced among protected persons. Protected persons having typhoid fever fail to give many of the classical symptoms of the disease. The development of paratyphoid is not prevented by the use of the typhoid prophylactic. The degree of immunity conferred by the prophylactic in some cases fails to prevent the development of typhoid when the individual has been subject to repeated exposure. The Widal reaction as a criterion of the presence of immunity is of uncertain value. Typhoid vaccination applied as a routine measure in all of hospitals and institutions is the only method by which to eradicate this ever present, serious, and often fatal disease.

8. Critic Salts in Congestive Dysmenorrhea.—B. L. Spitzig has suggested that increased viscosity of the blood takes part in the production of dysmenorrhea. The causative factor is faulty hygiene, defective elimination, nitrogenous overindulgence, sedentary occupation, and tight lacing. At the time of uterine congestion, the blood in this organ is more viscid, and with the accompanying stasis there is greater infiltration of serum into the neighboring tissues. This induces a change in the chemical equilibrium of the endometrial cells by causing the cellular colloids to absorb more serum and transforming this gelatinous material into a viscid mass. The effects are greater distention of the spongy layer and increased vascular stasis and mucus production, with the consequent shedding of fibrinous and thrombotic membranes. With this morbid state the ovum cannot readily engraft itself, and sterility is a frequent sequel. Reducing the viscid blood inhibits the formation of clots and membranes; stasis is diminished

and excessive edema of the endometrium retarded. Bleeding through the glands is increased, and diapedesis through stroma and epithelium lessened. In regard to treatment, nitrogenous food raises the viscosity of the blood, and accordingly is restricted before the menses. Catharsis depletes the portal circulation, and at times a hot compress is applied for the purpose of relaxation. The important procedure is the reduction of viscosity through the use of sodium citrate, 20 grains three times daily, during the week or two preceding the expected period. The mode of action is peculiar to the citrates. Diuresis does not explain the results. It seems probable that the alkaline citrate neutralizes carbonic acid and other waste products and increases oxidation, thus proving to be the most efficient method for preventing cellular edema and diminishing viscosity.

The Lancet.

February 20, 1915.

1. Gunshot Wounds of the Head. Sir Victor Horsley.
2. The Pernasal Operation for Frontal Sinus Suppuration by the Anterior Route. P. Watson-Williams.
3. Lipemia Retinalis. R. F. Moore.
4. The Operative Treatment of Bullet Wounds Involving the Vertebral Canal and Associated with Complete Paralysis. L. J. J. Muskens.
5. A Case of Acute Tetanus with Recovery. A. G. Whitehorne-Cole and W. M. S. Robinson.

1. Gunshot Wounds of the Head.—Sir Victor Horsley refers to the results of experiments made by him twenty years ago in which it was shown that the so-called explosive effect of high-velocity bullets is directly proportional to the sectional area of the bullet, to its velocity, and to the amount of water present in the substance through which the bullet passes. The most practically important points with reference to gunshot wounds of the head are: where in the course of the bullet is most mischief done and by what force is this damage effected. The maximal disturbance is produced as soon as the bullet at its highest velocity is surrounded by the largest mass of wet tissue. The forces producing the injury relate to the two movements of the bullet—its progression forward and its spin around a central axis given to it by the rifling. The disruption of the tissues must be attributed in the main to the rotating forces of a bullet, deep penetration of the brain by a fragment of bone is in the first place the simple consequence of the high velocity of the bullet being communicated to such bodies much lighter than itself, and therefore capable of proceeding as far as and even farther than the shot. In view of the fact that any such fragment may be infected, it follows that at the first operation every reasonable search must be made for fragments as they certainly may later cause the death of the patient. Fatal concussion may occur without penetration of the skull. The most paralyzing effect on the centers of organic life are produced most easily by force applied in the frontobulbar axis and the effect of shock applied to the frontal region is transmitted largely by the cerebrospinal fluid to the interior of the ventricles and even to the fourth ventricle. Sepsis in the vast majority of cases is due to the incomplete disinfection of the original wound and to the expectant treatment of head cases. As regards functional disturbance of the brain there is no evidence of compensation by education or substitution of function in other parts of the brain for function lost by reason of permanent destruction of given areas.

3. Lipemia Retinalis.—R. F. Moore states that lipemia retinalis occurs in young diabetics who are usually bordering on coma, and it consequently implies an immediately grave prognosis, but recovery from the condition may occur. It implies a high degree of lipemia, and probably in no condition other than diabetes does lipemia attain a sufficiently high degree to give rise to the appearances of lipemia retinalis. Vision may remain unaffected in spite of a very high degree of lipemia retinalis. The conspicuous changes in color and appearance of the retinal vessels are probably entirely dependent upon the opacity of the plasma, and do not indicate a change in the hemoglobin. Lipemia retinalis supplies so striking and characteristic an ophthalmoscopic picture that it cannot be overlooked or mistaken for any other condition.

British Medical Journal.

February 20, 1915.

1. Gunshot Wounds of the Head. Sir Victor Horsley.
2. The Wassermann Reaction in Ophthalmic Practice. W. H. Manson, T. J. Mackie, and H. E. Smith.
3. Dupuytren's Contraction. Kenneth Black.
4. Popliteal Aneurysm in a Girl, Matas's Restorative Operation. J. Leeper Dunlop.
5. "Hernie par Glissement." H. R. Unwin.
6. Insects and War; The Mosquito. A. E. Shipley.
7. The Value of Salicylic Acid in the Treatment of Wounds and Typhoid Fever. Albert Wilson.
8. The Treatment of Trichiasis by Means of the *X*-Rays. Christopher Kempster.

2. The Wassermann Reaction in Ophthalmic Practice.—W. H. Manson, T. J. Mackie, and H. E. Smith conclude from their investigations that excluding such conditions as ocular injuries, conjunctivitis, cataract, and the ordinary errors of refraction, if all other ocular affections without selection are analysed on the basis of the Wassermann test, practically 50 per cent. of these collectively are associated with a positive reaction. Since many of such lesions occur in the tertiary and latent stages of syphilis in which only a certain proportion yield a positive result, it is a justifiable presumption that this is probably an under-estimate, and that syphilis plays an even more prominent part in the production of ocular disease than our figures show.

3. Dupuytren's Contraction.—K. Black describes the treatment of this condition as follows: In the earlier stages of the disease, when there is the slightest tendency to contraction, the patient should wear, at night only, a well-padded splint on the affected finger, for the purpose of hyper-extending it. Care must be taken to avoid giving pain, for pain would indicate that the extension was excessive, and more harm than good would be done. In combination with "extension," manipulations, massage, hot water, and Bier's treatment are useful. Fibrolysin injections have been tried, but the results cannot, on the whole, be regarded as encouraging. Ionic medication has also been tried. Leopold-Levi, who believes that Dupuytren's contraction is a symptom of thyroid deficiency, tried internal treatment with thyroid extract in 7 cases, with favorable results in 5. The daily dose consisted of 10 centigrams of thyroid powder, and in one case as many as 163 doses were given. When non-operative treatment fails, and in advanced cases of the disease, an operation is necessary. Apart from amputation (which, of course, must be reserved for exceptional cases of a very troublesome kind) there are two operations, known as the open and the subcutaneous respectively. In the open operation skin flaps are dissected from the palmar fascia; the palmar fascia is then excised and the wound is closed. The greatest care must be taken to keep the parts asceptic, for if the wound suppurates the operation will fail and the contraction will become excessive. The operation requires much patience; the dissecting back of the skin flaps from the adherent palmar fascia is troublesome, and the excision of the fascia from the sheaths of the flexor tendons must be done bit by bit. When this excision has been completed the digits, in favorable cases, will be found to be free and capable of being almost completely straightened. At this stage same surgeons rub fibrolysin into the open wound. The skin is then closed, and a well-padded splint is attached to keep the

digits as straight as possible. The splint must be worn for some weeks uninterruptedly and afterwards at night only, until the digits are straight and all tendency to contraction has been overcome. The subcutaneous operation gives excellent results if carefully carried out after the manner described by Adams. A very fine tenotomy knife is inserted between the skin and the tense bands of the palmar fascia, all of which, through as many punctures as may be necessary, are carefully divided. Generally, from six to ten punctures suffice, but in extensive cases as many as twenty punctures may have to be made. A properly devised finger splint is then applied and worn continuously until the digits are straight; afterwards the splint is worn at night only for several months. In the event of a relapse, which is uncommon, the operation can be repeated.

Berliner klinische Wochenschrift.

January 25, 1915.

Vita Sexualis and Warfare.—Touton concludes his long serial article on this subject. He enumerates the provisions of the ordinance of 1907, which is intended for the welfare of the troops in both peace and war, and also mentions the efforts of private societies in this direction. It is anticipated that in time of war, while troops at the front are protected from an invasion of prostitutes, all others not engaged in actual fighting will be exposed to this danger. The women must therefore be intercepted and segregated or rendered harmless before disease can be spread. If when a command reaches a city or town the troops begin to show infection in considerable numbers it will be evident that a number of diseased girls are plying their calling. The military man in charge of the command now places further responsibility on the local civil authority as far as it has to do with the prostitutes. The latter are examined, sequestrated, and treated. In the general round up and policing the troops may assist. Prostitutes who have no disease must have the signature of the troop commander on their cards. Without such a card none can deal with a soldier. Upon the same document the days for examination are specified. Any prostitute irrespective of her physical condition, who is found among a bivouac of soldiers is punished as a criminal, as is also one who knowing herself to be infected, has relations with a soldier. Brothels existing in any town where troops sojourn receive added supervision at the hands of the army authorities. In case of marked cumulation of infection more drastic measures are required for both the women and the soldiers. The foregoing measures are apparently not official but represent the advice of experts. To what extent they are actually carried out is doubtless not yet known. They have aroused some opposition, because they place no responsibility on the soldier. Upon high patriotic grounds the soldier is adjured by Blashko to practise a relative continence, and in the same spirit to refuse to conceal infection. In other words he should be warned of the great risk of infection to himself and others. The same author mentions the fact that the prostitute cannot exist without the exercise of her calling, and that she could be helped by the State; also that no measures should be pressed which tend to drive loose girls who work as servants into open prostitution. It is claimed by some that new syphilis in troops can be treated during a campaign by intensive methods (injections of mercury and salvarsan). Ulcus molle may or may not cripple a soldier for the time being. Acute gonorrhea is the worst of all three diseases in marching troops, owing to the great risk of severe local and general metastases. These cases may be interned briefly for an abortive cure of an intensive character. These compromise views are propagated by Neisser, who is termed by Touton an extreme optimist. He, himself would not think of allowing any soldier recently infected with any one of the venereal diseases to march. The danger of transmitting syphilis by means of drinking cups, etc., would be great. He would fight disease through special field and reserve hospitals, like any other contagious or infectious malady. Intensive and abortive measures he sanctions. These institutions could also be utilized for prisoners or others who are found to suffer from leprosy, frambesia, glanders, and even favus and severest ordinary dermatosis. Universal disinfection, sequestration, etc., would naturally prevail in all such conditions.

Münchener medizinische Wochenschrift.

January 26, 1915.

Rumination as a Result of Accident. — Wollenburg concludes a long serial article on this subject as follows: The history is that of a man apparently healthy who had experienced nausea from the accidental drinking of certain nonpotable water. He suffered much from rumination for the next two years or so, but sought no medical aid. During this period he followed his calling and did important work. He did not deny himself his alcohol indulgence. Three years after the accident he sought medical advice because of failing capacity for work. At the examination diminished vision and arteriosclerosis were found, while chronic indulgence in alcohol had produced a chronic gastritis. It was therefore no easy matter to connect his general condition with the rumination. The latter was thought to be of the false variety, *i.e.* voluntary regurgitation. Observation had shown that patient appeared to nurse his malady rather than to fight it. Again in true rumination the victims do not complain, nor look on themselves as invalids. It further appeared that the patient was well nourished, and neurasthenia and hysteria could be excluded. The medical opinion, while not attacking the good faith of the man, ascribed his falling off in efficiency to causes other than rumination.

Warfare against Sexual Disease in the Field.—Bruck has been stationed for several months at a captured French city of 80,000 inhabitants, in charge of the venereal section of the German military hospital at that point. The German troops quartered here showed numerous cases of venereal infection. There were no brothels, the diseases being transmitted by free prostitutes who were to be found in the saloons and other like resorts. The soldiers naturally had no means of identification of the unregistered women. A German officer was detailed to prevent these infections, and worked in concert with a French policeman, under the direction of a staff physician. The infected men were led to point out certain diseased women who were detained and interned for treatment. This step had a terrorizing effect on the prostitutes as a class; and the number of infections became reduced to the so-called normal figure. This was, of course, purely a war measure which is not resorted to in times of peace. Of numerous women examined, only a portion had clinical gonorrhea as shown by reddened meatus and os, with discharge. But in all others the microscope showed that while the urethral secretion was relatively sterile, that from the cervix contained gonococci in every case. Two soldiers had chancroids, but the two women examined proved to be free from these lesions. However, in both cases Ducrey's bacillus was found in smears from the urethra and vulva, while the secretions of vagina and uterus were free from it. These finds go to show that this organism may exist as a saprophyte in the external female genitals.

Pneumococcic Peritonitis of Extragenital Origin in a Puerpera.—Wetzel reports a case of this very rare association. In a few cases found in literature the infection seems to have been genital. or doubtful. To fulfill the conditions of the author's case a puerperal local infection should be excluded; a primary pneumonia or pneumococcus sepsis should attack the uterus by metastasis or as a direct extension of a peritonitis into the adnexa. The author's patient had double pneumonia, double pleurisy—both primary—and secondary peritonitis due perhaps to migration of the pneumococcus through the lymph spaces of the diaphragm. To explain the endometritis a blood infection was invoked. The infant died of pneumococcus sepsis contracted from this endometritis. The author excludes all possibility of a migration of germs from the peritoneal cavity to the uterus, either through the walls of the latter or by way of the tubes.

Results of Radium Treatment of Cancer.—v. Eiselsberg, reporting on the use of radiotherapy in his clinic, states that while the effect of radium and the *x*-ray upon superficial carcinomas has long been proven, their efficacy in deep-seated tumors still remains a much mooted question, and whoever has had any experience that might help to clear up the situation, should certainly publish it for the benefit of others. He mentions Funke's case of carcinoma of the gingiva reported before the German Congress of Surgeons in 1908, in which the radium rays so influenced the always recurring tumor that for years local operations could be successfully performed. He reports a series of personal cases in which radium was used as a curative agent as well as for prophylactic purposes, although as to the latter, he believes it will always be difficult to form a correct estimate, particularly as they always aimed to do as radical an operation as possible. The amount of radium at their disposal was 225 mg. He reports four cases of carcinoma of the tongue in which he believes prophylactic radium treatment did more harm than good.

Of the cases in which radium was used as a curative agent, 11 were benefited. They are very briefly as follows:

1. Basal-celled carcinoma of nose, tumor disappeared; patient well 5 months.
2. Frontal epithelioma (basal-celled carcinoma) entire disappearance. (Period of observation not stated.)
3. Epithelioma of face, recurrent (basal-celled carcinoma) disappearance; (duration not stated).
4. Basal-celled carcinoma of skin of face (nostril) and tumor of superior maxilla; radium used on the former; disappearance; tumor of the maxilla became disintegrated and sloughed away spontaneously without direct treatment; patient free from recurrence 9 months.
5. Epithelioma of nose (basal-celled carcinoma) disappeared; time not stated.
6. Rapidly growing epithelioma of face (basal-celled) very much benefited; ulcer is rapidly healing.
7. Frontal epithelioma of 3 years' duration; well and free from recurrence 2½ months.
8. Epithelioma of dorsal surface of hand; good local result, 2/3 of area healed; poor general condition, arteriosclerosis; death 2 months after last treatment.
9. Inoperable carcinoma of tongue involving submaxillary glands; complete disappearance of tumor of tongue; an immovable gland became movable and could be extirpated. Histological examination showed it to be carcinomatous. Later history not known.
10. Large round-celled sarcoma of axilla; incomplete operation; disappearance of the glands that could not be removed; well 9 months. (Prior to complete disappearance of tumor, patient had erysipelas due to a burn).
11. Inoperable carcinoma of an aberrant thyroid gland; pronounced dyspnea; disappearance of latter; obstinate ulcer resulting from a burn was later excised and a plastic operation done; greatly improved when seen nearly 2 years later. (Clinical diagnosis only.)

v. Eiselsberg then gives a list of 16 cases of carcinoma treated by radium with temporary improvement. In 7 cases the curative application of radium was unsuccessful; in 5 cases the treatment was injurious, causing sanious discharge and disintegration. In 6 cases cachexia was hastened by the treatment.

In 5 cases the radium treatment caused hemorrhage. In one case, a sarcoma of the forearm in which radium was used as a prophylactic after operation, a local recurrence took place which promptly disappeared under radium; further recurrences in the neighboring tissues again disappeared under radium; local and metastatic recurrence (head); excision and prophylactic radium treatment. Patient in exceptionally good condition 2 months later. Subsequently treated with nostrum; reported in good condition a year later. Inasmuch as in the majority of these cases radium at first caused a decrease in the size of the tumor, v. Eiselsberg believes that possibly with greater knowledge as to proper dosage, better permanent results will be obtained. Nevertheless, he states, it is a noteworthy fact that in all cases in which the tumor disappeared under radium, autopsy revealed metastases in internal organs, showing that radium is a local remedy only. v. Eiselsberg states that basal-celled carcinomas of the skin are greatly benefited by radium. In 7 of 8 cases the result was good; in the eighth case the patient died of old age before the tumor had completely disappeared. He found the action of radium extremely intensive, but not elective upon the carcinoma. The carcinomatous tissue was destroyed in nearly all cases, but also other tissues, such as vessels. If radium, when slowly destroying a vessel, causes erosion, the hemorrhage may kill the patient before help can be obtained. Radium destroys brain substance and produces meningitis.

In order to remain absolutely objective when judging a successful case, it is necessary to bear in mind that there are cases which, in spite of incomplete operation or no interference at all, remain well for a long time, others that remain free from recurrence for a long time, despite microscopical findings pointing to extreme malignancy. These cases are rare, but must be considered when testing a method as to its value. But despite all these limitations, v. Eiselsberg believes that radium therapy should be adhered to in the treatment of inoperable tumors. It should be the aim of the profession to improve the technique and to learn how burns and subsequent necrosis may be avoided.

With regard to the Roentgen ray in the treatment of inoperable malignant tumors v. Eiselsberg believes on the basis of the cases reported (10 of his own and 6 by other men frequently examined by him), that while none of the cases has been observed sufficiently long to merit being classed as a permanent cure, the results are nevertheless encouraging. He believes in strong dosage, as introduced by the Freiburg school; too small doses he considers not only inefficient, but injurious. He states that inasmuch as the Roentgen rays make it possible to cover evenly a larger area than can be done with radium, the former would seem more suitable for prophylactic purposes. Radium often gives rise to irritation, thus favoring a recurrence; certainly, the treatment of the more deeply-seated tumors should be reserved for the *x*-rays.

v. Eiselsberg's conclusions are: (1) That the treatment with radium or the *x*-ray, but especially the former, is purely local, being confined to the area rayed; contrary to the Roentgen rays, radium is not to be used in deep-seated tumors. At times it may be advisable, after removing as much as possible of the tumor by operation, to give combined *x*-ray and radium treatment. (2) Much remains to be learned yet as to the proper application of these remedies, especially radium. (3) In view of the success so far obtained with the *x*-ray and radium treatment, operation still remains the procedure of choice in all operable carcinomas. It is wrong to have the patient choose between operation and either Roentgen or radium rays. (4) The results obtained with radium and the Roentgen rays are as yet of too short duration to justify their classification as permanent cures. On the other hand, the results following Roentgen treatment have been sufficiently striking to offer hope for the future.—*Archiv für klinische Chirurgie*, Bd. 106, H. 1, 1914.

Daily Fluctuations in Body Length.—Takenami and Iwasaki found an average daily variation of 1.68 centimeters in the Japanese. A decrease in body length occurs after exercise such as marching and boxing and after a hot bath. Iwasaki found that the diminution occurs chiefly in the trunk, and is to be attributed to a change in the curvature of the spine, and to a diminution in the amount of water in the intervertebral cartilages.—*Sei-i Kwai Medical Journal.*

Insurance Medicine.

Examination of the Urine in Life Insurance Work.—Because of the variety of tests employed by medical examiners of life insurance companies for the detection of albumin and sugar in urine, Dr. Whitfield Harrall considers it of the greatest importance to discuss the best tests and the ones recommended by experience and practical examiners.

Chronic nephritis and diabetes are among the most common causes of declination in individuals who apply for insurance. The applicant, not infrequently, is first advised of his condition by the examiner, as these diseases produce no symptoms in their incipiency. Careful and accurate examination of the urine is one of the most important duties of the examiner. Because of the numerous tests suggested, the Association of Life Insurance Medical Directors recommended the following four tests as being the simplest and giving the best results.

Clean test tubes and fresh reagents are absolutely essential. Fehling's solution should be prepared by a reliable druggist, should be kept in separate glass-stoppered bottles, and should be renewed every three months. A separate pipette should be kept for each solution. Haine's solution is supposed to keep fresh indefinitely, but it should be freshly prepared at least once a month. Concentrated nitric acid must not be used after it has become discolored. Tests for albumin should not be made or read by artificial light. Tests for sugar, if made by artificial light, should not be read until natural light is available.

Detection of Albumin.—If urine is cloudy filter through filter paper before making any tests for albumin. Never filter through French chalk, Fuller's earth, bismuth subnitrate, magnesium carbonate, or charcoal.

Allow urine to cool before testing for albumin. Do not use albumoscope or horismascope. Apply both heat and nitric acid test to every sample—one checks the other.

Never use that portion of the urine to which the heat test has been applied for the nitric acid contact test.

Heat Test.—If urine is acid, take one-half test tube of the filtered urine, add one-sixth of its volume of saturated salt solution (five ounces to the pint), hold tube by lower portion and boil upper one-third. If a cloud forms it consists of either albumin or earthy phosphates. Add two or three drops of 10 per cent. nitric acid, boil again and add three drops more of the acid; if cloud remains, albumin is present; if the cloud entirely disappears, phosphates are present and no albumin.

If the urine is alkaline or neutral, take one-half test tube of the filtered urine, add one-sixth of its volume of saturated salt solution, then a sufficient number of drops of 10 per cent. nitric acid or 33 per cent. acetic acid, to render faintly acid. This must be done in all cases where the urine is alkaline or neutral, for albumin will not be precipitated from such urine by heat. When this has been done, apply heat as above.

Nitric Acid Contact Test (Heller's Test).—Take a perfectly clean and dry test tube having a caliber of about one inch (conical wine-glass is preferable) and pour into it about one inch of urine; allow concentrated nitric acid to flow slowly from a pipette down the side of the inclined test tube under the urine. Or, place in a test tube of large diameter about one inch, of concentrated nitric acid, then incline the tube and from a pipette allow an equal volume of urine to flow slowly down the side of the tube, carefully overlaying the acid. If albumin is present, by the use of a dark background a zone will be seen just above the point of contact of the urine and the acid, its intensity depending on the amount of alumin present. If no cloud is seen, the test tube should be set aside and re-examined in one-half hour, because the reaction for albumin is sometimes slow.

Detection of Sugar.—One test for sugar is sufficient, except in doubtful cases. It is not necessary to filter the urine. If urine contains more than a slight trace of albumin, remove it by boiling and filtration before testing for sugar. Always test for sugar no matter what the specific gravity.

Fehling's Test.—Take equal parts of the copper and alkaline tartrate solutions in a test tube and add a quantity of water equal to the combined volume of the two reagents used; the total quantity for a test need not exceed 5 c.c. (about 1¼ fluid dr.). Boil the mixture, and if it remains clear it shows that the Fehling's solution is in good condition; then add a few drops of the urine. Warm the mixture but do not boil it, then add a few more drops of the urine; warm again, and continue so until the amount of urine added equals one-half the volume of test solution used. If the specific gravity of the urine to be tested is below 1.020, the urine may be added in equal volume to the test solution. If sugar is present, a yellow or red precipitate of suboxide of copper appears. This occurs quickly if much sugar is present. If the amount of sugar is less than 1 per cent, the reduction will not appear until after several minutes—five to thirty. If a reduction does not appear in thirty minutes, sugar is absent; if the result of the test is still doubtful, the test tube should be set aside from twelve to eighteen hours, and then the sediment examined for any deposit of the suboxide of copper.

Haine's Test.—Take about 4 c.c. (1 dr.) of the solution in a test tube and gently boil; add eight to ten drops of the suspected urine and again gently boil. If sugar is present a copious yellow or yellowish red precipitate of copper suboxide separates; if the amount of sugar present is small the reduction may take from five to thirty minutes. If any doubt exists the test tube should be set aside for from twelve to eighteen hours. A grayish or greenish precipitate of phosphates, which is nearly always thrown by the alkali in Haine's or Fehling's solution, should not be mistaken for a deposit of suboxide of copper, which is always yellow or red. Simple decolorization of either solution by the urine should not be considered a positive reaction, for sometimes a concentrated and strongly acid urine, which is sugar-free, will decolorize the copper; but, a decolorization may mean a beginning reduction of the copper. It is always advisable to let the test stand for twelve to eighteen hours before arriving at a definite conclusion.—*Texas State Journal of Medicine*, November, 1914.

Opinion Is Evidence.—In an action on an accident policy, a question to the insured person's physician whether the insured was incapacitated from attending to his business during certain months by injury was held not erroneous as calling for the conclusion of the witness where the physician had knowledge of the facts.—Hummer v. Midland Casualty Co., Michigan Supreme Court, 148 N. W., 413.

Book Reviews.

A Manual of Dental Anatomy, Human and Comparative. By Charles S. Tomes, LL.D., F.R.S., F.R.C.S. Seventh edition. Edited by H. W. Marett Tims, M.A. (Cantab.), M.D., M.Ch. (Edin.), F.L.S., F.Z.S., University Reader in Zöology, Bedford College, University of London, and Professor of Biology, Royal Veterinary College, London; A. Hopewell-Smith, L.R.C.P., M.R.C.S., L.D.S. (Eng.), Professor of Dental Histology and Comparative Odontology, University of Pennsylvania, U.S.A.; and John Tomes Briseman, of the Royal College of Surgeons of England; formerly surgeon and lecturer on Dental Anatomy and Physiology at the Royal Dental Hospital, London. With 300 illustrations; price, $4.50 net. Philadelphia: P. Blakiston's Son & Co., 1914.

For the first time in the continuation of this work Mr. Tomes' name is not appended to the preface, which is signed jointly by the editors. The subject matter has been so changed about that it is now comprised in two sections. The first may be termed the practical portion, as it is devoted wholly to human dental anatomy as a foundation for the study of dentistry. This section is the joint work of the editors. The second section is simply a treatise on comparative dental anatomy, and is wholly from the pen of Dr. Tims. It is therefore quite proper to speak of the volume as made up of two separate treatises, to each of which is awarded about the same space, so that one is in no sense a mere pendant to the other. Every dentist should acquire the information contained in the first section, while for reference purposes the work may be highly recommended to the general anatomist, histologist, embryologist, stomatologist, surgeon, comparative anatomist, zöologist, etc., as well as to the dentist.

A Text-Book for Midwives. By John S. Fairbairn, M.A., B.M., B.Ch. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.). Obstetric Physician, With Charge of Out-Patients and in Charge of Maternity Ward, St. Thomas' Hospital; Lecturer on Midwifery, St. Thomas' Hospital Medical School; Physician and Lecturer to Midwives, General Lying-in Hospital, York Road, S.E.; Examiner to the Central Midwives Board, etc.; Formerly Lecturer to Pupil Midwives, Midwives' Institute. With 3 plates and 104 illustrations; 5 in color; price, $3.75 net. London: Henry Frowde, Hodder & Stoughton; New York: The Oxford Press, 1914.

This is the most advanced book on obstetrics for midwives which has come to our notice. In the preface the author claims that his lengthy experience with this class (in England) justifies the standard exhibited in this volume; and while we are not prepared to contradict him, we do know that the same high standard does not obtain here. Most midwives will find that the instruction contained in this erudite volume is more than they need. The ordinary midwife knows nothing of cocci, staphylococci, streptococci, tetrads, sarcinæ, spirochetes, spirilla, streptothrices, leptothrices, and thiothrices; and is unversed in microscopy, antibodies, and vaccines. The index contains no reference to Walcher's position or to pituitrin.

Pathogenic Microorganisms. A Practical Manual for Students, Physicians, and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, and Director of the Bureau of Laboratories of the Department of Health, New York City; and Anna W. Williams, M.D., Assistant Director of the Bureau of Laboratories; Consulting Pathologist to the New York Infirmary for Women and Children. Fifth edition. Enlarged and thoroughly revised. With 210 engravings and 9 full-page plates. New York and Philadelphia: Lea & Febiger, 1914.

The special feature of this edition, besides the new and revised material, is the rearrangement of the topics. Part I deals with the general characteristics and methods of study of all the microorganisms considered. Part II deals with the pathogenic microorganisms, and their near relatives. Part III presents the subject of applied microbiology. A separate chapter is devoted to complement fixation and its various applications. There is a new chapter on filtrable viruses. In the revised chapter on media the recent methods for the use of aniline dyes have been incorporated. Extensive changes are noted in the chapters on the streptococcus, pneumococcus, diphtheria bacillus, tetanus bacillus, hemoglobinophilic bacilli, bacillus of pertussis, moulds, and amebæ, and in the chapter on rabies. The illustrations are numerous and the nine new colored plates are particularly fine. It can with truth be said of this work that it is strictly up to date, and available both as a textbook and as a work of reference.

Taschenbuch der Therapie. Mit besonderer Berücksichtigung der Therapie an den Berliner, Wiener, u. a. deutschen Kliniken. Herausgegeben von M. T. Schnirer, Redakteur der *Klinisch-therapeutischen Wochenschrift*. Elfte Ausgabe. Price, 2.50 marks. Würzburg: Curt Kabitzsch, 1915.

A new edition of this book appears every year with revisions and additions that keep it in close touch with therapeutic progress. Among the newer features of the present edition may be mentioned the revised section in infant feeding in which are described among other topics the methods of protein-milk and carrot-soup feeding; the section on fractures and dislocations; and the review of therapeutic progress during 1914. The book is said to be particularly adapted to the needs of the young army medical officers engaged in the war in Europe.

The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, J. P., M.D., Vienna; M.R.C.P., Lond.; M.R.C.S., Eng.; Barrister at Law; Toxicologist and Pathologist; late Hon. Physician, St. Pancras and Northern Dispensary; Curator of the Museum, Pathologist and Registrar, Great Northern Central Hospital; Clinical Assistant, Hospital for Sick Children, Great Ormond Street. Fourth, revised, and enlarged edition. Adapted to the British Pharmacopœia. With an Appendix on Poisons, their Symptoms and Treatment. Price, $2.00. New York: Rebman Company, 1914.

This handsome leather bound pocket manual contains a succinct description of the drugs adapted for the treatment of diseases of children. The drugs are arranged alphabetically, and under each are considered the properties, use, therapeutics, incompatibles, dose, correction of taste, examples of formulæ, antagonists, and antidotes. One of the important features of this book is the importance attached to the correction of the taste of drugs, a subject of no little importance in the treatment of children. The prescriptions are well selected, and striking for their simplicity and for the ease with which they may be committed to memory.

Case Histories in Obstetrics. Groups of Cases Illustrating the Fundamental Problems which Arise in Obstetrics. By Robert L. DeNormandie, A.B., M.D., Assistant in Obstetrics, Harvard Medical School; Physician to Out-Patients, Boston Lying-In Hospitals; Assistant in Gynecology, Boston Dispensary. Boston: W. M. Leonard, Publishers, 1914.

These case histories comprise those of eighty-four cases that were observed in the author's private and hospital work. They include cases illustrating the diagnosis of pregnancy, miscarriage, normal pregnancy, various abnormal types of pregnancy and of parturition, and the puerperium and its complications. The book embodies all the virtues of the case-history teaching which has been successfully demonstrated in Harvard Medical School. The subject matter of the various topics is presented with a vividness and a concreteness that are possible only with the narration of the actual case, and besides is so systematized as to form a textbook of practical obstetrics.

Pathfinders of Physiology. By J. H. Dempster, A.B., M.D. Editor of the *Detroit Medical Journal;* formerly Lecturer in Physiology, Detroit College of Medicine, etc., etc. Price, $1. Detroit: Detroit Medical Journal Company, 1914.

This is a modest volume of 66 pages which is a reprint of serial contributions by the author to his own journal. He admits that biography writing is his hobby. Under such circumstances serious criticism is hardly indicated. Scores of practitioners are at present engaged in writing up the by paths of medicine with various degrees of fitness for the work, and this movement has been pronounced wholesome in the main. Most of the contents of this book could have been readily adapted from Sir Michael Foster's classical "History of Physiology" (a book which is or ought to be recommended for collateral reading in all medical schools), and Dr. Dempster has sufficiently acknowledged his obligations to Foster's works. At the same time the author's product will doubtless reach many a busy practitioner who would never otherwise have had the opportunity of improving himself as to the lives and activities of the "pathfinders of physiology."

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 4, 1915.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

A Plan to Celebrate the Fiftieth Anniversary of the Department of Health of the City of New York.—Dr. S. S. GOLDWATER, Commissioner of Health of the City of New York, sent the following letter to the Council of the Academy of Medicine: "For some time health authorities have been very much concerned regarding the definite increase in the mortality of the higher age groups, an increase manifesting itself particularly in certain degenerative diseases like arteriosclerosis, Bright's disease, cirrhosis of the liver and apoplexy, and certain malignant diseases like cancer. Much has been accomplished in recent years in saving infant lives, but it seems difficult to arouse the people, or even the medical profession, to the surpassing importance of instituting hygienic measures for persons in adult life. Dr. Charles F. Bolduan, Director of the Bureau of Public Health Education of the Department, has recently been conferring with a number of prominent health authorities, and suggests that something spectacular is needed in order to initiate the very necessary measures which should be taken to combat this increased mortality. In consultation with Professor Winslow, plans have been discussed for holding an exhibition of adult hygiene in this city in 1916, the fiftieth anniversary of the organization of the Department of Health. This idea has my hearty approval. It seems to me that much would be contributed to the dignity and effectiveness of this exhibit if it were held under the auspices of the Department of Health of the City of New York, the Department of Health of the State of New York, the New York Academy of Medicine, and the American Museum of Natural History. Will you not consent to serve as a representative of the Academy of Medicine in organizing and holding this exhibit?"

The Council recommended that the Academy approve of this scheme and take part in this exhibit.

The Diagnosis and Treatment of Tetanus.—Dr. MATTHIAS NICOLL, JR., presented the results of certain experiments that were made at the Laboratory Research by Dr. William H. Park and himself, the results of which prompted him to ask the cooperation of the physicians in stamping out tetanus, a disease which was omnipresent. This disease was present wherever the excreta of domestic animals came in contact with the soil and city dust, and, therefore, it could not be wholly eradicated from agricultural places. But it was hoped that the disease would be made to disappear, from man at any rate. Tetanus was not a very common disease in times of peace and there were many physicians who had never seen a case. It was the surgeon who saw these cases in the end. It was an odd fact that the wound which was followed by tetanus in New York was not the classical wound described in the literature, that was, the badly crushed extensive wound. The wound was often overlooked because it was so insignificant. In only two of thirteen cases were the wounds severe ones. With regard to the diagnosis, Dr. Nicoll said that in animals inoculated with this organism the symptoms usually first appeared at the point inoculated; but in the human being, for reasons not yet understood, wherever the wound was, the first symptom took place as spasm of the masseter muscle with lock-jaw. Therefore he believed, unscientific as it seemed to be, that the following procedure should be recommended. Every patient with a sudden locking of the jaw, with a hard massetер muscle, in the absence of any positive reason for such symptoms, should be considered as one affected with tetanus and there should be no delay in pronouncing it tetanus, and they should not wait for the diagnosis to be further established before instituting treatment. No harm was done by such a procedure and many lives could be saved. Though the jaw was usually first affected in man, in one of a series of cases there was, however, facial paralysis; while in another there was spasm of the abdominal muscles. He emphasized the fact again that in the absence of other definite cause, if the patient had locked jaws, heightened reflexes, especially the patella reflex without cerebral symptoms, a diagnosis of tetanus was justified. The history of a wound might be definite or even absent. Treatment should be begun at once and no harm could be done if the condition proved not to be tetanus. There was plenty of time to make a differential diagnosis after the treatment had been initiated. It was not necessary to always have the history of a pathological wound. In a number of cases the wound was insignificant, so much so as to be forgotten by the patient. Many wounds would entirely heal long before the development of any symptoms. Every minute lost in the treatment of these cases was a nail driven into the patient's coffin. There was one symptom which was described in the German literature, namely, a contraction of the tissues about the wound. In this country it was usually not noticeable, but it probably occurred. In regard to the treatment of tetanus there was no disease about which it was more truly said that prevention was better than the cure. The best treatment for tetanus was preventive. The use of magnesium sulphate had proven to be rather dangerous; this treatment and the carbolic acid treatment (Baccelli's) together with antitoxin were usually given. The results were frequently disappointing because the treatment was given too late and in too small doses. Until about one year ago Dr. Nicoll said he was about ready to agree that there was little use in the treatment of these cases of tetanus with antitoxin after the symptoms had thoroughly developed. Cases that resulted fatally seemed to be due to a late diagnosis and the existence of symptoms three or four days after the infliction of the wound. Also they seemed to be due to the use of the intramuscular injections rather than to the intraspinal injections. The intraspinal injections had been used throughout the world, but with indifferent results. Neubauer in 1905 reported a series of forty-three cases of tetanus in Europe and in America with a death-rate of 51 per cent. Experimental proof of the value of intraspinal injections was lacking until 1913, and even then it was not convincing. During this year Permin of Copenhagen, experimenting on rabbits, reported the results of his work. Just one year ago Dr. William H. Park and he took up the experimental side of this work, but instead of using rabbits they used guinea-pigs. They first attempted to find out whether the fluid injected into the lower part of the spinal canal would go throughout the spinal canal. By using methylene blue it was found that the fluid was carried not only throughout the spinal canal but even to the ventricles of the brain. Dr. Nicoll presented a chart to show the value of the intraspinal injections. When a call came in for any unusual amount of the antitoxin he immediately tried to get in touch with the doctor. He asked for the cooperation of the doctors in this matter. If any doctor recognized a case as one of tetanus he desired that he would advise with the Department of Health. In suspected cases they recommended intraspinal injections of the antitoxin with the simultaneous administration of intravenous injections. The technique of the operation was exactly like the technique in the administration of the meningococcus serum. The injection of the antitoxin should be given and diluted afterward; this meant that 20,000 units were first injected instead of 100,000 or 150,000, as physicians in New York frequently felt they were called upon to use. Dr. Nicoll said that he recently had seen a statement from France that it was necessary to stand the patient on his head, as it were, in order to get the fluid to travel up the spinal canal. This was not necessary. The fluid would go up the spinal canal without resorting to such a posture; it would go up and bathe the cord. The injection of the serum about the wound he did not believe necessary. Some German thought that the injection should be given in the neck because he could not conceive of the fluid going up in the spinal canal when injected lower down. In a second chart which Dr. Nicoll showed the recovered cases numbered ten, while there were but three fatal cases, making thirteen altogether. In addition to these thirteen cases charted he had recently received reports on three more, all of which recovered. This made sixteen cases altogether, with but three deaths, which he believed was a record in the treatment of tetanus. The Department of Health had sent abroad for use during the present was enough tetanus antitoxin to immunize 1,000,000 men. It was was shipping 10,000,000 units a month to Europe now.

Future Lines of Progress in Child Hygiene Work.—Dr. S. JOSEPHINE BAKER presented this communication, in which she stated that public health work for children had steadily deviated from the preconceived ideas of the relation of health boards to the community, and had become an expression of the social conscience of the people, together with a desire on the part of health authorities to direct and educate, rather than to correct

and punish. It was a vital principle of the new public health creed that was eliminating the dogmatic edict, "This you must not do," and substituting the hopeful message, "This you must do, and we will help you." This ideal had been partially achieved by the Bureau of Child Hygiene of the Department of Health of New York City. Of the 362 sections of the new sanitary code only five related directly to the work of the Bureau of Child Hygiene. Little legislation was needed in carrying out a program of child hygiene work. Its basis was a system of public health education; hence the program for future achievement must emphasis educational and preventive health work. In discussing the relation of the midwife problem to child hygiene, the speaker said that, owing to the department's established standards and the individual and collective supervision of these women, they had maintained a very creditable record in regard to the occurrence of ophthalmia neonatorum in the babies under their care and of puerperal septicemia in the mothers, and in the number of stillbirths or deaths during the first week of life. At the present time midwives were caring for about 37.5 per cent. of the births in the city, a yearly total of about 53,000 confinements. At the present time the lying-in hospital facilities of New York were absolutely inadequate to meet the need of caring for this large number of cases, and even if the need were met there were many who still refused to go to hospitals and who demanded care at home. In attempting to solve the "midwife problem" the medical profession as well as the laity must not only be conversant with the present firmly entrenched position of these women, but must recognize that, on the whole, they were rendering efficient service. They could not and should not be eliminated, but the limitation of their services should be sharply defined and maintained, and their standard of practice raised to a high level of efficiency. The reduction in the infant death rate was probably the most notable contribution that organized child hygiene work had made toward the welfare of the community. Throughout the cities of this country the results of this work had been striking, and progressively efficient. For 1914, New York City had shown a death rate of babies under one year of age of 94.6 per 1,000 births, the lowest infant death rate of the ten largest cities in the United States. The point should be emphasized that all effective work for the reduction of infant mortality must be founded upon the direct idea of the reduction of infant morbidity. Any campaign merely to keep babies alive must necessarily be a failure because such children might easily succumb during the second or third year of life. The true test of the success of an infant mortality campaign lay not in the reduction of the death rate of babies under one year of age, but in the reduction of the death rate under five years. Practically all of their efforts in the past had been directed against the occurrence of gastrointestinal diseases, with the result that the reduction in the total infant mortality had been almost entirely among diseases of gastrointestinal origin. These now ranked third in the order of importance as a cause of infant deaths. If the infant mortality rate was to be still further reduced, the work of the future must be largely directed against the prevention of the so-called "congenital" causes of death. About 40 per cent. of the deaths during the first month of life were due to conditions affecting the mother before the child was born. Work had been started by the Bureau of Child Hygiene with the object of controlling the conditions affecting the mother during the period of her pregnancy. They had approximately 500 mothers under observation during 1914, with no maternal deaths. Ninety-six per cent. of the babies born were now living. The deaths under one month per 1,000 births were 16, as compared with 37 for the city. The stillbirths in these cases were 17 per 1,000 births, compared with 50 for the city at large. The second important cause of death at this time was comprised in the group classed as "respiratory diseases." Here they had advanced little, if at all, and it was to be hoped that greater progress along this line would be shown in the future. Unless these lines of work were taken up vigorously in the near future it was hardly possible that the infant death rate could be much further reduced. The field for improvement in school medical inspection was so vast that it was scarcely possible to mention any phase of it in the brief time allotted. Present methods had resulted in the practical elimination of contagious eye and skin diseases among public school children. The number of physical defects had been reduced 50 per cent. during the past five years and the system of control of general contagious diseases had been successful in eliminating the widespread epidemics which used to occur in schools. The work of medical inspection of school children had been extended so that each child might be examined by its own physician, if the family preferred, rather than by the school doctor. This undoubtedly would result in a larger number of children being examined and placed under proper care each year. There was one disease of child life that demanded more serious and extended consideration than it had received. Malnutrition in childhood was not only the basis of much ill health in the future, but was becoming more and more prevalent and increasingly difficult to prevent. This was a condition which showed more clearly the social and economic status of the community and of the family than any other one disease that they met, and hence the remedy would probably have to be a widespread one, involving many economic and social problems. It was to be hoped that the work of the bureaus of child hygiene in school medical inspection might become as wholly preventive as it was at present in its effort to reduce infant mortality. The hospitals for the removal of adenoids and enlarged tonsils, as well as corrective dental treatment, did not seem to be the function of the city authority and it was to be hoped that effort would be concentrated on the prevention of these defects rather than their correction. The present dental clinics of the Bureau of Child Hygiene were committed to this policy. Only children between the ages of six and eight years had been cared for. Taken at the time when the first permanent teeth are appearing the mouths had been placed in good condition, the children taught the principles of oral hygiene, and required to report to the dentist every six months thereafter. The results had been encouraging. With clean mouths, future repair work had been reduced to a minimum. If this work could be extended by the employment of dental hygienists, as suggested by Dr. Fones of Bridgeport, Conn., it seemed that they would solve in great part the hitherto insurmountable difficulty of the care of defective teeth in children. In closing Dr. Baker referred to the history of the Bureau of Child Hygiene, which was established only seven years ago, and which, being the first to be organized in the United States, had to establish its own precedents. Whatever success it had achieved had been due to the development of the purely educational phase in public health work, with a gradually increasing cooperation on the part of the public. The full measure of success of preventive and educational public health work could not be achieved without the cooperation of the medical profession.

Increased Responsibility for the Attending Physician.—Dr. L. I. Harris, after referring to the part that the physician had always played by giving of his devoted service and wise counsel for the good of society, declared that every economic, materialistic, and coldly logical argument seemed to show that communities expected too much for too little or nothing from the hard driven physician, yet somehow the memory of fine tradition clung about the practice of medicine and a powerful moral obligation under which the physician rested had dedicated him to service in behalf of the public weal and refuted the strongest of merely logical or economic theories. The failure to give this service had resulted in the appointment of authorized agents who should act as the guardians of public health. But these in their final analysis depended for their effectiveness upon the support which they received from the body of physicians in the community. Each physician who was properly responsive to his moral obligation to the community constituted himself a supplementary or rather a complementary department of health. To this end it would be well to admit physicians to a sort of Associate Membership in public service if their records were not marred by one or more delinquencies. This would necessitate a most thorough and careful investigation with respect to obedience to the Sanitary Code; if a charge of delinquency with respect to the Sanitary Code was established, the Department could with assurance deny the privilege of personal supervision of infectious disease cases to such a private physician. Such a privilege might possibly come to be valued as a badge of distinction and good standing by the profession. Dr. Harris then presented a form of invitation which might serve to show just the kind of plan for cooperation which the Department might extend to physicians. This letter stated that in view of the fact that practising physicians of this city

had at times complained that the activities of the Health Department in the supervision of cases of infectious disease had caused them annoyance and disturbed the harmony of their relations with their patients, the Department of Health offered to concede to the private physician as large a share as possible in the supervision of contagious cases, in accordance with the best tradition and advancing knowledge of the medical art. The signing of the card upon which this invitation was presented would constitute an agreement with the Department of Health and the physician to cooperate. Certain particulars would have to be complied with as heretofore, since the Department must of necessity maintain its statistical record of morbidity and mortality from infectious diseases. The reporting of cases of tuberculosis, major contagious diseases, typhoid fever, and venereal diseases would be required as before by all physicians. By this plan the initial visit of the nurse as well as her subsequent visits would be eliminated. The physician would be held responsible for the prompt forwarding of a history of the case on the blank form provided for the purpose, together with a statement of all the facts needful for public health protection. He would be responsible for the instruction of the family in the requirements of quarantine and isolation. When the physician deemed the case ready for termination, at his request a department representative would make a final visit and determine whether or not quarantine should be discontinued. These final visits by the department representative would continue until such a time as these procedures would have vindicated their value. A similar procedure would be authorized in diphtheria. Measles would be under the complete supervision of the private physician, as would typhoid fever, except in such instances as the physician might request the supervision of the Health Department, because of the patient's financial condition or other sufficient reason. In all these diseases the Department would, however, be able to count upon the physician to furnish all data needed for statistical and general supervisory purposes, and that he should be intermediary between the Department and the patient. This card would also include a description of the duties of the district diagnosticians and an offer that physicians avail themselves of their services, together with a statement that if physicians did not furnish the desired history a district nurse might call for the same. Every "Associate of the Public Health Service" would agree to carry out the above regulations. If such a plan could be proved feasible it would mark a great advance in the administration of public health, and would be beneficial to the physician and to the patient alike. The Department of Health was not ready as yet to stamp this plan with its approval and put it into operation, but if physicians would cooperate along the above described lines the procedure would be safe and sane.

Non-Interference with Immunes.—Dr. L. I. HARRIS presented this paper in which he stated that in diseases whose etiology was baffling and obscure and the subject of speculation, a multitude of remedies was invariably recommended, each of which had its special advocates, who with dogmatic assurance cited their favorite theories in support of their therapeutic agents. Each remedy had its vogue for a time. They were all ultimately discarded when the true cause of such disease was scientifically established. The history of quarantine regulations in infectious diseases had run a parallel course. Until the causative agents in infectious diseases were known numerous procedures for the enforcement of quarantine succeeded each other, each bolstered up by plausible theories and the inevitable and confounding statistical proofs. After giving a number of illustrative instances the speaker said that in most health departments, when cases of measles or scarlet fever had occurred, other children in the family were excluded from school without considering whether they had been made immune to these respective diseases by a previous attack. More and more the necessity and value of this requirement had been challenged. As the result of careful studies and observations carried on by the New York Department of Health in common with others, it had been concluded that immune children should not be subjected to any of the hardships hitherto imposed, but might with safety continue to attend school from their homes, if isolation of the affected individuals was carefully maintained. In the City of Cleveland, liberal regulations regarding this particular subject were in force and immunes were not excluded from school attendance. Detroit, Washington, Omaha and New Orleans had made a timid advance in that direction. These cities placed no restrictions on those immune to measles but required immunes to change their residence in cases of scarlet fever. In view of the careful studies and observations made by a number of progressive sanitaria and in harmony with their conclusions, the New York Department of Health proposed to permit immune children in the homes of scarlet fever and measles cases to continue their attendance at school throughout the period of the disease, if the patient was properly isolated. Under such a plan the question arose as to how such immunes were to be recognized. The unsupported statements of parents or guardians could not be accepted as sufficient to secure the admission of an immune child to school. The Department, therefore, proposed to issue a certificate to each child reported as having suffered from diphtheria or scarlet fever. The certificate would state the name of the disease, the date when it was terminated, and would serve as a passport through the child's school career and later as well. This measure would perhaps tend to make parents feel more kindly disposed towards physicians who desired to report all their cases of contagious diseases to the Department of Health, because of the benefits which would follow from the possession of such certificates. A more general and voluntary compliance by both physicians and parents with the requirements of the Sanitary Code might thus be brought about.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF MARYLAND.

June, 1914.

(*Continued from page* 378.)

CHEMISTRY.

1. (*a*) State the atomic theory of matter. (*b*) What are ions?
2. (*a*) What is meant by valence? (*b*) Give the valence of the following elements: C, P, O, Mg, I, Cl Hg, S, H, Br.
3. Define and give example of (*a*) a metal. (*b*) a base.
4. Write a formula illustrating the reaction between manganese dioxide and sulphuric acid.
5. What is the most important constituent of Paris green and of Rough-on-rats?
6. Define an alkaloid and name three (3), commonly used in medicine.
7. Of two samples of drinking water, one contains nitrates, with traces of free chlorine; the other contains nitrites and free chlorine; which is the safer for drinking purposes? Why?
8. (*a*) What is the significance of lactic acid in stomach contents. (*b*) Describe a method of detecting the presence of lactic acid.
9. Describe in detail a method of examining urine for bile.
10. Discuss proteins.

MATERIA MEDICA.

1. Discuss briefly the vaccine and serum theories. Give examples with mode of administration and state for what conditions used.
2. Boric, tannic, dilute hydrochloric, nitric and salicylic acids: Describe and give doses, using official term.
3. Nitrate of silver, arsenic, male fern, aspirin: Give official preparation and doses.
4. Define physiological effect, toxicology, incompatibility, idiosyncrasy and cumulative effect.
5. Cannabis indica and aconite—the part of the plant used—preparations and doses.
6. Give the average adult dose of extract of opium, brown mixture, fluid extract colchicum, tincture digitalis, potassium iodide, tincture nux-vomica, fluid extract ergot, syrup iodide of iron, Fowler's solution of arsenic and Donovan's solution. Give preparation and doses, using official terms.
7. Cocaine, codeine and creosote: The official preparations and doses.
8. Write a prescription, for 36 pills, of iron, arsenic, strychnine, quinine and gentian, to be given at each meal, for an adult.

9. Ether, tartar emetic and antipyrin: The official preparations and doses.

10. Describe and give doses of acetanilid, amyl nitrite, and caffeine.

THERAPEUTICS.

1. Write a prescription in Latin, without abbreviation, containing a heart sedative and diaphoretic, stating the condition for which it is to be used, with direction for administration.

2. Give the therapy of belladonna, symptoms of poisoning and treatment.

3. Give indications for, and restrictions in, use of chloride of sodium.

4. Give the therapy of quinia, dose and period of administration for special conditions.

5. Give the therapeutic uses of the hypophysis or pituitary body.

6. Give the therapy of ipecac, name and special use of its active principle.

7. Give the name and special use of the active principle of the suprarenal glands.

8. Give the therapy of strychnia, symptoms of poisoning and treatment.

9. Differentiate the therapy of aconite and veratrum viride.

10. Give the physiological action and therapy of bromides.

ANSWERS.

CHEMISTRY.

1. *The atomic theory*, put forth in modern times by Dalton in 1807, is based on ideas held by the Greek philosopher, Democritus, viz., that matter is not infinitely divisible, but that atoms of varied shapes and all in rapid motion are the ultimate division. Dalton rendered the idea more precise by ascribing to these atoms real magnitude, and a definite weight, and by considering elementary substances as made up of atoms of the same kind, and compounds as consisting of atoms of different kinds.

Ions are the primary constituents of salts which are separated from each other during electrolysis.

2. *Valence* is the combining or replacing power of an atom of an element compared with that of an atom of hydrogen.

The valence of carbon is 4; of phosphorus, 3 or 5; of oxygen, 2; of magnesium, 2; of iodine, 1; of chlorine, 1; of mercury, 2; of sulphur, 2; of hydrogen, 1; of bromine, 1.

3. A *metal* is an element which is capable of replacing the hydrogen of an oxyacid to form a salt.

A *base* is a ternary compound which is capable of entering into double decomposition with an acid to form a salt and water.

4. $MnO_2 + H_2SO_4 = MnSO_4 + H_2O_2$.

5. The most important constituent of Paris green is arsenic; of rough-on-rats, is phosphorus.

6. An *alkaloid* is a nitrogenous organic substance, of alkaline reaction, and capable of combining with acids to form salts in the same way that ammonia does. *Three alkaloids commonly used in medicine:* Strychnine, morphine, and quinine.

7. The former of the two samples is probably the safer, because (1) chlorine is only present in minute amount, and may have come from the sea; and (2) because nitrates are not the same indication of recent contamination with sewage as nitrites; the presence of the latter is always suspicious.

8. *Lactic acid* is formed in the stomach during the digestion of carbohydrates. Pathologically, it is believed to indicate cancer of the stomach.

The *presence of lactic acid* is detected by Uffelmann's reagent, which consists of a solution of Fe.Cl, and phenol, diluted to an amethyst-blue color, which is changed to yellow by lactic acid.

9. *Gmelin's test for bile-pigments in the urine:* "This consists in bringing slightly yellow nitric acid into contact with the urine. A play of colors, of which green and violet are most distinctive, denotes the presence of bile-pigment. Colorless nitric acid will become yellow upon standing in the sunlight. The test may be applied in various ways: by overlaying the acid with the urine; by bringing a drop of each together upon a porcelain plate; by filtering the urine through thick filter-paper, and touching the paper with a drop of the acid; and, probably best of all, by precipitating with lime-water, filtering, and touching the precipitate with a drop of the acid. In the last method bilirubin is carried down as an insoluble calcium compound."—(Todd's *Clinical Diagnosis.*)

10. "*Proteins* are never absent from living animal or vegetable cells, to whose 'life' they are indispensable. They are almost all uncrystallizable, and only slightly dialyzable. Some are soluble in pure water, others only in the presence of other substances, and others are insoluble in water. They are insoluble in alcohol, ether, chloroform or benzene. They are composed of carbon, hydrogen, oxygen, and nitrogen. Most of them also contain sulphur, and some contain phosphorus; others, iron, copper or iodine. Their molecular weights are very large, probably greater than 10,000. Their constitution is unknown, and no substance has as yet been obtained synthetically which is identical with a natural protein, although substances have been thus produced having many of the properties of gelatins or albumoses."—(Witthaus' *Essentials of Chemistry.*)

MATERIA MEDICA

1. "A *serum* is a product obtained by injecting into an animal, usually the horse, a culture (*e.g.* Diphtheria) or the toxin from a culture (*e.g.* Streptococcus) of the organism. Serums may be subdivided into—(a) *Antitoxic serums*, such as Diphtheria and Tetanus, which are obtained by injecting filtered cultures into the animal used to provide the serum. (b) *Anti-bacterial serums*, such as Anti-Streptococcus and Anti-Gonococcus, in the preparation of which unfiltered cultures are used. Serums are usually injected in the flank or between the shoulder blades, the skin having previously been cleansed and the syringe carefully sterilized. Cases are on record where they have been given intravenously with normal saline solution and also per rectum.

"A *vaccine* is a finely divided suspension of killed cultures of a microorganism which is injected directly into the human subject. The object is to stimulate the individual to elaborate his own antibodies, which results in increased resistance to the ravages of bacterial infection. Vaccines are of two kinds—(a) *Autogenous*—prepared from the organism isolated from pathological material taken from the patient. (b) *Stock* prepared from virulent cultures of the organism, isolated from other cases of similar bacterial origin. Vaccines are administered by subcutaneous injection by means of an all-glass hypodermic syringe. The site of injection may be the flank, thigh, shoulder, or back. The skin is first sterilized by a pledget of cotton wool saturated with a suitable antiseptic, *e.g.* lysol.

"Briefly, the difference is that with a serum the opposing influence to the toxins is produced outside the human body, while with the vaccine it is produced inside and the degree of immunity conferred is greater with the latter than the former. It should also be noted that the dose of a serum is much higher, from the standpoint of the amount of fluid injected, than in the case of a vaccine. With the former the dose usually ranges from 10 c.c. to 50 c.c., while with the latter it is, as a rule, not more than 1 c.c." (*Holland's Pharmacy Handbook.*)

2. *Acidum boricum* consists of transparent, colorless scales, or crystals, or a fine powder; it is sticky to the touch, odorless, slightly soluble in water and in alcohol; average dose, gr. vijss.

Acidum tannicum is a light yellowish amorphous powder, with little or no odor and an astringent taste; moderately soluble in water and in alcohol; freely soluble in boiling water or alcohol; average dose, gr. vijss.

Acidum hydrochloricum dilutum should contain 10 per cent. of absolute hydrochloric acid and 90 per cent. of water; average dose ♏ xv.

Acidum nitricum should contain 68 per cent. by weight of absolute nitric acid and 32 per cent. of water; it is a colorless, fuming liquid, very corrosive and caustic, and with a peculiar suffocating odor.

Acidum salicylicum occurs as fine white needles or a crystalline powder; the taste is first sweetish then acid; readily soluble in boiling water, but very sparingly soluble in cold water; average dose, gr. vijss.

3. Argenti nitras, gr. 1/5; argenti nitras fusus; argenti nitras mitigatus.

Arseni iodidum, gr. 1/10; arseni trioxidum, gr. 1/30.

Aspidium, gr. lx; oleoresina aspidii, gr. xxx.

Aspirin is not official.

4. *The physiological effect of a drug* is its action on a healthy person.

Toxicology is the branch of science which deals with poisons, their effects, antidotes, detection, etc.

Incompatibility is the condition which results when

substances are prescribed together which are not miscible without chemical change or which are antagonistic.

Idiosyncrasy is a peculiarity in a person which makes him react to drugs in a manner different from most other persons.

Cumulative effect is the marked effect produced after the administration of a number of doses which have each produced little or no effect.

5. *Cannabis Indica:* The dried flowering tops of the plants of *Cannabis sativa* are used; preparations are: the extract, gr. 1/5; fluid extract, ♏ ij, and tincture, ♏ x.

Aconite: The part used is the dried tuberous root of *Aconitum napellus;* preparations are: the tincture, ♏ x, and fluid extract, ♏ j.

6. Extractum opii, gr. ½; Mistura glycyrrhiza composita, ʒ ij; Fluid extractum cholchici seminis, ♏ iij; Tinctura digitalis, ♏ xv; Potassii iodidum, gr. vijss; Tinctura nucis vomica, ♏ x; Fluidextractum ergotæ, ♏ xxx; Syrupus ferri iodidi, ♏ xv; Liquor potassii arsenitis, ♏ iij; Liquor arseni et hydrargyri iodidi, ♏ jss.

7. *Cocaine:* The hydrochloride, gr. ½; oleate.

Codeine: The phosphate, gr. ½; sulphate, gr. ½.

Creosote: Aqua creosoti, ʒ ij.

8. ℞ Ferri reducti gr. xxx.
Arseni trioxidi gr. j.
Strychininæ sulphatis gr. ss.
Quininæ sulphatis gr. xxx.
Extracti gentianæ ʒ j. Misce.
Fiat massa in pilulas No. xxxvj dividenda.
Signa: Take one at each meal.

9. *Ether:* Oleum æthereum; Spiritus ætheris compositus, ʒ j; Spiritus ætheris nitrosi, ♏ xxx.

Tartar emetic: Antimonii et potassii tartras, gr. 1/10, expectorant; gr. ½, emetic. Vinum antimonii, ♏ xv; Syrupus scillæ compositus, ♏ xxx.

Antipyrin: Antipyrina, gr. iv.

10. *Acetanilid:* A crystalline powder, odorless, with a sharp taste, slightly soluble in water, soluble in boiling alcohol, dose gr. iv.

Amyl nitrite: A clear, yellowish liquid, with a ungent taste and a peculiar fruity odor, almost insoluble in water; dose ♏ iij.

Caffeine: White, silky needles, with a bitter taste, no odor, very slightly soluble; dose gr. j.

THERAPEUTICS.

1. ℞. Extracti aconiti gr. ij.
Pulveris ipecacuanhæ et opii gr. xij.
Phenacetin gr. lx.
Quininæ sulphatis gr. xxiv.
Misce, et fiat in capsulas No. xxiv.
Signa: Take two every three hours.
For influenza.

2. Belladonna.—*Therapeutic indications:* To relieve pain, relax spasm, check sweating, as a mydriatic for night sweats, to check griping of purgative; in asthma, to check fevers, in heart disease, shock and collapse, acute coryza, urinary incontinence, chordee, low delirium of fevers, mania, alcoholism; as an antigalactagogue, spasmodic cough.

Symptoms of belladonna poisoning: "In the first stage, that of delirium, there are dryness of the throat, thirst, difficulty of deglutition and spasms upon swallowing liquids, face at first pale, afterwards highly reddened, pulse extremely rapid, eyes prominent, brilliant, with widely-dilated pupils, complete paralysis of accommodation, disturbances of vision, attacks of giddiness and vertigo, with severe headache, followed by delirium, occasionally silent or muttering, but usually violent, noisy, and destructive, accompanied by the most fantastic delusions and hallucinations. Usually the urine is retained, and the body temperature is above the normal. The delirium gradually subsides, and the second stage, that of coma, is established, with slow, stertorous respiration, and gradually failing pulse, until death occurs from respiratory or cardiac paralysis, or sometimes in an attack of syncope during apparent amelioration." (Witthaus.)

Treatment: The stomach should be washed out; pilocarpine, may be given hypodermatically; morphine may be given cautiously during the period of violent excitement; cold applications to the head and artificial respiration are useful. There is no chemical antidote.

3. *Uses of sodium chloride:* "Locally it is of service in affections of the mucous membranes, and salt baths are invigorating as well as cleansing. A strong solution constitutes one of the best injections for thread-worms, and salt solutions are also used to limit the action of silver nitrate. Hot salt, enclosed in bags, is a good application in lumbago and various other painful conditions. Internally, as an emetic and also in dyspeptic conditions, administered in carbon dioxide water or in the form of natural mineral waters. Solutions of salt in distilled water are given by intravenous injection or hypodermatoclysis in conditions where the body has lost much fluid, and also in carbon dioxide or coal gas poisoning and in uremia and similar intoxications. In poisoning by silver nitrate sodium chloride arrests the corrosive action."—(Wilcox's *Materia Medica.*) Concentrated solutions should not be used as enemas, as they have caused death in some instances; only isotonic solutions should be used.

4. "*Quinine* is employed locally for unhealthy sores and infected wounds, diphtheria, otorrhea, whooping-cough, hay-fever, gonorrhea, chancroids, and chronic cystitis. The preparations of cinchona are given in digestive troubles, especially when these are associated with a debilitated state of the system. Quinine is one of the most commonly used of all tonics. Except in the case of malarial fever, it is now comparatively seldom employed as an antipyretic. One of the most positive effects in the whole range of medicine is that of quinine, and to a less pronounced degree of other alkaloids of cinchona, in arresting the paroxysms of malarial fever; it is now known that this result is due to the directly poisonous action of the drug upon the *plasmodium malariæ*, which infests the blood and is the specific cause of the disease. It is both curative and prophylactic; so that is regular administration in very moderate quantities will absolutely or to a large degree protect persons living in malarious regions from ague. Quinine is used in malarial neuralgia and also in neuralgias not of malarial origin. Among other affections in which it is employed internally also may be mentioned whooping-cough, influenza, the night-sweats of phthisis, the adynamic form of delirium tremens, and various conditions associated with cerebral anemia."—(Wilcox's *Materia Medica.*) In malaria, fifteen grains should be administered at the time of the chill.

5. "*Pituitary extract*, containing the principle found in the posterior lobe which acts on unstriped muscle, is now an ordinary article of commerce for many therapeutic purposes. It is a favorite remedy for surgical and toxemic shock, and many observers are convinced that it does good by raising the blood-pressure. A very valuable effect is that it promotes peristalsis even when purgatives fail or are vomited. . . . A third indication is to increase labor pains; sometimes in cases of weak pains the child is expelled very rapidly after an injection. It is a powerful diuretic. As a galactagogue its success so far has been doubtful. Feeding with the gland may be valuable in some forms of amenorrhea. Pituitary extract must not be given frequently at short intervals, or its effect may be reversed."—(Short's *Newer Physiology.*)

6. *Therapy of ipecac:* "It is used as an emetic, especially for the purpose of clearing the passages in diseases of the respiratory organs and for relieving the stomach of undigested food; in small doses as a stomachic and to check vomiting; dysentery; catarrhal jaundice; diarrhea, especially when associated with hepatic derangement; bronchitis, winter cough, emphysema and fibroid phthisis; as a diaphoretic in acute rheumatism, suppression of menstruation, chills, and the early stages of catarrh of the respiratory passage and of mild feverish attacks in general; hemoptysis and other hemorrhages."—(Wilcox's *Materia Medica.*) The active principle is emetine, which has a specific action in amebic dysentery.

7. The active principle of the suprarenal glands is known as epinephrin. It is used as a local vasoconstrictor, to check hemorrhage, to prolong local anesthesia, to overcome shock, and to relieve congestion.

8. Strychnine. *Therapeutic indications:* As a general tonic or bitter; in indigestion, cardiac depression, impaired peristalsis, pneumonia, phthisis, amenorrhea, dysmenorrhea, impotence, some forms of paralysis, chorea, epilepsy, neuralgia, alcoholism, and urinary incontinence.

Symptoms of poisoning: "A sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours.

"*Treatment:* The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

9. "*Veratrum viride* may be employed for the same conditions for which aconite is recommended, although it is doubtful whether it possesses any advantages over the latter drug; indeed, by many competent physicians it is considered inferior to, and more dangerous than, aconite. Moreover, the nausea and vomiting which in many patients are likely to follow the ingestion of this drug render its use objectionable. A large number of physicians claim to have found it of value in the treatment of puerperal eclampsia. Here it should be given in doses sufficient to cause nausea or even vomiting."—(Butler's *Materia Medica.*)

10. Bromides. *Physiological action:* "The bromides in concentrated solution are gastrointestinal irritants. They are directly depressant to the cerebrospinal axis, producing lassitude, drowsiness, and sleep (which, however, is never very deep), with marked diminution of reflex irritability and of the respiratory and sexual functions. They are diuretic, especially the lithium salt, and are excreted mainly in the urine, but to some extent also in the perspiration and milk and probably by the bronchial and intestinal mucous membrane. Potassium bromide weakens the heart's action and is also more depressing to the central nervous system than the others. Lithium bromide is the richest in bromine and is thought to have the most pronounced hypnotic effect. The strontium and calcium salts are said to produce less digestive disturbance than those of the alkalies, but they appear to be absorbed more slowly. In bromism, or chronic poisoning, there are acne or other skin eruptions, a catarrhal condition of the mucous membranes, derangement of digestion, diminished sensibility, especially of the faucial mucous membrane, uncertain gait, dulled intellect, impairment of memory, and an apathetic expression of countenance.

"*Uses:* The bromides constitute our most valuable remedy for epilepsy, but as they must be continued for a long period, every effort should be made to minimize their injurious effects upon the system. They are much used also, either alone or in combination with other drugs, in the treatment of insomnia, nervousness, hysteria, neuralgia, migraine, delirium tremens, seasickness, seminal emissions, nymphomania, and various forms of convulsions. Except in cases of epilepsy they should not, as a rule, be given continuously very long, on account of the danger of the patient's contracting the bromide habit."—(Wilcox's *Materia Medica.*)

(*To be continued.*)

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Dissection Methods and Guides. By D. G. Metheny, M.D. Cloth; illustrated; published by W. B. Saunders Co. Price, $1.25 net; 131 pages.

Manual of Gynecology. By J. O. Polak. Cloth; illustrated; published by Lea & Febiger. Price, $3.00; 414 pages.

Klinik für Psychische und Nervose Krankheiten. By Dr. R. Sommer. Paper; published by Carl Marhold. Price, M. 3.

Diseases of the Bronchi, Lungs and Pleura. By Dr. F. T. Lord. Cloth; illustrated; published by Lea & Febiger. Price, $5.00; 605 pages.

Diagnostic and Therapeutic Technic. By Dr. Al. S. Morrow. Cloth; illustrated; 2nd edition; published by W. B. Saunders Co. Price, $5.00 net; 834 pages.

Index Catalogue of the Library of the Surgeon General's Office U. S. Army. Vol. XIX. Cloth; 674 pages. Published by the Government Printing Office.

Die Faezes des Menschen. By Prof. Dr. A. Schmidt and J. Strasburger. Paper; illustrated; 444 pages; price M. 22. Published by August Hirschwald.

Quain's Anatomy, Osteology, and Arthrology. By Dr. T. H. Bryce. Vol. IV, Part 1. Cloth; illustrated; 329 pages; price $3.75 net. Published by Longmans, Green & Co.

Miscellany.

To Deaden the Sound of War.—According to *The Sun,* an interesting invention which has just been adopted by the British Admiralty is the Mallock-Armstrong ear defender. The earpiece is no larger than the cotton-wool plugs hitherto used, but contains a diaphragm of goldbeater's skin, which, while readily responsive to ordinary volumes of sound, muffles any abnormal sound. This effect is brought about by a "stop" which limits the distance through which the diaphragm can vibrate. While the ear receives readily and clearly a word of command, it is protected from the noise of the discharge of a gun.

The Founder of Modern Public Health Science.—A keen observer, excellent technician, thorough, methodical and painstaking in his work, the subject of this sketch shares with Pasteur the honor of founding bacteriology and establishing the relation of bacteria to disease. To him we owe the introduction of solid media as a means of isolating bacteria in pure cultures—an advance which made bacteriology a really practicable science. His strictly logical mind conceived and formulated a set of postulates to be complied with before a microorganism could be regarded as the cause of a particular disease. The beneficent influence which these have exercised on medical science during the past thirty years can hardly be overestimated. His discovery of the bacillus of tuberculosis gave us the first real hold on one of mankind's chief scourges; even his celebrated London address concerning the role of bovine tuberculosis did excellent service by restoring our sense of proportion. His brilliant work in tracing the transmission of cholera revolutionized the method of combating infectious diseases. Throughout life, proud that he had been a practising physician, and striving always to make his work practically useful, we honor Robert Koch above all as the great practical sanitarian and founder of modern public health science.—*Weekly Bulletin of the Department of Health of the City of New York.*

Dangers of the Wrist Watch in Warfare.—Not only German officers but some of the rank and file as well make considerable use of the wrist watch in warfare, wearing it on the left wrist, despite the fact that the left hand and forearm are very frequently hit by infantry bullets as a result of their exposed position. The effect of the high velocity of the projectiles when they chance to strike the watch fairly is to shatter it into unrecognizable fragments, many of which are driven directly into the carpal bones and the contiguous bases of the metacarpals and head of the radius. The wrist bones are laid bare, and the thumb may be nearly shot away. Some of the bones are rendered necrotic and a putrescent discharge escapes. In the *Berliner klinische Wochenschrift* for December 28, Melchior reports his second case of this type. There was a marked local reaction, the entire forearm swelling greatly, while a gas phlegmon formed between the muscles. The patient developed general sepsis. The damage done to the arm by these injuries is so radical that no treatment can restore to the patient the industrial use of his arm, although prompt and radical measures should save life and render amputation unnecessary. So many injuries of this kind have been reported that the use of the wrist watch in the army will doubtless soon be prohibited, if this precaution has not already been taken.

307, SHERBOURNE ST,
TORONTO.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 12.
Whole No. 2315.

NEW YORK, MARCH 20, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

HISTORY OF THE PATHOLOGICAL PHYSIOLOGY OF ICTERUS.*

BY CHARLES GREENE CUMSTON, M.D.,

GENEVA, SWITZERLAND.

PRIVAT DOCENT OF THE HISTORY OF MEDICINE AT THE FACULTY OF MEDICINE OF THE UNIVERSITY OF GENEVA; FELLOW OF THE ROYAL SOCIETY OF MEDICINE (LOND.); MEMBER OF THE MEDICAL HISTORICAL SOCIETY OF FRANCE, HISTORICAL SOCIETY OF GENEVA, ETC.

ALTHOUGH this subject has been scientifically investigated only during the last twenty years, the study of the syndrome icterus and its pathogenesis is none the less one of the old pathological problems. The ancients had far too incomplete a knowledge relative to the chemistry of the bile and physiology to have been able to conceive the slightest notion as to the exact pathogenesis of icterus. They included in a confused and indefinite symptomatic ensemble various morbid conditions comprising icterus, gastric symptoms dependent on the liver, changes in the blood, the bile, or the humors, and looked upon them all as bilious conditions.

Hippocrates considered the bile as one of the principal humors of the body, while the Arabs enumerated the various aspects that it may present. In the XVI century, the pathogenic part played by the bile was doubted by Paracelsus and Van Helmont. For the former, it was merely a foreign substance, while the latter looked upon it as a fluid elaborated by the better part of the blood, the balsam of the blood as he expressed it, and could not cause any disease. The morbid bilious states were at this period conceived to be due to disturbances of the digestion, and here we have the gastric theory of bilious pathology. Sylvius attributed an important pathogenic rôle to the bile, a product of dangerous fermentation, but he has furnished no proof in support of his hypothesis.

Thanks to the studies in the domain of anatomy, the notion of icterus finally acquired some precision. The first notion of biliary retention in the blood by the suppression of the hepatic functions is undoubtedly due to Morgagni in the 37th letter of his "Epistolarum anatomicarum," and it may be unreservedly admitted that this is the starting-point of the interpretation of icterus from the viewpoint of mechanical causes. Glisson, in his "Anatomia hepatis," published in 1659, emitted the opinion that the liver is simply a reservoir for the bile furnished by the blood, and he considers icterus and bilious conditions as due to the absence of hepatic secretions. Boerhaave, in the fifth volume of his "Praxis medica" and Van Swieten in his "Commentarii in Boerhaavii Aphorisma" (1769) later adopted this opinion. But soon other writers, Munro for example, also Werlhoff and Selle, looked upon the cause of icterus as merely a disturbance of excretion. At this period, two doctrines were apparently in vogue, namely, that of icterus from defective secretion and that of icterus from faulty excretion.

It would appear quite natural that a new hypothesis should be derived from the first theory. The bile, not being the product of the liver but simply extracted by it, since it was formed in the blood, the interference of the hepatic gland did not appear essential for the development of icterus, the blood itself transforming into bile, and here arises the theory of hematic icterus. In 1725, Bianchi, in his "Historia hepatica," attributes icterus to a too rapid dissolution of the red blood corpuscles, which he describes as follows: "Sunt duo primaria icteri genera; primoe classis icterus e vitio hepatis, alterius speciei icteri a causa solutiva sanguinis." Some fifty years later, Reil, in his "Tractatus de polycholia," published in 1782, described cases of icterus with colored feces and without biliary occlusion, and upheld that the polycholia was due to an abnormal bile resulting from the direct transformation of the blood and this bile entering the intestine would produce disorders which in turn would give rise to the bilious affection. Grant, in his "Observations on Fever," Vol. I, gives the name of biliary juice to the yellow portion of the blood-serum and attributes the cause of icterus to an increase and change of this juice resulting from the action of the hepatic gland. At the same time when the theory of hematic icterus seemed to become clearly established, Saunders, in his "Treatise on the Structure, Economy and Diseases of the Liver," 1795, by ligature of the ductus cholodochus which he undertook for the first time in the history of medicine, placed icterus from retention and absorption upon a firm experimental basis. In 1803, Deyeux in his "Considérations chimiques sur le sang des ictériques," indicates that the true solution of certain cases of icterus must be looked for in the clinical examination of the humors and, upholding that it is quite impossible to find bile in the serum of newly born icteric infants, he appears from this statement to emit the hypothesis of pigments of another nature being able to produce icterus.

A century after Bianchi, Breschet, in 1821, believed that the pigment was the product of the red blood corpuscle and he says that he surmises that icterus is far less likely to be the product of the bile than of the blood. Dubreuil, in 1826, accepted this opinion after making autopsies on subjects dying with icterus without being able to discover any obstacle to the flow of bile. Virchow, in 1847, likewise Zencker and Funke, adopted this new theory. Studying the icterus of the newly born, Virchow found uratic infarcts in the kidneys, pale

*Inaugural lecture to the winter course of the History of Medicine, delivered at the Faculty of Medicine of the University of Geneva, October 30, 1914.

reddish colored streaks with he believed to be composed of hematoïdin, the crystals of which he found in the renal substance and stained the cells of the renal epithelium. Nine years later, he gave up this theory. Zencker and Funke, demonstrating that the coloring substances of the bile can produce crystals like hematoïdin, questioned whether or not certain substances derived from the blood could not give rise to the yellow tint of the integuments.

Now, just at this epoch, Frerichs exposed a new theory, that of biliary acids. Basing his opinion on the following facts, namely, that certain chemical reactions transform the biliary salts into bile pigment and that the intravenous injection of large quantities of biliary acids into a dog is followed by the presence of bile pigment in the urine, he admits that an hematogenous icterus can be produced by the bile pigments. These represent the intermediary product of the process of oxidation of the biliary acids introduced into the circulation by intestinal absorption, normally giving rise to chromogenous substances which, passing through the stages of intermediary products, are eliminated in the form of urinary pigments. This elimination of bile pigments takes place when the quantity of biliary acids absorbed by the intestine is too great (polycholia) or when the process of oxidation is insufficient. In other words, we here have a theory analogous to that of diabetes mellitus from insufficiency in the metabolism of sugar.

It was not long before this theory was opposed by various writers, particularly by Kühne in 1858, whose hypothesis which is to follow, rapidly caused that of Frerichs to be forgotten. Admitting the intestinal absorption of biliary acids, Kühne rejected the hypothesis of their direct transformation into pigment. According to his way of thinking, they exercise a dissolving action on the red blood corpuscles, so that the coloring matter of the blood, hemoglobin, is liberated and is dissolved in the blood-serum and becomes transformed into pile pigment. Thus is explained the presence of hemoglobin in the urine before its transformation into the coloring matter of the bile.

While one dared to look to hematology and biological chemistry in the attempt to solve the problem of the pathogenesis of the syndrome icterus, which appeared to present many difficulties, Gubler, in 1857, summed up the then reigning condition of the question and finally exposed his remarkable theory of hemapheic icterus. He was of the opinion that jaundice was due to two causes, for the very good reason that there are cases in which the biliary ducts are obstructed and others in which they are completely patent. The first class of cases does not appear difficult to explain: a biliary retention due to some obstruction of the biliary tract, the bile no longer being able to flow off by way of the usual routes into the intestine, is absorbed and enters the circulation. It then impregnates the tissues, staining them yellow, and enters into the principal fluids of the body, the urine in particular, in which it can be detected by appropriate means. This first class composes the type of bilipheic icterus.

The second class is not so easily explained. It comprises numerous cases accompanied by severe blood disturbances. The excretory biliary passages are patent because the feces remain colored by the bile, but in spite of this the patients present an icterus. If the bile pigments are searched for in the urine they are found absent, and, nevertheless, the urine is dark colored, this being attributed to the presence of an undetermined body. This body which is derived from the blood is termed hemaphein. The urine is termed hemapheic and in no way resembles that of bilipheic icterus. Hemapheic urine is of a red amber color going to dark red, and can be compared in hue to certain strong English beers or a concentrated decoction of tea. Bilipheic urine has a greenish yellow hue with a greenish reflexion, and by shaking gives rise to a persistent greenish froth. Hemapheic urine stains linen a salmon-pink color, while the bilipheic type colors it a greenish yellow. Treated with nitric acid hemapheic urine takes on an obscure reddish brown tint, similar to mahogany, while bilipheic urine is green.

And lastly, hemapheic urine does not give rise to a resinoid precipitate soluble in alcohol, as is the case with bilipheic urine.

Such are the physical and chemical characters constantly and absolutely characteristic of Prof. Gubler's hemapheic urine. And in order to be in accord with the ideas at that time admitted, he insisted that the bile pigments originate from the coloring matter of the blood, the transformation taking place in the liver, while according to his way of thinking, the bile was only a waste product. But if under some influence producing an intense globular destruction, the liver can no longer suffice to eliminate this coloring matter, the latter instead of being transformed by the hepatic gland into bile pigment, is carried in a modified form into the circulation and produces a yellow staining of the tissues, from which arises the name of hemapheic icterus.

At the same period, Niemeyer in 1855, pretended that the changed bile pigments derived from hemoglobin, might very well circulate in the blood. Bamberger, in the same year, even went so far as to uphold that jaundice is not always due to bilirubin and that the tissues may be impregnated by a pigment intermediary between biliphein and hemoglobin. In 1862, Budd and Harley put forward the idea that the blood itself contained the elements of the bile. When the liver, for some reason or other, can no longer functionate and thus separate the bile from the blood, the latter deposits the more or less changed elements in the tissues and fluids of the body. This theory which admitted that the bile was preformed in the blood and, consequently, denied the part played by the liver in biligenesis, did not subsist for any length of time, because as far back as 1850, Müller and Kunde, by extirpation of frogs' livers, had proven that this was not followed by an accumulation of biliary matter in the blood.

In 1866, Leyden admitted that various substances have a dissolving action on the red blood corpuscles, phosphoric acid and distilled water for example, so that hematogenous icterus might very properly be engendered by different substances producing hematolysis and the analysis of the urine would differentiate hepatogenous icterus from hematogenous icterus, by showing in the former the presence, and in the latter, the absence of bile acids. This theory was not long in being attacked and in 1868, Naunyn repeated the experiments of Leyden. Submitting animals to the inhalation of arseniated hydrogen or injecting them with bile acids, ether or chloroform, he obtained very different results; occasionally bile pigments in very small amount. He based his conjectures on the fact that injection of bile acids into the intestine causes bile acids and

coloring matter of the bile to appear in the urine and that intestinal absorption in the genesis of icterus implies an interference on the part of the liver in the formation of this pigment.

Neumann, in 1868, recorded the autopsy of an infant who died from icterus two days after birth and stated that he found uratic collections in the kidneys and yellow tinted crystals in other viscera. The fat-globules of the cellular tissue also presented a light red tint with pigmented crystals. In 1873, Primavera described an imperfect bile pigment which he looked upon as hemaphein. Parrot and Robin also found yellow corpuscles in the urine of newly born icteric infants, which did not give rise to the reaction of bilirubin, and which in their turn, they considered as hemaphein. Identical results were also mentioned by Krebs and Orth in 1875. In a word, all writers found altered blood pigment and called it bilirubin, others hematoidin, still others hemaphein, and with all these researches the problem of the transformation of the coloring matter of the blood remained thus: does it take place in the blood itself as Kühne and Leyden believe, or in the liver as taught by Naunyn?

For many, there was one point which had been demonstrated, namely, the increase of the bile pigment, from the fact that the coloring matter was in the circulation. In 1882, Stadelmann endeavored to confirm these facts. After having injected animals with hemoglobin, he noted a marked increase of the bile pigment, and what is more, noting that after the injection the amount of bile decreased, that it became thickened, viscous and flowed with difficulty through the ducts, he thought that from all these phenomena he had found the explanation of the so-called hematogenous icterus, which arises when a slight obstacle or an individual disposition hinders more completely the biliary excretion, and is followed by absorption. According to this writer, the liver transforms the hemoglobin into bilirubin. In the explanation of the mechanism of icterus produced by the introduction of foreign substances into the blood, toluylenediamine for example, not noting any dissolution of the red blood corpuscles and finding at autopsy an icteric liver, he concluded that it is an icterus of hepatic origin resulting from a polycholia and an intense thickening of the biliary fluid.

Ajanassiew, in the following year, showed that this theory can not explain the hemoglobinuria which takes place in some cases after the introduction of foreign substances into the circulation. He admits the destruction of the red blood corpuscles and then separation into granulations. When they become fragmented in the serum without dissolving, the liver transforms them into bile pigment and an icterus results. When in the serum, besides the fragmentation there is dissolution, the serum becomes colored and an hemoglobinuria is produced. When the destruction is considerable hemoglobinuria and icterus are produced.

Stadelmann soon put forward these new conceptions and at the same period, Ponfick examined cases of icterus occurring after the ingestion of a toxic species of mushroom and observed a rapid dissolution of the red blood corpuscles and a diffusion of the coloring matter in the blood-serum. Noting an icterus and an increase of the biliary excretion following upon a hemoglobinuria, he appears to admit Stadelmann's theory. It would seem that at this time the dissolution of the red blood corpuscles was admitted to be the cause of the icterus, but it was a question whether or not it was the dissolved hemoglobin which served, by the intermediary of the liver, for the elaboration of the bile pigment; also whether or not the polycholia following a hemoglobinuria or the action of toxins gave rise to the icterus, consequently, new theories were not long in making their appearance.

In 1874 Poncet stated in his thesis on hematic icterus of traumatic origin, that it was the result of changes undergone by the hemoglobin of the blood extravasations which had undergone absorption. Later, in 1887, these facts were confirmed by Gerhardt, who in turn, took them up and remarked that Gmelin's reaction was absent in the urine of certain icteric patients and that the presence of urobilin was distinctly evident, and with Kunkel he put forward the theory of urobilinic icterus.

Although Bergmann and Dick had demonstrated the increase in the quantity of urobilin in the urine after the absorption of extravasated blood and that Hoppe-Seyler and Maly had obtained urobilin, the former by reduction of the hemoglobin, the latter by reduction of the bilirubin, admitting in the cases of icterus in the tissues or intestine, this theory of icterus from urobilin was not long in being defied.

Quincke, Kiener, and Engel were unable to discover urobilin in the tissues and after the very small amount revealed in the fluids of icteric subjects which, freed from bile pigments, were only slightly tinted, were unable to admit that the urobilin possessed a coloring power sufficient to produce icterus. This formation of urobilin was, according to Kiener and Engel, the most advantageous process possessed by the body to rid itself of the hemoglobin and bile pigments accumulated in the tissues and, on account of the great diffusible power of urobilin, this would be rapidly eliminated by the urine. The doctrine of hematogenous icterus would seem, consequently, according to such opinion, to lose ground, and by the construction of various theories, an attempt was made to give some part in the process to the hepatic gland. Thus, Kiener admitted that in icterus from poisoning by toluylenediamine, a stasis exists in the hepatic lobules. "The most frequent cause of this stasis, leaving aside occlusion of the larger biliary ducts which is not common, is the thickening of the bile which has become exceedingly rich in coloring matter. It is in the hepatic lobule itself, in MacGillavry's canalicules, that the flow is hindered. The cause of the thickening of the bile is the superabundance of the coloring matter of the blood whose transformation into bilirubin is performed by the liver. This superabundance is absolute when there is an exaggerated destruction of the red blood corpuscles; it is relative when the hepatic parenchyma is partially destroyed, as in cirrhosis."

In 1892, falling in with Minkowski's idea, icterus was considered due to a functional disturbance of the hepatic cells, which was unable to get rid of the products of its functional activity by the normal ways of elimination. This is the *icterus by diffusion*. Liebermeister, in 1893, admitted that the altered hepatic cell could not retain the bile elaborated and allowed it to enter the circulation. This is the so-called *acathectic icterus*. All these theories could, consequently, serve at this time to justify the words of Vulpian, who said: "The existence of hematogenous icterus appears as yet to have to be entirely proven."

It was at this time also, that no doubt appeared to exist as to the pathogenesis of the so-called icterus from retention, at least in general, all researches being directed to those instances of jaundice where the biliary tract was patent and the bile pigments were absent in the urine. From 1897, numerous publications appeared up to the appearance of Leuret's thesis, describing this special syndrome, which was termed *acholuric icterus*.

Hyem, in May, 1897, was the first to draw attention to this syndrome. He describes a chronic acholuric icterus without urobilinuria. In this class are placed those states in which the normal bile pigments, or those having undergone some change, contained in the blood are not eliminated by the urine. In the same year, Hyem and Ghicka described a case of acholuric icterus without urobilinuria (acholemic) but in which they found in the blood-serum and urine the typical spectrum of methemoglobin. The stools having become hypercholic and the bilirubin having appeared in the urine shortly before the patient's death, they termed this a case of hematic icterus from methemoglobinemia, *hematohematogenous icterus*.

Now just here a discussion comes up and a most important problem offers itself, viz.: Can an icterus be produced by other pigments than the normal bile pigments? The above-mentioned case would seem to indicate that this is probable and Hyem said: "Between true icterus and pure urobilinuria, there is a large place for numerous intermediary conditions which find their explanation in the phenomena of oxidation and reduction which the coloring matters derived from hemoglobin undergo." The badly defined modified pigments, particularly the reddish-brown pigment, responding to the characters attributed to hemaphein, giving in the urine a reaction other than Gmelin's classical one, and others comprised between bilirubin and urobilin, are quite capable of giving rise to icterus. This opinion was abandoned by Hyem in 1899, after having been opposed at this epoch by various writers who upheld that alone the normal pigment could produce icterus. And nevertheless, Gilbert and Castaigne (1899) were unable to obtain Gmelin's reaction of normal pigments in the blood-serum of certain cases of icterus. Considering that urobilin has no tinctorial power whatever, they believed that the abnormal pigments, particularly the reddish-brown pigment, although it is a badly defined body, is capable of producing icterus.

In his thesis on acholuric icterus, Borrell, in 1899, desirous of establishing the reality of this process, undertook a very profound study and research for the true bile pigments comparatively in the urine and blood-serum. He concludes that in the urine Gmelin's reaction gives the best results. The spectroscopic examination may likewise be used, showing an extinction of the right side of the spectrum, reaction due, according to Borrell, to the yellow coloring property of the bile pigments. To detect the bile pigments in the blood-serum, he used Gmelin's reagent by Lenoble's method, placing with a pipette two or three drops of serum in contact with nitric acid, which became solidified by coagulation of the albumin. The coagulum, in the first place white, soon becomes yellow from below upwards. When one is dealing with true bile pigment, a blueish ring with greenish reflection appears, either above the yellow portion or at the point of contact of the two liquids.

The color of the serum does not appear of great importance to Borrell, because with Hyem, he admits that the bile pigments, even those which do not give rise to Gmelin's reaction, give to the serum a greenish yellow color, which prevents one from deciding positively the exact nature of the pigment. And what is more, the spectroscopic examination can give no useful data, because the bile pigments, whether normal or modified, produce an obscurity on the right of the spectrum. By the aid of these procedures, Borrell found Gmelin's reaction positive in the serum seven times. In four cases it was negative and as he never found true bile pigment in the urine, he concluded that he was dealing with an acholuric hemapheic icterus, the acholuria being due to a small quantity of bile pigment, this being explained by a certain degree of renal insufficiency.

In the following year (1900), Gilbert and Lereboullet took up the study of acholuric icterus and insisted upon its familial character. In this study they formally concluded that there is a constant presence of the bile pigments in the blood-serum.

The limits of this lecture would be far outreached should I attempt to give a complete résumé of all the work done in reference to icterus, and I shall now pass over the next decade and arrive at the year 1911. At the same time that the notion of hemolytic icterus became more precise researches were also made to explain the causes of hemolysis. It was necessary to discover a cause of hemolytic iterus in which there was no fragility of the red blood-cells. This cause was found to reside in special substances termed hemolins.

I can not go into the history of the complex study of the hemolysins, but for this would refer you to Troisier's thesis and the report read in 1911 at the Congress of Medicine at Lyons, by Guillain and Troisier on the part played by the hemolysins in pathology. Thanks to the study of the hemolysins undertaken at the same epoch, icterus accompanying various affections has now become included in the class of hemolytic icterus, differentiated into several types by Chauffard, Widal, Abrami, and Brûlé. Yet in spite of all this work the study of icterus would have been incomplete if, during the above mentioned researches, one had not endeavored to explain the still old problem of the pathogeneses of icterus, viz., where did the transformation of the pigment resulting from the hemolysis take place; whether or not this transformation could take place without the direct or indirect action of the liver; whether or not, in a word, there existed extrahepatic biligeneses (the so-called local biligenisis) and if they could give rise to generalized jaundice?

Let me say that the cases so far reported to solve this problem are numerous.

I shall have finished with the history of the problem of the pathogenesis of icterus when I shall have mentioned that Chauffard, Laroche and Grigant (1911), Oulmont and Boidin (1912), and P. Mauriac (1912) noticed that in icterus from retention where the globular resistance was increased, the quantity of cholesterin was also; that on the other hand, in cases of hemolytic icterus where there was globular fragility, there was also an hypocholesterinemia, seeming to indicate that there is a relationship existing between the globular resistance and the quantity of cholesterin, and from this very fact the study of the latter should find its place in that of icterus.

3 Rue Bellot.

SOME CLINICAL FEATURES OF EXOPHTHALMIC GOITER.*

By C. V. R. BUMSTED, Ph.B., M.D.,

NEWARK, N. J.

ASSISTANT ATTENDING PHYSICIAN TO THE GERMAN AND ST. MICHAEL'S HOSPITALS; PHYSICIAN TO THE MEDICAL CLINIC OF ST. BARNABAS AND THE BABIES' HOSPITALS

PROBABLY in the whole domain of medicine there is no disease or morbid condition which in the past few years has been the subject of such careful study, investigation, and research, and which is of such interest to both surgeon and internist, and yet presents so many problems for the activities of the various specialties, as exophthalmic goiter. In inviting your attention to a consideration of some of its many features, we do so, fully realizing, in a brief paper of this character, the folly of attempting more than to emphasize the importance of some of its diagnostic facts and clinical relationships. There can be no pretense of presenting the Morbus Basedowii in its entirety and it is with regret that we appreciate that necessity compels the curtailing, in our discussion, of many interesting points, the ignoring of important facts, and the limiting of the scope of such a vital comprehensive subject. The inadequacy is unavoidable.

If we are to appreciate the symptom complex of this disease it is essential that we briefly consider its pathology and especially the pathological physiology. The pathology is by no means constant, its changes being variable and manifold. "These changes are not constant, since the exophthalmic goiter syndrome, as at present recognized, may coexist with a normal thyroid, with a colloid goiter, with an actively hyperplastic thyroid, with an atrophic thyroid, or with a tumor of the thyroid." (Marine.) It is with this broad comprehensive idea and view of the condition that the clinician must base his diagnosis and treatment.

The anatomical changes of true exophthalmic goiter may be roughly divided into two classes: (1) Proliferation or active thyroid hyperplasia with hypersecretion. (2) Degeneration, with possibly hyposecretion.

At first there is hyperemia and we have an increase of the alveolar cells with, in many cases, reduplication of the cellular layers or even papillary formation. The number of the alveoli may be increased. Wilson has shown that in a thyroid analysis of 284 cases prior to 1908, 76 per cent. showed primary parenchymatous hypertrophy and hyperplasia, and in 1911 and 1912, with more careful study and minute investigation, all the cases, 431, coming to operation in the Mayo clinic showed similar pathological conditions. Besides the hyperplasia, the alveoli contain a considerable amount of a thin colloid secretion. The gland is enlarged in nearly all cases, although this is not always discernable in situ by palpation. Kocher found this true in 800 cases, so now the assumption that Graves' disease occurs without enlargement of the gland should be given up.

The degenerative changes may rapidly occur or develop slowly, with lessening or even considerable remission of symptoms. The alveolar epithelium shows exfoliation and necrosis, with even, in some instances, complete destruction of the parenchyma. The colloid material, if present, is dense and stains deeply. Thompson has shown that when the degenerative process is well marked with the secreting cells destroyed, the symptoms of exophthalmic goiter may persist as a result of the previous intoxication and that the surgical removal of such a gland is unnecessary.

The internist must recognize the pathological changes in another group—that of toxic non-exophthalmic cases. They consist, according to Plummer, of about 28 per cent. of all goiters reported as non-hyperplastic. Plummer divides these intoxications into two groups: "(1) A group in which the cardiac toxin predominates and in which the clinical picture closely resembles, and, in many instances, cannot be differentiated from the cardiovascular complex resulting from alcoholic, leuetic, septic, and other well known toxins; (2) a group more closely presenting the picture of Graves' disease and including the cases that have been erroneously so diagnosed by the mass of the profession." Wilson, in 374 cases, has investigated the pathological picture present in these groups and states "that one-half of the thyroids from the toxic non-exophthalmic cases which more or less resemble true exophthalmic goiter (clinical group 2) are of the regenerative type and nearly all the remainder are fetal adenomas, while, in contrast to this, only one-eighth of the thyroids from the toxic non-exophthalmic cases which do not resemble true exophthalmics (clinical group 1) are of the regenerative type, less than one-fourth are fetal adenomas and more than three-fifths of them are adenomas or colloid adenomatoses, with adult and atrophying parenchyma."

The pathogenesis of this disease and its manifestations has not yet been definitely and positively proved. However, facts are slowly accumulating that a thyroid secretion circulating in the blood is the direct cause of all the toxic symptoms. This has been experimentally shown by Edmunds, Baruchi, and French, who were able to produce the symptoms of exophthalmic goiter in lower animals by injecting extracts of ordinary human goiters, and some observers have recently claimed to have demonstrated the presence of the actual gland secretion in the blood. Besides, the effect of overdosing with thyroid extract or iodine by producing symptome of hyperthyroidism would clinically substantiate the above contention. Walton quotes the work of Wilson and MacCarty, who found that the amount of hyperthyroidism runs parallel to the extent of cellular proliferation, which is the histological picture expected to be present from glandular hyperactivity. Klose and Carlson believe that the condition present in exophthalmic goiter is not due to an excess, but to alteration of the normal thyroid secretion. It is interesting to note, however, that Marine and Lenhart have come to the conclusion that the thyroid involvement is not the cause of the disease, but only part of its general picture.

It is possible that other ductless glands are at fault and their internal secretions, either in excess or pathologically altered may be factors in the production of the thyroid hyperactivity. The thymus, especially, is held by many to be responsible. Thorbecke, Boit, Monkeberg, Van Hansemann, and Melchior have all called attention to hypertrophy of the thymus and its persistence in Graves' disease. Berry states that enlargement of this gland has been noticed in every post mortem that he has made, and Matti found a hypertrophied thymus in 75 per cent. of 133 necropsies, while Capelle and Bayer have found the same condition in 43 out of 60 autopsies (70 per cent.). This hypertrophy may

*Read at the meeting of the Newark Medical and Surgical Society, December 17, 1914.

be due to a vicarious endeavor on part of the gland to supplement or supplant the activities of the diseased thyroid, or it may be the sign of a status thymicolymphaticus. Its removal has been advised by Garre and condemned by Gierke, who believes that its definite enlargement is a contraindication for thyroidectomy, which if done produces a thymogenic auto intoxication. Its relationship to exophthalmic goiter is unquestionably close and vital, but at present we are in the dark as to its value. The same may be said of the parathyroids, the pituitary and the adrenal glands, whose internal secretions undoubtedly have a relationship and interaction, as yet unknown, with the normal function of the thyroid gland and which, if either pathologically altered or in excess, have an important bearing on the gland's activity, and possibly on the genesis of a diseased condition.

The role of the nervous system in the production of this disease either by actual lesions in the restiform bodies, or physiopathological derangements in the sympathetic or central nervous systems, or by imperfect functionating of neurogenous tissue, has now but few supporters. Crile, however, has advanced an ingenious theory which, etiologically, apparently has many clinical facts to sustain it. According to Frazier, "He concludes that in exophthalmic goiter a pathological reciprocal interaction between the brain and the thyroid glands exists, and that this reciprocal interaction can be maintained through a nerve connection only, or possibly by a hormone action."

We shall make no attempt to discuss fully the etiology of Graves' disease; there are, however, two classes of cases which are often overlooked and which it is important to recognize: those showing the influence of heredity, and those developing after acute infections. The need of securing a history of the occurrence of cases in the same family or in successive generations is often neglected. Such a familial record is not as uncommon as has been supposed, and careful inquiry will often bring out the fact that symptoms suggestive of thyrotoxic conditions have existed in other members of the family, or even an actual occurrence of a true exophthalmic goiter. There have been reported many such cases, for instance: Rosenberg reports a series in which grandmother, father, two aunts, and two sisters were all affected and you will recall Oesterreicher's classical family of which 8 out of 10 children were exophthalmics. For the past five years the writer has attended a family of four sisters in which the two older sisters had the disease in a severe form and the youngest, a girl of 16, showed symptoms of a beginning intoxication; the other sister, a girl of 20, was free from symptoms while away at school, but when living with her sisters during the summer, developed toxic symptoms. It is important to remember this class of cases, especially when there is a family taint of chorea, epilepsy, hysteria, or insanity, so that when a case develops, slight symptoms in other members of the family may be looked for and appropriately treated.

The importance of recognizing that the malady is often consequent upon acute disease is not sufficiently appreciated. Careful inquiry will often elicit the fact that "colds," tonsilitis, quinsy, or many of the acute infections preceded the symptoms. "DeQuevain has found a subacute thyroiditis quite common in these conditions, especially influenza, typhoid fever, rheumatism (as Parry's first case), and diphtheria, and this thyroiditis was followed by Basedow's disease within a few months in about 20 per cent. of the cases." (Hirschfelder.) Influenza especially seems to be a causative factor; in a series of 86 cases, A. Kocher and Landstrom found it in 7 instances. The following case, seen a few years ago, will illustrate its occurrence. A woman of 32, who had a simple enlargement of the right thyroid lobe, convalescing from a severe influenzal infection, which had been febrile for about 10 days, insisted on attending to her household work. The first day up from bed she collapsed and the next day was found to have unmistakable symptoms of hyperthyroidism. These persisted and in a few weeks she presented all the cardinal signs of Basedow's disease. Medical treatment was unsatisfactory as the patient would not cooperate, so thyroidectomy was done, a year later, at the Royal Victoria Hospital, Montreal.

It is well known that the bacillus typhosus is often a causative agent. Boggs and Sladen have found mild thyroiditis present in most cases of typhoid fever in which the pulse is over 120 at the height of the disease. The writer has seen sudden acute thyroiditis with symptoms of severe hyperactivity develop in the course of a fatal case of typhoid in a goitrous woman when told of the death of her only child. The following case report is interesting on account of the development of exophthalmic goiter during convalescence from typhoid as well as the age and sex of the patient.

Case I.—The patient was a man, 54 years old, whose personal and family history was negative. He was taken ill the latter part of April, 1911, and although feverish and feeling debilitated, attended to his work for two weeks before consulting a physician. It was found that he was suffering from typhoid fever and he went to bed on May 6th, remaining there 31 days. His typhoid was a mild one and he had no untoward symptoms or complications until he got up. His convalescence was progressing favorably until June 15, when thyrotoxic symptoms suddenly developed, he began to complain of sleeplessness, palpitation and pounding of his heart, shortness of breath, and hot flushes. Before his attack of typhoid he weighed 194 pounds and maintained approximately this weight, due to high caloric feeding, during his illness, but now noticed that he was rapidly losing weight. The patient also complained at this time of severe pruritus and it was remarked that in a few weeks his hair had turned from black to a decided white. This patient was seen by the writer on February 6th and the above facts elicited. He was complaining of all the above symptoms and remarked that his disposition had changed completely, as he was now nervous, cranky, morose and unable to concentrate his mind on any subject. He presented a typical picture of Basedow's disease in an advanced stage, his exophthalmos was marked and all the classical signs were present. His weight was 148, pulse 126, systolic blood pressure 152. The thyroid gland was not greatly enlarged, although it was easily palpable, especially the right lobe where a musical systolic bruit was noticed. His heart was enlarged to the left with the apex beat in the fifth interspace, 2 cm. beyond the nipple line. At the apical area there was heard a well marked systolic murmur which was heard all over the heart and transmitted up the vessels of the neck. There was a pronounced systolic shock, the second sound was accentuated. Tremors of the fingers of both hands were very marked, the patient being unable to write at times. Besides the above symptoms, the patient was especially complaining of insomnia, frequent urination and a moderate diarrhea.

The possibility of tuberculosis being the cause of Basedow's disease should be kept in mind. Its association with this disease is not as uncommon as formerly supposed; Bialokur in his cases has found that 27 out of 337 patients with pulmonary tuberculosis presented symptoms of hyperthyroidism. He furthermore states that in his experience

every patient with exophthalmic goiter was already tuberculous. This is probably overestimating the frequency of this combination of diseases, but it is a fact that it may occur, and it has long been known that enlargement of the thyroid may occur in incipient cases of tuberculosis. Primary tuberculous disease has not been observed, the infection occurs from an associated pulmonary lesion, or perhaps more frequently from neighboring lymphatic glands. Early exophthalmic cases may simulate this tuberculous involvement by having, as Stern has shown, an afternoon temperature ranging around 100°. Clinically this thyrotoxic fever is important in differential diagnosis, as a tachycardia with a persistent afternoon temperature of 99.5°-100.5° might easily lead to the error of considering the case a tuberculour one, or on the other hand the presence of an active tuberculosis might be overlooked in a true case of Graves' disease.

If we study the records of our Newark hospitals it would seem that exophthalmic goiter is a rare disease in contrast with its incidence in other cities. In St. Barnabas Hospital, for instance, in the four years, from 1911 to 1914, there were treated in the wards and Out Patients' Department 5,379 medical cases with but 10 cases of exophthalmic goiter, or 0.18 per cent., and in St. Michael's Hospital in the five years, from 1909 to 1913, there were seen 20 cases of exophthalmic goiter out of 14,495 medical cases treated in wards and clinic, with a percentage of 0.1 per cent. While in the Toronto General Hospital during five years, ending December 31, 1909, there were 55 cases out of 8,489 medical admissions or 0.65 per cent., and in the last 4,000 cases in the Montreal General there were 23 cases of exophthalmic goiter or 0.57 per cent. This would indicate that Graves' disease is from three to four times as common in these Canadian cities as in Newark; manifestly the figures from our own hospitals do not give the correct idea as to the frequency of this disease. It certainly is more common in private practice. Probably we are at fault and do not recognize the disease as readily as we should. Undoubtedly there are many of the milder forms which escape us and it is with these early manifestations that so much can be done by appropriate treatment, and the chagrin of vainly treating other conditions for it, be avoided. As Stengel says, "We must recognize that the syndrome may occur in a more or less pronounced degree in transitory and benign affections of the thyroid gland as well as in the more permanent organic conditions that usually occasion it."

It is the writer's belief that there is, in many cases, a decided interrelationship between a persistent hyperemic condition of the thyroid at puberty and the development of Basedow's disease later in life, which as Plummer has shown, generally begins at the age of 32 and occurs in females in 95 per cent. of cases. This condition in adolescence is far more common and important than the profession has recognized. Cross has recently called attention to it. The patient, a girl from 12 to 16, is usually markedly nervous, sleeps poorly, and has developed rapidly. The thyroid is observed to be enlarged, especially the right lobe, and is often tender and occasionally painful. Slight tremor of the fingers may or may not be present. There is generally a slight tachycardia. Cardiovascular and exophthalmic symptoms are not present. There is generally a simple anemia or a chlorosis and it is interesting to note that Handmann reports 44 cases of chlorosis which showed enlargement of the thyroid in more than half the cases. This chlorosis or chloroanemia, in some cases, may be the cause of this condition, although it is probably due to a hyperactivity of the gland influenced by the altering of other internal secretions at the time of puberty. The condition is a pseudo-hyperthyroidism—a simulation of the true disease, and, although transitory, should not be ignored and should have careful attention and treatment. Such a patient should be warned against unhygienic habits, nervous strains, and excitement, and be carefully watched for years, so that the first tendency to the development of exophthalmic symptoms in later life can be noted and the disease treated in its incipiency. The following will illustrate this class of cases:

Case II.—The patient, a well developed girl of 14, complained of nervousness, inability to study, poor appetite, and sleeplessness. Her pulse was 128, and the thyroid gland was painful at times, tender on pressure and symmetrically enlarged. Her hemoglobin was 60 per cent. The hygiene of her life was regulated, simple medical treatment instituted and the patient kept under observation for 18 months. When seen last week, four years after the developing of the above symptoms, the thyroid was only a little full, her pulse rate was 80, and she had none of her previous symptoms.

Case III.—A thin, nervous, sallow looking young lady of 29. She complained of poor appetite, constipation, insomnia, and irritability. Her thyroid was not enlarged, but she had a pulse rate of 142 and there was a marked tremor of the fingers of the left hand. Her weight was 92 pounds, and her blood showed a slight evidence of chloroanemia. There were no cardio-vascular or ophthalmic signs except possibly a slight prominence of her eyeballs, which may have been normal. The patient stated that as a girl, from 14 to 17, she was very nervous, anemic, and out of school most of the time. She complained of a swollen neck for several years and remembered that it was painful and tender because she could not wear a tight collar.

Undoubtedly many cases escape us and are treated for hysteria, nervousness, neurasthenia, insomnia, or else are ignored entirely, merely because we expect to find the complete symptom complex in every case and refuse to recognize that the transitory and atypical and aberrant forms are the most common. As the pathological picture varies, which we have seen occur, the clinical aspects change, There need be no constant sign. Exophthalmia is rarely seen early and the four classical eye signs may never be observed. The thyroid may never show palpable enlargement. Glycosuria may be the only important feature. The circulatory phenomena vary with the intensity of the hyperthyroidism. Neurasthenia, insomnia, rapid loss of weight, excessive sweating, diarrhea, muscular weakness, and disturbances in the general health all call for investigating the activity of the thyroid gland, and it will be surprising to find how many cases of Graves' disease are manifesting some one or more of these symptoms. "The more one studies hyperthyroidism," writes Stengel, abstracting an excellent paper by Lambert, "the more one realizes that it is an expression of the algebraic sum of many morbid processes—some of these arising in the thyroid gland, others in the parathyroids, others in the pancreas and adrenals, or in the general metabolism of the liver itself; and there are evidences that the pituitary body and the ovarian secretion are not unimportant in the interrelationship among these many glands, and not without their influence in the varying expressions of the general metabolism of the body. Hyperthyroidism is not an entity, it is not the expression of a single influence. It is the manifestation of a lack of equilibrium in the rela-

tionship of many glands in the body, and this equilibrium may be upset by an increased function or a lack of function of any one of these related ductless glands. We must, therefore, realize that when we consider the atypical forms of Graves' disease, the thyroid gland may be the least at fault; and furthermore, we must realize clinically that where tachycardia is present, we should think of some disturbance of internal secretion, and not put it down to mere nervousness, thus dodging the responsibility of a more accurate diagnosis. When nervous irritability and change of disposition occur, when formerly reasonable patients present a veritable chorea of intellectual functions, we should not attribute it to neurasthenia, but realize that they are suffering from internal poisoning, which we have been accustomed to consider as part of the symptoms of Grave's disease, and which we would readily recognize if the full picture were present, with exophthalmus, goiter, and the tachycardia combined. As long as the goiter or the exophthalmus is present, or the tremor with the tachycardia, there is no question that the patient will be quickly placed in the proper clinical group; but it is in those cases in which the symptoms which we formerly considered to be cardinal are absent, or where they are present only in a slight degree, that we usually fail to recognize the chief disturbance as one of upset equilibrium among the ductless glands."

The clinical manifestation of the thyrotoxicated heart are the most interesting, and with tachycardia the most important symptom of this disease. The cardiovascular disturbances occur very early. They are never absent and may exist for months before other evidences of the disease appear.

(1) The earliest complaint is of palpitation, the pulse rate is rapid and feeble, often as high as 150 or more, but tachycardia often exists without the patient being aware of it, and in a few instances the pulse rate is normal. Arrhythmia is rare.

(2) Cases frequently show paroxsymal dyspnea.

(3) The heart is often felt to be "pounding" with or without a systolic thrill or diastolic shock. The apex beat may not be much displaced outwards, although dullness is generally increased to the left. Murmurs are common especially at the apex. There may be a diastolic murmur at the aortic area. The cardiac muscle is dilated in about two-thirds of the cases with a consequent systolic murmur, heard best over the second left costal cartilage and sometimes propagated up the vessels of the neck.

(4) The vascular changes are striking. The carotids alone may be involved. The retinal arteries and the abdominal aorta often pulsate so violently as to be very annoying to the patient. Capillary and even venous pulse may be found. "Very frequently on auscultation over the arteries a sound like Traube's sound in aortic regurgitation is heard and sometimes a double murmur. Venous hums in the neck are exceedingly common and the bruit often described as occurring in the enlarged thyroid is generally produced in the dilated veins lying at the sides of the gland or elsewhere adjacent to the goiter. A bruit in the gland itself is probably quite rare." (Stengel.) The systolic blood pressure may be low or normal, but it is more often high.

It is an erroneous impression that exophthalmic goiter is practically incurable. It is true that poor results are often obtained, but they are usually due to a lack of knowledge of the pathology of this disease and its pathological physiology, together with an inadequate idea of the precise indications for the use of definite therapeutic measures. There is no specific treatment. Individualization is the keynote. Surgery is applicable to many cases, although we believe medical measures are more appropriate for the larger number. There are apparently many roads to Rome. It is indeed unfortunate that there is such diversity of opinions as to treatment, all tending to confuse the practitioner as to the best methods to follow in a given case.

Before beginning treatment it must clearly be kept in mind that the clinical manifestations are due to hypersecretion of iodized thyreoglobulin and that this is in proportion to the blood flow through the gland. As Hirschfelder clearly states, "The first essential of any palliative treatment, therefore, is to reduce the thyroid secretion to its lower ebb by the removal to the two stimulating causes, exercise and excitement. In the mild cases a simple isolation cure, with absolute rest in the horizontal position, can sometimes so lessen the flow through the thyroid and the secretion of this gland by diminishing the size and number of heart-beats that the thyreoglobulin content of the blood falls to normal and symptoms subside. If the rest cure be prolonged, the slight glandular hyperplasia of early cases may subside and a permanent cure may result." This rest will usually quickly cause the palpitation and tachycardia to subside; if it does not the intermittent application of a light ice bag to the precordia is advised. The importance of rest cannot be overestimated.

Cardiac stimulants should be used only when there are definite indications of cardiac weakness and where the cardiac symptoms predominate the case. Digitalis is the best, with strophanthus for use in milder cases. I can see no indication for strychnine or camphor except in terminal conditions. Belladonna and atropine, although advised by some, apparently have no effect except in cases showing loss of vasomotor tone; the same may be said of ergotin.

Cases will have to be individualized. Those with nervous disturbances should always be put on some of the milder sedatives, as bromide. Veronal and trional and the other soporifics are useful when indicated. Hydrotherapy is useful in these cases, especially during the first few weeks of the rest cure. Lukewarm baths, warm salt baths, spinal douching, cold packs before retiring, and ice frequently applied to the gland itself are very helpful in most cases where the nervous symptoms are present.

Muller, Jackson, Solis-Cohen, and Forschheimer have warmly recommended the use of quinine, especially the neutral hydrobromate given in 5 grain doses three or four times a day. This, in my opinion, is of decided value in more than half the cases. Cinchonism is seldom produced and the drug can be taken for months with no deleterious effects. It, with other simple therapeutic measures, has cured several of my cases which have resisted all treatment, including operative. To quote Forschheimer's own words, "The good effects under this treatment usually follow in the same sequence; first, the tachycardia improves, the pulse frequently coming down from 130-140, pulse beats to 80 or 90 in forty-eight hours. Secondly, the thyroid gland diminishes in size, by measurement. Thirdly, the tremor and exophthalmus is the last symptom which disappears; indeed, in a goodly number of patients it never disappears. To convince oneself that the treatment is the cause of the changes just noted, it is necessary

only to withdraw the pills and, unless the patient is cured, the symptoms recur. If after the withdrawal of the pills the symptoms disappear, such patients, as a rule, may be considered cured. Relapses are not uncommon; these patients have relapses on account of psychic or physical irritations, and these relapses should be treated in the same way as before. It is on account of these relapses that the disease may last so long. The treatment just described is most valuable in the mild attacks, the percentage of complete recoveries being very large, and after a short time. When the fully developed form exists, either primarily or as a relapse, complete recoveries are the rule, but more time is required. When the patient has the foudroyant form the results are excellent, so much so that if one believes only in surgical treatment the quinine and ergotin may be given to get the patient in condition for the operation, as has already been done by Deaver." The ergotin, which Forschheimer and Solis-Cohen recommended to be given with it did not seem to have any appreciable influence.

In cases which do not respond to the quinine therapy calcium salts, especially calcium lactate, should be used. Blair Bell has shown that the thyroid secretion exerts a powerful influence on calcium metabolism. Sir James Barr, who has had an extended experience in this disease writes, "I now think that the soluble salts of calcium, especially when combined with adrenalin, constitute our best remedy in this disease. The suprarenal and pituitary secretions help to retain the lime salts in the tissues, but the pituitary should only be used when the blood pressure is low, and there is reason to believe that the suprarenal glands are inactive."

The patient should be placed upon as liberal a diet as can be assimilated. Most cases have lost considerable weight. A régime similar to the one adapted to the treatment of pulmonary tuberculosis is often indicated. While the diet is not generally an important factor in the treatment, it should consist chiefly of milk, green vegetables, farinaceous foods with plenty of fat, and a minimum of red meat. Sodium chloride should be freely used in the diet. It is well to avoid acid fruits, and remembering that a comparatively large percentage of cases show a carbohydrate intolerance as manifested by a slight glycosuria, the sugars should be carefully given and in some cases eliminated entirely from the dietary.

The indication for iodine, preferably Lugol's solution, is most important to determine. The use of iodine is dangerous in most cases, but in others it apparently has a curative action. Other methods should be used first and then, if possible, the case studied with the attempt made to determine if the gland is undergoing degenerative changes, for then only can iodine be safely used. The investigations of Baumann, Ross, and Oswald have shown the active principle of the thyroid gland is a globulin which is first formed within the cells containing no iodine and is physiologically inactive until it acquires its iodine from the blood and is iodized, becoming iodothyreoglobulin. When there is an excess of iodine in the blood content the thyroid cells are stimulated to hyperplasia and the amount of iodothyreoglobulin is increased, giving the physiopathological basis for exophthalmic goiter. When the blood content is low in iodine the thyreoglobulin is not iodized and accumulates in the cells, which are saturated with iodine-free thyreoglobulin and colloid degeneration ensues, thus producing the pathological picture of simple colloid goiter. It can be readily seen that iodine should only be given in the non-hyperplastic types of cases and in those patients who show clinical evidences that the thyroid is undergoing degenerative changes. It does harm by activating the thyreoglobulin and may bring on an accerbation of the disease. A case illustrating this effect was recently seen in St. Barnabas Hospital. The patient was a goitrous woman (M. W. 28,619), 48 years old, who presented the symptoms of a moderate degree of hyperthyroidism. After an attack of measles, when she was 16 years old, the thyroid gland slowly began to enlarge and showed symptoms of hyperfunctionating. The enlargement of the gland reached its maximum when the patient reached the age of 25. This condition, with very slight symptoms of hyperactivity, existed until 10 months ago when the patient was placed upon iodine and chromium sulphate with unguentum iodi rubbed into the gland. As the result of this treatment, the patient rapidly began to develop marked symptoms of hyperthyroidism and when seen by the writer, presented nearly all the classical signs of exophthalmic goiter.

We have had no experience with galvanization, *x*-rays, thymus, or parathyroid extracts, rodagen, a powder made of the dried milk of a goat whose thyroid has been removed, or the specific sera of Mobius or of Beebe. Favorable results have been reported by some observers, especially in the use of Beebe's serum, but further confirmation is needed. It is the general opinion that of all the glandular extracts that have been used thymus extract has given the best and most permanent results, and its effect is greatly increased by giving with it small doses of adrenalin.

The results of cases medically treated are not sufficiently appreciated by the profession. A careful study of the results obtained by many men, Hale White, Mackenzie, Musser, and others sustain Solis-Cohen's contention that "under medical management one may reasonably hope for the recovery of not less than 75 per cent. of patients exhibiting Grave's syndrome." These results are about the same that are claimed for surgical treatment in the hands of competent men, as McWilliams has shown in his review of the results obtained in 514 cases reported by Mayo, Klemn, Riedel, Kocher, and Krecke; of these 72 per cent. were cured, 15 per cent. were improved, 11 per cent. slightly improved, and 3 per cent. were unimproved.

Unquestionably there are many cases which demand surgical intervention and this question must be decided upon on the circumstances and merit of the individual case. Fortunately the operative mortality in good surgical hands is less than 5 per cent., and in men of large experience, as Mayo, Dunhill, and others, who are devoting special attention to these cases, it is less than 1 per cent. or even half of 1 per cent. It must be remembered, however, that recovery from the surgical operation does not necessarily mean recovery from the disease, as any surgeon or clinician will attest. It is most important to decide when a case should be referred to our surgical colleagues, and we think the following conclusions may be safely drawn:

(1) All cases should receive good medical treatment for from three to six months before considering operative treatment.

(2) Surgery should be advised, "when the disease is progressive or far advanced and is either disabling or dangerous, or threatens to become so, even though no sufficient attempt has been made at medi-

cal and hygienic management including rest" (Cohen), and

(3) In cases that cannot take sufficient rest and will not cooperate fully in the medical management of the case.

(4) A patient who is to be operated upon should have at least two weeks absolute rest before being surgically treated.

(5) Cases should be referred only to surgeons who have had large and special training in the operative treatment of this disease, no matter how expert they may be in other fields.

(6) The hyperemic condition of pseudo-Graves' disease in young girls should never be operated upon, as has been the writer's sad experience to see.

(7) Surgical intervention should not be advised in cases of goiter associated with functional or organic disturbances of other secretory organs until the associated disorders are removed or relieved. (Musser.)

(8) After surgical intervention a case should receive appropriate treatment and be under medical supervision, if the operative results are to be permanent.

BIBLIOGRAPHY.

1. Plummer: *Jour. Am. Med. Assoc.*, August 30, 1913.
2. Wilson: *Amer. Jour. Med. Sciences*, March, 1914, p. 344.
3. Klose: Beit. z. klin. Chir., 1912, Band lxxvii, S. 601.
4. Carlson: *Amer. Jnl. of Physiology*, 1912, xxx, 129.
5. Marine: *Jnl. of the Amer. Med. Asso.*, 1912, lix, 325.
6. Hale White: Proc. Roy. Soc. Med., March, 1912, Surg. Sect., p. 81.
7. Dunhill: *British Med. Jnl.*, February 17, 1912, p. 366.
8. Mayo: *Jnl. of the Amer. Med. Assoc.*, 1912, lix. 325.
9. Capelle and Bayer: Beiträge zur klin. Chir., September, 1913.
10. McPhedran: *Canadian Med. Asso. Jnl.*, February, 1911.
11. Bialokur: *Zeit. f. Tuberculose*, 1910, xvi, p. 557.
12. Marine and Lenhart: *Archives of Internal Medicine*, September 15, 1911.
13. Handmann: *Münch. med.* Woch., 1911, No. 22.
14. Stern: *Archives of Diagnosis*, July, 1911.
15. A. Kocher: *Virchow's Archiv*, April, 1912.
16. MacCarty: *New York State Jnl. of Med.*, October, 1912.
17. Matti: *Deutsch. Zeit. f. Chirurgie*, vol. cxvi.
18. Melchior: *Centralblatt f. d. Grenz d. Med. u. Chir.*, vol. xv, No. 3.
19. Edmunds: *Jnl. of Path. and Bact.*, 1894-96, III., pp. 488-501.
20. Baruchi: *Zentralblatt f. Chir.* Nr. 10, 1912.
21. French: *Amer. Jnl. of Phys.*, April, 1912.
22. Lambert: *N. Y. Med.Jour.*, September, 1912.
23. Frazier: *Progressive Medicine*, March, 1913.
24. Stengel: *Progressive Medicine*, June, 1913.
25. Berry: *Lancet*, March 1, 1913, p. 583.
26. Garre: Verhandlung, d. deut Gesellsch. f. Chir., Nr. 27, 1911, p. 43.
27. Dock: Osler's "Modern Medicine," Vol. VI, p. 417.
28. Stengel: *Pennsylvania Medical Journal*, 1906.
29. Cohen: *Amer. Jnl. of Med. Sciences*, July, 1912.
30. Forschheimer: Therapeusis of Internal Diseases, Vol. 3.
31. Hirschfelder: Diseases of the Heart and Aorta.
32. Mackenzie: Proc. Roy. Soc. Med., March, 1912, Surg. Sect. p. 81.
33. Musser: *Amer. Jnl. of the Med. Sciences*, June, 1912.
34. Walton: *Practitioner*, October, 1914.
35. Thompson: *Jnl. Mo. State Med. Assoc.*, September, 1911.
36. Cross: *Long Island Med. Jnl.*, April, 1910.
37. Brandenstein: *Berl. klin. Woch.*, September 23, 1912.
38. Barr: *Practitioner*, April, 1914.

235 Grafton Avenue.

THE INTRASPINAL TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.*

By MARTIN J. SYNNOTT, A.M., M.D.,
MONTCLAIR, N. J.

THE work of Swift and Ellis in treating tabes and syphilis of the central nervous system with intraspinal injections of salvarsanized serum has interested me very much, and I have myself employed this method on several cases. I believe their methods are rational and scientific. Subsequent observations may lead to radical modifications of the technique, but this will in no way detract from them and the other pioneer investigators who have blazed the way in this very important work.

The serological findings in cases of tabes have led me to give the subject considerable thought. In most of the cases I have seen, the Wassermann reaction in the blood has been negative, while in the spinal fluid it has been strongly positive, together with an increased number of cells, up to 40, 50, 60, or higher, and an excess of globulin.

In cases like these, where the blood is negative to the Wassermann, but the spinal fluid positive, it has occurred to me that simply draining off the spinal fluid might do much good. In these cases the blood may be rich in spirocheticides, whereas the contents of the infected spinal cavity may be very low—in fact the immunizing substances necessary to combat the spirochete may be exhausted.

Those of us who are vaccine therapists know that in bacterial diseases we meet not infrequently cases of infections in the body cavities, such as the peritoneum, pleura or an ordinary abscess, where the contents of such a cavity are found to be low in opsonins and other protective substances, while the by-circulating blood contains an excess. We also know that results can be obtained from vaccine therapy only where an efficient lymph stream can be conducted through the focus of infection, and that unless the blood stream with its antibacterial substances has free access to the infected area, an increased opsonic index in the blood does not cure the disease. When such a cavity is drained, however, this procedure is followed by the introduction of fresh fluids from the blood, containing an excess of protective substances, and the cavity is quickly healed.

Thus is explained why cases of tuberculous peritonitis recover without any other treatment than the opening and draining of the peritoneal cavity.

We quite recently have read a report of a cure of a case of tuberculous meningitis in a child where the diagnosis was unmistakably confirmed by the laboratory findings. Here the only treatment employed was daily spinal puncture and the draining off of 10 to 15 c.c. of fluid.

In exactly the same way it seems to me that drainage of the spinal canal in cases of tabes, particularly in those where the blood shows a negative Wassermann might do good. The lymphagogue action following this procedure should bring about the introduction into the infected canal, where perhaps the protective substances have been exhausted, of fresh fluids from the blood, rich in spirocheticidal properties, and this in itself should tend to effect a cure. I offer this

*Opening Remarks of the Discusion of a Paper on the "Intraspinal Treatment of Syphilis of the Central Nervous System," delivered at a meeting of the Orange Mountain Medical Society, November 20, 1914.

merely as a suggestion. It has the advantage over the Swift and Ellis technique in that the danger to the patient is minimized, and the treatment much simplified.

Now as to whether we should use an autogenous or exogenous blood serum, it is my belief that in cases where the patient's blood is negative to the Wassermann, we should use an autogenous serum, because it seems reasonable to suppose in such cases that the patient has won in his fight against syphilis so far as his blood is concerned and that therefore his blood should be high in spirocheticidal substances, whatever these may eventually be shown to be. The introduction of such a serum in appreciable quantity ought to be a valuable therapeutic agent, in the infected spinal cavity, even without the addition of salvarsan. This explains to me why cases treated by the original Swift-Ellis method showed improvement, although by this method the amount of salvarsan in the injected fluid was so small as to be almost negligible.

On the other hand, if the patient's blood gives a positive reaction to the Wassermann test, it seems to me reasonable to assume that it is low in spirocheticidal substances, and that an exogenous serum obtained from human blood known to be healthy is much to be preferred.

THE CLINICAL SIGNIFICANCE OF BLOOD PRESSURE.*

By PERCIVAL NICHOLSON, M.D.

ARDMORE, PENNA.

As a consequence of the ease of blood pressure determination by the auscultation method and its wide advocacy by a number of the leading authorities on medicine, thousands of observations have been taken by general practitioners and specialists and a very large and voluminous literature has rapidly accumulated.

As was only reasonable to expect, a large majority of observers magnified a symptom into a disease and not understanding the physiological and pathological conditions involved in blood pressure observations, in many instances caused considerable injury to their patients by treatment based on a wrong diagnosis. A perfect mania was developed for the reduction of what to many observers were cases of hypertension. This idea of the reduction of high blood pressure has become, I am sorry to say, so prevalent that but a short time ago a noted clinician remarked to me that he thought that the attention called to blood pressure observations had done more harm than good, owing to the effort of the general practitioner to effect a lowering of the hypertension immediately by such drugs as the nitrites.

At present there is a partial reaction and I trust it is only a question of time until the proper interpretation and management of blood pressure cases are more clearly understood and the remarkable practical value of careful blood pressure observations as a means of diagnosis and a guide to treatment appreciated.

In order to understand clearly the significance of blood pressure it might be well to review briefly a few well known facts.

Blood pressure depends on four main factors: (1) the contracting force and rate of the heart beat; (2) the degree of elasticity and lumen of the vascular wall; (3) the volume of the blood; (4) the peripheral resistance. The vasomotor system regulates the rate and force of the cardiac beat in relation to the tone and lumen of the arterioles and capillaries acting as the governor of an engine. The maximum contracting force of the heart is represented by the highest pressure present, systolic or maximal, and the pressure present during the rest period of the cardiac cycle by the diastolic of minimal pressure. The diastolic pressure indicates the amount of peripheral resistance the heart must overcome in order that the various organs may obtain their proper supply of blood.

The pulse pressure, or difference between the systolic and diastolic readings, shows the excess pressure the heart is exerting or the head of flow of the blood column.

The normal systolic blood pressure lies between 110 and 150 mm., varying somewhat according to the age of the patient. The diastolic pressure is between 60 and 105 mm. in healthy individuals.

The range of the pulse pressure given by Barach and Marks[1] is 20 to 70 mm. but Warfield[2] in his latest article found the pulse pressure to be from 30 to 50 mm. Hg. and gives the average between 40 and 50 mm. Hg. The percentage relation of the pulse pressure to the diastolic pressure Barach and Marks give as from 20 to 80 in health.

So that a conservative statement would be that the pulse pressure should not fall below 20 per cent. of the diastolic pressure, with very few exceptions, if a normal circulatory balance is present; anything below shows a pathological condition. The statement of Stone[3] that the pulse pressure should be 50 per cent. of the diastolic pressure under normal conditions has been disproved by Barach and Marks and by Warfield.

From the above it becomes evident that when blood pressure readings are taken by the auscultation method any sustained systolic pressure of 150 mm. Hg. or over would indicate hypertension, or any sustained diastolic pressure of 105 mm. Hg. or over would indicate the same condition. Even if the systolic pressure were below 150 mm. Hg., a diastolic pressure above 105 mm. Hg. would be a sure indication of hypertension regardless of the age of the patient.

On the other hand any sustained systolic pressure of less than 110 mm. Hg. or diastolic pressure below 60 mm. Hg. shows hypotension.

At the outset I wish to emphasize the fact that blood pressure observations should not consist of systolic pressures alone, such readings tell less than half the true situation. It is essential to determine the diastolic pressure (peripheral resistance) and by subtracting the diastolic reading from the systolic obtain the pulse pressure, or head of flow. I wish you to understand clearly as I have expressed in a previous paper,[4] the importance of a complete blood pressure picture. The whole significance of blood pressure depends on the taking of systolic, diastolic, and pulse pressures. The importance of diastolic pressure in this relation is clearly expressed by Barach and Marks[1] as follows: "As time goes on and our observations accumulate and are being interpreted we believe that more and more importance will be attached to the height of the minimal pressure (diastolic) and that the height of the maximal (systolic) pressure will be considered of lesser clinical importance than heretofore. Certainly the maximal (systolic) pressure alone is of no value except as a starting point for a guess as to the activity of the circulatory system."

*Read before the Medical Society of the Woman's Hospital of Philadelphia, December 21, 1914.

Warfield also makes a similar statement:[2] "Moreover, the conviction is growing that it is the height of the diastolic (minimal) pressure rather than that of the systolic pressure that is the really vital point in blood pressure determinations."

A large number of observers have considered the subject of blood pressure in the light of hypertension. It is essential to obtain a full rounded view of the subject of blood pressure if it is to become a practical and dependable aid to the clinician. This can only be accomplished when the systolic, diastolic, and pulse pressures are determined not only in relation to hypertension but also to hypotension and normal readings.

A few days ago I was told: "I think the medical profession has run off on a blood pressure tangent; it is the latest fad in medicine. I do not think that blood pressure observations have much practical significance for the general practitioner." With the above statement in mind and with the time at my disposal I shall try to show you some of the ways that clinical blood pressure observations have a valuable significance in the practice of medicine.

We will consider cases of hypertension as they are the more frequently met. By hypertension I mean any case in which there is either too high a systolic or diastolic pressure.

As a result of a routine examination a patient presenting him or herself to the clinician may be found to have a high blood pressure. There are many such cases of hypertension who come for relief from some slight or marked symptoms which they in no way associate with high blood pressure, or it is found that an applicant for life insurance has an unsupected high pressure. Immediately the question arises in both the patient's and physician's mind what is the significance of the hypertension.

The significance of the hypertension can only be determined by discovering the cause and extent of the condition producing the elevation of blood pressure. This means the obtaining of a thorough and careful history as to vocation, especially as regards occupations in which lead is used; the consumption of alcohol, tea, and coffee; the past diseases, especially typhoid fever, scarlet fever, and other acute infections. Equally important is the character of the food taken, whether mainly nitrogenous or not, and also the amount taken at a time. The amount of elimination by both the bowels and kidneys should be determined. The degree and character of exercise taken and a careful inquiry made as to the nervous tension and strain the patient is living under. The history, of course, is followed by a careful and routine examination.

As by far the largest number of cases of hypertension come from a beginning or established nephritis, especial care should be used to determine whether polyuria and nocturnal uresis are present, and a careful examination of the urine made not only for specific gravity and albumin but also for casts, indican, diacetic acid, and acetone.

Many cases of hypertension are due to focal infections, hence the necessity during the routine examination for especial care in the determination of the presence or absence of sinusitis, chronic tonsillar infection, maxillary abscess, pyorrhea, a chronic cholecystitis, chronic appendicitis, pelvic infections, and intestinal stasis. A careful examination for a blue line on the gums and the red blood cells for basophilic degeneration sometimes will clear up a doubtful case. A Wassermann reaction, especially where sclerosed vessels are present, and an examination of the eye grounds are sometimes of marked service.

By far the largest number of cases of hypertension are due to a toxemia, as yet not determined, though it is thought to be likely an excessive internal secretion from the adrenal or pituitary,[5] but the adrenal as the only source of the hypertension would seem to be disproved by the work of Janeway.[6] Whatever the character of the toxemia, its presence is pretty definitely accepted, and in hypertension the results depend on how readily we can remove it, how long it has been present before discovery, and how much if any permanent damage has been done before it is removed.

It should be clearly understood that not all cases of hypertension are due to toxemia, though the large majority of cases come under this head. There is an increasing number of patients in whom hypertension begins as a result of the high nervous and physical tension under which they are living.

While hypertension is only a symptom and not a disease, a maintained high blood pressure, no matter from what cause, will eventually produce permanent cardiac hypertrophy and vascular sclerosis with degenerative changes in the kidneys. So it at once becomes apparent that in all cases of hypertension an elimination of excessive physical and mental strain is essential if we wish to benefit our patients.

In early cases the discovery of hypertension and its proper treatment means the practical application of preventive medicine.

To determine the clinical significance of hypertension in a given case, after having determined as far as possible the exciting cause, it is necessary to see how the blood pressure and symptoms are affected by certain simple lines of treatment. Remove any focal infections where possible, place the patient on a simple low protein diet, not purely vegetable, but discontinue tea, coffee, and alcohol, and especially limit the amount of food taken at any one time. See that a moderate, not excessive, amount of fluid is taken between meals and keep up elimination by the bowel by means of the simpler cathartics as, cascara, senna, rhubarb. magnesia, etc., with a five-grain dose of blue mass once every week or two. Patients with a large pendulous abdomen should have some form of abdominal support to relieve venous stasis.

Be sure that your patient takes some form of mild exercise, but never to the point of tire. In those in whom the pressure is very high light general massage may be substituted for the exercise. Rest for a short time before and after meals should be insisted on, and when the systolic pressure is 190 mm. Hg. or over at first it is often well to confine the patient to bed, at least for a period of observation. Sweating by hot air or by electric light baths on alternate days, or less often according to the effect produced, while it often does not lower the pressure values, frequently removes uncomfortable symptoms of hypertension. In the well marked nephritic cases treatment of a diuretic nature usually aids markedly. Do not try to lower blood pressure by nitrites and the vasodilators nor by the cardiac depressants, as aconite or veratrum viride.

It is not the lowering of blood pressure that is important. There are however a few exceptions:

(1) In cases where the blood pressure is sufficiently elevated to threaten apoplexy (250 to 300 mm. Hg.) an immediate reduction of blood pressure is indicated, usually by a venesection.

(2) In hypertension with failing compensation

with an overloaded right heart, as in pneumonia, an immediate venesection will often save the patient.

(3) Angina pectoris is also an urgent indication for the use of the vasodilators, as amyl nitrite.

(4) Cases of hypertension in which operative procedures are demanded, where the height of the pressure is such that the giving of an anesthetic is necessary and at the same time dangerous, a preliminary lowering of the blood pressure will often permit of a safe operation.

(5) In patients suffering with cataract and having hypertension, a preliminary bleeding will lower the blood pressure so that a safe enucleation may be performed and the danger of postoperative intraocular hemorrhage avoided.

As a result of simple limitation of diet, elimination, and proper hygiene, as outlined above, some of your hypertensive cases will be free from symptoms and the blood pressure will fall to a normal level. In these patients you have discovered the beginnings of trouble when the hypertension was due to a spasticity of the vascular walls before any sclerotic and degenerative changes had taken place in the blood-vessels and kidneys. The patients are cured and will remain so as long as they are careful to carry out a rational hygiene.

In other cases your treatment, while it may have relieved some or all of the symptoms of which the patient complained, has only partially, if at all, produced any reduction in the blood-pressure figures. Here the hypertension has been present over a longer time, the cardiac muscle is hypertrophied, and the vessel walls are somewhat sclerosed, so that you cannot produce a return of the blood pressure to the normal level even by removing the cause. An attempt at complete reduction of blood pressure would only injure your patient; as a certain increased pressure is necessary to maintain an adequate circulation to the organs, on account of the increased peripheral resistance due to the sclerosed vessels, it is a compensatory condition. All you can hope to do is to eliminate that portion of the hypertension due to increased spasticity of vascular system. A continuance of the simple treatment outlined will prevent further damage, and the patient with care can live a useful and comfortable life, the duration in years depending on the degree of reaction shown to treatment, not necessarily to the numerical height of the blood pressure, though that is very important.

In still other patients where toxemias have lasted over a considerable period, marked and permanent cardiac, nephritic, and vascular changes have resulted so that the treatment given, even though it eliminate the primary cause of the high pressure, will produce no lowering in the blood pressure readings, though it may relieve some or all of the symptoms.

In such cases there is no need to be unduly discouraged. As long as there is a pathologically normal blood pressure maintained with its compensatory wide pulse pressure by hygienic and conservative treatment, such cases may live in comparative comfort for four or five years and in some cases longer. Any fall in the systolic pressure or diminution of the pulse pressure is a bad sign. Many of these cases are improved by small doses of digitalis and tonic treatment.

Even in cases of hypertension which cannot be reduced there was often superimposed attacks of spasticity for which much can be done. The great importance of spasticity in hypertension is clearly shown by the following case:

Male, aged 60 years, seen in consultation two weeks subsequent to an attack of apoplexy; has always been a fairly heavy drinker, mostly of whiskey, and a heavy eater, and takes but little physical exercise; rest of the past history negative. Two weeks before being seen he had an attack of apoplexy with left-sided paralysis, from which he was rapidly recovering until the day before consultation. At this time he complained of severe pain in the region of the umbilicus, and a temperature of 101° F. was noted. On the day seen the temperature was 102° F., all fluid and food were vomited, and the pain in the abdomen was very severe, so that the attending physician had given two hypodermics of one-quarter grain each of morphine. Examination showed a large overnourished man with gray hair, appearing much older than his years. In the general examination the salient points were a moderate left-sided paralysis, a markedly over-action and moderately hypertrophied heart, a general rigidity of the abdomen, and severe cramp-like pain. Pulse was 100, blood pressure 180 mm. Hg. Systolic, and 160 mm. Hg. diastolic. I was informed that the blood pressure had been the same for a week previous. The treatment had been tincture of aconite and veratrum viride in large doses, together with potassium iodide. The urinary secretion for the last twenty-four hours had been only seventeen ounces. All medication was discontinued and salt solution given by the bowel and hot applications placed on the abdomen. In twenty-four hours the urinary output rose to seventy ounces, the temperature fell to 98° F., and the blood pressure readings to 160 mm. Hg. systolic, 110 mm. Hg. diastolic. The blood pressure has since remained around the same level and the patient is entirely free from pain and has recovered the use of his left side almost entirely.

The significance of the symptoms found in hypertensive cases is very exhaustively treated by Janeway,[7] but owing to the time required to discuss them I shall have to omit them here.

Warfield's[8] conclusions in regard to pulse pressures to me are a very valuable aid in determining the significance of blood pressure in the cases we are discussing: "In general when the systolic pressure is normal, increased pulse-pressure signifies peripheral dilitation. When the systolic pressure is high the increased pulse-pressure is to be regarded as normal and has no special significance. Decreased pulse-pressure or even normal pulse-pressure means marked peripheral constriction, and is, therefore, an unfavorable sign. With low systolic pressure increased pulse-pressure occurs in practically only one condition, aortic insufficiency. With normal systolic pressure gradually decreasing pulse-pressure usually means cardiac failure. The condition is seen often in the later stages of the high systolic increased pulse-pressure cases. With low systolic pressure decreased pulse-pressure usually means general cardiac weakness, as seen in febrile conditions or in convalescence from long illnesses or in cachexia or malignant disease."

Lichty,[8] after stating that great care should be exercised in the prognosis, makes the following generalizations:

"(1) Where hypertension exists with but little or no recognizable disturbed function of other organs the outlook is most favorable. (2) Where it is associated with marked disturbance of any one other organ alone it is more serious. (3) Where it is associated with great defect of several other organs, such as kidney insufficiency, cardiac insufficiency, cirrhosis of the liver, and lesions of the gastrointestinal tract, the prognosis is most serious. (4) When the hypertension is associated with symptoms and physical signs which disappear after a more or less active and prolonged treatment which, however, fails to lower the tension, a favorable prog-

nosis is not unwarranted. Such cases are rather frequent, and I believe it is just as unreasonable to take an unfavorable view of them as it is to predict a speedy fatality in all cases of pulmonary tuberculosis where the bacilli are found in the sputum. (5) When the tension is found in connection with changes in organs producing such extreme symptoms as dropsy, ascites, cyanosis, and orthopnea, and when these symptoms cannot be relieved, whether the tension is modified or not modified by heroic treatment covering five to eight weeks, then defeat is sure. And extraordinary measures, such as drastic purging, venesection, and medication with excessive doses, are entirely useless, or effectual only for a short time, and sometimes more cruel than humane."

The significance of blood pressure as regards hypertension in the more acute conditions that arise in obstetrics, cerebral concussions, and fracture of the skull, I shall leave to those discussing surgery, obstetrics, and medicine. The subject of hypotension, normal blood pressure, and blood pressure in children I shall leave for future consideration as time does not permit a discussion of them now.

REFERENCES.

1. Barach, Joseph H., and Marks, W. L.: "Blood Pressures, Their Relation to Each Other and to Physical Efficiency," *Arch. Int. Med.*, April 15, 1914.
2. Warfield, Louis N.: "Further Observations on Diastolic and Pulse Pressure," *Amer. J. Med. Sc.*, December, 1914.
3. Stone, Willard J.: "The Clinical Significance of High and Low Pulse Pressure, with Special Reference to Cardiac Load and Overload," *Jour. A. M. A.*, October 14, 1913.
4. Nicholson, Percival: "The Clinical Significance of Diastolic and Pulse Pressure," *Am. Jour. Med. Sci.*, April, 1914.
5. Voegtlin, Carl, and Macht, David I.: "Isolation of a New Vasoconstrictor from the Blood and the Adrenal Cortex," *Jour. Amer. Med. Assoc.*, December 13, 1913.
6. Janeway, Theo. C.: "Nephritic Hypertension Clinical and Experimental Studies," *Amer. Jour. Med. Sci.*, 1913, CXLV, p. 625.
7. Janeway, Theo. C.: "A Clinical Study of Hypertensive Cardiovascular Disease," *Arch. Int. Med.*, December, 1913.
8. Lichty, M. J.: Hypertension: A Report of Cases Under Prolonged Observation, and a Protest Against Some Ideas," *A. J. Med. Sci.*, May, 1913.

117 Argyle Road.

THE ABORTION OF TYPHOID FEVER.

By WILLIAM LAWRENCE FRAZIER, M.D.,

MOUNTAIN HOME, IDAHO.

MEDICAL DIRECTOR OF THE FRAZIER LABORATORY.

THOUGH it has not been demonstrated by so many authorities or to so great an extent, that typhoid fever can be aborted, as it has been demonstrated that it can be prevented, it has been just as surely demonstrated.

I published an article in the MEDICAL RECORD, November 11, 1911, on the "Use of Ipecac to Abort Typhoid Fever." In this article was given a brief record of several cases of typhoid treated by the use of salol-coated capsules of ipecac. Treated by ipecac in this way, the fever was aborted in from four to six days. But there were some disadvantages in this mode of treatment. If the salol coat became broken before the capsule left the stomach it caused vomiting, or if the salol coat was too thick it passed through the entire alimentary tract undissolved. These factors made regulation of dosage difficult. The method of treatment has been modified to overcome these difficulties. Instead of ipecac, the active principle is given hypodermically in the form of emetine hydrochloride. By administering it hypodermically the probability of producing vomiting is done away with, the dosage can be accurately regulated, it can be given to children who could not swallow a capsule, and instead of taking from four to six days to abort the fever the results have been an abortion in from two to four days. In only six cases of a series of eighty-two treated by hypodermic injection of emetine hydrochloride did the fever run longer than four days after the treatment was begun, and none of these six extended over a period of more than six days.

Three of these cases were first seen about the beginning of the third week, and very small doses were given. The other three were given a preparation which on test proved to be very low in active principle, and was discarded and a tested product used. Because of this we have established a laboratory for the purpose of being able to test our product. It would be as disappointing to try to abort a case of typhoid fever by using a poor qualilty of emetine, as it would be to try to cure a case of diphtheria with a serum from an animal which had not been properly treated.

Emetine hydrochloride may be called a typhoid fever abortant and discussed as follows:

Animal Tests.—The injection of large amounts into guinea-pigs, cats, dogs, and goats, without producing toxic symptoms proves the preparation harmless. Six times the ordinary dose has been given man without producing toxic symptoms.

Culture Media Tests.—The serum from the blood of the goat taken twelve hours after the last of the sereis of three injections of one-half grain to each injection, will not serve as a medium upon which to grow typhoid bacilli; and a colony planted on it dies within ten hours.

Bouillon, agar, and serum media in one to twenty-five thousand mixture will not support the growth of typhoid bacilli; and colonies transplanted on to these media quickly perish.

Indications Relative to Typhoid.—It is indicated in typhoid fever as an abortant, and in those exposed to typhoid as prophylactic. As an abortant it should be used as early in the disease as possible. In epidemics and cases known to have been exposed it should be used as soon as any symptoms of typhoid appear. Its being nontoxic renders early use justifiable. It is impossible to emphasize too strongly the necessity of early usage. As a prophylactic it is of benefit only while in the circulation, and for this reason should be given every twenty-four hours. It is recommended as a prophylactic to be used only until immunity can be established by the ordinary prophylactic.

Dosage.—One-half grain is the adult dose. For individuals over fifteen the adult dose is suitable unless the individual is underweight; in children twelve to fifteen years old three-fourths adult dose should be used; in from nine to twelve years old one-half the adult dose; from five to nine, one-third the adult dose; children two to five, about one-fourth the adult dose; infants, from one-eighth to one-sixth dose. Individuals overweight may be given larger doses, or underweight smaller doses. There being no untoward after effects the dosage should be held pretty well up to the maximum.

Administration.—Inject subcutaneously near the insertion of the deltoid, using the same technique and aseptic precautions ordinarily used in hypo-

dermic injections. The injections should be started as early as possible and repeated every six, eight, or twelve hours till the maximum afternoon temperature is within 1° to 1.5° of normal, then given in one-half doses until the temperature reaches normal.

If the patient has a little rise of temperature in the afternoon, after it had been normal at this time, give one-half to one dose every twelve or twenty-four hours until the afternoon temperature again reaches normal. If it falls so far below normal that the patient is uncomfortable it is well to use a warm-water bottle. The subnormal temperature is the only reaction experienced, and this is of only minor importance.

Mode of Action.—When given hypodermically it is taken directly into the circulation of the individual. During the first two weeks of a typhoid infection almost all the typhoid bacilli forming the infection are in the blood of the infected individual. Emetine hydrochloride entering the blood forms a medium in which the typhoid bacilli cannot grow, as shown in the goat test. Consequently the typhoid bacilli in the circulation are killed. The typhoid bacilli being killed the cause is thereby removed and the fever ends. Here is also obvious why it is necessary to administer early. After the first two weeks the bacilli are numerous in the intestinal lymph follicles and are more difficult to reach, taking four to six days, while during the first ten days, when the bacilli are principally in the circulation, it takes from two to four days, depending on the time required to bring the blood up to a medium of about one to twenty-five thousand. To hold the medium about this point it is necessary to repeat the injection every six, eight, or twelve hours, as was said in the section on administration, as the emetine is rapidly eliminated by the kidneys.

Accessory Treatment.—A little calomel or calomel and phenolphthalein may be used to keep the bowels acting mildly, when used early. The same precautions should be taken relative to diet as is necessary in prolonged cases.

Caution.—Give as early as possible. If typhoid is suspected do not wait for a positive Widal. If it is typhoid the Widal will as a rule be positive later. Early use saves the patient much time and minimizes the danger of the disease, and late use may cause severe hemorrhage. I am convinced that emetine hydrochloride should not be used as an abortant of typhoid fever after the beginning of the third week unless used in very small doses, because of the results of its action.

When the typhoid is aborted, the ulcers clean off. After the beginning of the third week the ulcers are so extensive that their sloughing opens blood vessels and causes hemorrhages.

True, emetine hydrochloride is highly recommended as a hemostatic, and justly so; but the slough opens vessels large enough to cause serious hemorrhage if given late. I have never seen a fatal hemorrhage following its late use. If it is given in small doses after beginning of the third week it acts favorably but slowly, even in the third week.

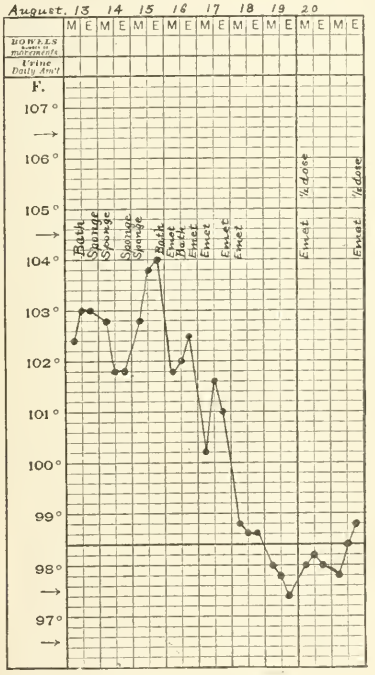
Here are given two cases of typhoid fever selected from a series of eighty-two. These two are typical cases of the series.

Case I.—Mr. R. B. R., age 37, gave a history of generally good health prior to present illness. On December 3, 1913, he had a slight headache. He took a course of calomel on December 4, but without relief. He was first seen on December 7. At this time he gave a history of frequent evacuations of the bowels and some tenderness in the abdomen. The fecal matter discharged was thin and light green in color.

For several days previous to the time of the beginning of the headache he had a feeling of malaise, with loss of appetite. His tongue was heavily coated and his breath foul, his temperature was 102.8° at 2 P. M.; at 6 P. M. 103.8°. He was given another course of calomel on December 7, which acted well. December 8, at 8 A. M. his temperature was 101.6°; at 12 A. M. 101.8°; at 4 P. M. 102.4°; at 8 P. M. 102.4°. December 9, at 8 A. M. his temperature was 102°; at 12, 103.8°; at 4 P. M. 103.8°; at 8 P. M. 103.6°. Typhoid was strongly suspected. A physician was called in consultation and he confirmed the diagnosis. At the beginning of the second week the Widal was made and was characteristic of typhoid.

The abortant treatment was begun Dec. 9, at 8 P. M. An injection was given every twelve hours from Dec. 9, 8 P. M. to and including Dec. 11, at 8 A. M., Dec. 12, 8 P. M., Dec. 13, 8 P. M. and Dec. 14, 8 P. M.

On Dec. 10, the temperature range was from 102.4° at 8 A. M. to 103.6° at 4 P. M. On Dec. 11, the highest was 101.5° at 8 A. M., the lowest 100.4° at 8 P. M. On Dec. 12, the range was from 98.4° to 99.1°. On Dec. 13, from 96.8° to 98°. On Dec. 14, from 96.8° to 97.2°.



Temperature Chart of Case II.

The patient made an uneventful recovery, with a rapid convalescence.

Case II.—M. F. D., age 25. Previous history good. About August 6, he began to feel badly, was first seen Aug. 12. Had a headache with increasing severity, and more severe in the afternoon. Constipated, appetite failing, malaise, weak, and generally indisposed to perform his daily duties. The physical findings were slight tenderness over the abdomen, coated tongue, slight skin rash, rose spots on abdomen, temperature 102.4°. He gave a history of having taken purgatives and quinine without any benefit. Typhoid was suspected and patient was put to bed and observed. The chart shows the variations of temperature and the influence upon the same of emetine. There was no fever after August 18 due to the typhoid. The very slight rise of temperature noted on August 21 was the result of faulty elimination.

PROPHYLAXIS OF PUERPERAL CONVULSIONS.*

By STEPHEN H. BLODGETT, M.D.,

BOSTON, MASS.

During the latter part of 1910, when I was following out the investigations embodied in my paper published in the Medical Record of January 13, 1912 (and of which this is more or less of a continuation) it occurred to me that possibly we could go one step further and find some method by following which we could prevent a case of pregnancy coming to the point where the induction of labor was necessary because of threatened convulsions.

With the kind cooperation of the maternity staff at the Massachusetts Homeopathic Hospital, I decided to put to the test a theory regarding the possible cause and prevention of convulsions, which had occurred to me while watching the maternity cases from the kidney standpoint, during the previous three years.

The theory which I had formed regarding the cause of the convulsions would be of very little interest to you, so I will omit it, and only mention what changes were made in the diet and treatment of the prospective mother, and the results obtained.

The changes consisted broadly in watching carefully the amount of urea excreted by the kidney, and when this fell below what appeared to me to be normal for the patient, in at once withdrawing all meat and fish from the diet.

The problem which I was trying to solve was to find some efficient method of examination so simple that it would be readily performed by the average physician, and one that would enable him to foresee the likelihood of convulsions, and when foreseen use some simple means to prevent them.

The rule was made that cases applying for admittance to the hospital for their confinement should eat meat but once daily, and bring a sample of the twenty-four-hour urine to the hospital every three weeks up to the sixth month of pregnancy. After that time the urine was to be sent in every two weeks. Any patient showing a slight subnormal urea output was ordered to send in the urine each week, and if the decrease still persisted she was to be notified to come into the hospital, where the urine could be examined each day and the diet regulated as we judged advisable.

It was very hard in many cases to persuade the patients to bring the urine as requested, and it necessitated constant work by the maternity internes to get many of the applicants to comply with the rules, and even with their utmost endeavors many of the cases failed to report as often as the rules required.

I may be criticised in these cases for not having performed the total nitrogen test on each specimen of urine, but that test is such that the average physician cannot perform it readily, and in following out my theory I was interested to see what results could be obtained from the estimation of the amount of urea excreted.

The figures which I present are from a very large number of cases. In fact, I think the number so large (over 1,500 confinements) and the period (two years) so long that whatever the theorists may say the results as shown by the statistics prove at least the efficacy of the treatment.

Taking our figures in 1909 and 1910 (see Medical Record of January 13, 1912, "Toxemias of Pregnancy") it seems fair to assume that about 2 per cent. of the usual run of hospital confinements develop convulsions, exclusive of those cases which we should classify as the emergency cases of convulsions. I have included in this latter class only those cases that were never seen by anyone connected with the maternity staff until sent to the hospital by the district or some other physician because convulsions had already taken place.

The following are the figures:

	Confinements	Convulsions	Induced Labors
For 1912 there were	768	2	1
For 1913 there were	890	2	0

I have excluded from these statistics the emergency cases of convulsions and the induction of labor in any of these emergency cases. I have excluded from these figures also a few cases brought to the hospital and attended by their own physicians who were not on the maternity staff. These casese were not subject to the maternity rules and consequently did not come under my supervision.

Perhaps I can best illustrate the way the work has been done by citing several of the actual cases.

Case I.—On August 12 Mrs. X applied for admission. Expected confinement was about January 1. The first urine sent in was on September 16. The uranalysis showed:

Date	Amt.	Sp.Gr.	Total Solids	Urea	Albumin	Sediment
Sept. 16..	470 c.c.	1022	24	7	Trace	
	Advised to eat meat but once a day; had been using it two and three times.					
Sept. 28..	1415 c.c.	1008	26	9.9	Sl. Tr.	
	Advised to enter hospital. Entered hospital Oct. 11.					
Oct. 13...	950 c.c.	1911	24	6	Sl. Tr.	
	Advised no meat or fish. Urinalyses were made daily.					
Oct. 18..	1415 c.c.	1014	46.5	17	V. Sl. Tr.	
	Allowed to leave hospital and advised to continue on a meat-free diet.					
Oct. 26 .	1280 c.c.	1011	33	14	V. Sl. Tr.	
Nov. 2..	860 c.c.	1016	32	12	Sl. Tr.	
	She was again advised to enter hospital as I felt the urea was getting too low. She came in November 4 and was put on a meat-free diet.					
Nov. 6..	1260 c.c.	1012	35	14	Trace	
Nov. 9..	1300 c.c.	1016	49	17	Trace	
	She was discharged Nov. 11, and advised again to continue same diet.					
Nov. 16..	1260 c.c.	1011	36	9	Sl. Tr.	
	Advised to reenter hospital, which she did Nov 19 and she was immediately placed on a meat-free diet. I have always felt that this patient while at home indulged more or less in meat, as each time she returned home her urea output decreased and on her admittance to the hospital where we could be certain she received no meat, her urea elimination would increase at once.					
Nov. 21..	540 c.c.	1018	22	9	Trace	
Nov. 23	2280 c.c.	1010	52	18	Trace	
	Although the albumin had increased to a trace she was discharged Nov. 24 and cautioned very strongly in regard to meat.					
Dec. 4..	1680 c.c.	1013	50	18	V. Sl. Tr.	
Dec 10 .	1200 c.c.	1018	50	16	V. Sl. Tr.	
Dec. 19 .	1680 c.c.	1014	51	15	V. Sl. Tr.	
	Patient was admitted on Jan 1 and was delivered on Jan. 2 of a healthy child. Mother and child made an uneventful convalescence.					

Case II (60,938).—Admittede to hospital July 16. At her first application she complained of headache, blurred vision and epigastric distress. She was placed at once on a meat-free diet and analysis of the urine the following day showed:

Date	Amt.	Sp.Gr.	Total Solids	Urea	Albumin	Sediment
July 18..	1320 .c.	1010	30	11	Sl. Tr.	
July 19..	1320 c.c.	1008	25	16	Trace	
	The urea output was increased relatively in considerable amount and it was considered advisable to carry case along without inducing labor.					
July 29.	1920 c.c.	1011	48	19	Sl. Tr.	
	The woman was delivered of a healthy child Aug. 5 and made an uneventful convalescence.					

This case typifies some of the cases where the clinical symptoms of impending convulsions were present, but in spite of these with proper treatment ended in normal labor.

Case III (62,427):

Date	Amt.	Sp.Gr.	Total Solids	Urea	Albumin	Sediment
Sept. 28..	480 c.c.	1014	15.5	8	Sl. Tr.	Many gran. casts
	She was advised to enter hospital, and did so Oct. 7.					

*Delivered before the Massachusetts Surgical and Gynecological Society, Dec. 10, 1914.

Oct. 9..	1800	c.c.	1010	41	S	Tr.
	She was put on a meat-free diet and despite amount of albumin and casts, the induction of labor was advised against.					
Oct. 12..	3600	c.c.	1004	36	21	Sl. Tr
Oct. 14..	2820	c.c.	1004	26	12	Trace
	Discharged Oct. 16.					
Oct. 19..	1440	c.c.	1015	50	23	Trace
Oct. 22..	1440	c.c.	1011	36	15	Trace
	Was delivered Oct. 23 of a healthy child.					

There was one case in my private work in which my advice was sought where we found albumin varying from 15 to 25 per cent. bulk. The prospective parents were exceedingly anxious to have a child, if possible. When the patient was taking an absolutely meet-free diet the urea would remain as high as 12 to 15 grams a day, and as the fetal heart beats remained strong I advised against the induction of labor, with the result that the patient about four weeks later was delivered of a healthy boy and had an uneventful recovery.

I will not take any more of your time by quoting cases, but will add that in many cases I have not considered the symptoms sufficiently urgent to necessitate the patient's entering the hospital, while in others it has seemed best to have the patient under daily supervision as regards diet and examination of the urine. Let me here add that in no case were there any ill effects where the termination of pregnancy was advised against.

It may be said possibly that these cases which I have instanced might not have gone to convulsions if allowed to go on with the ordinary diet, but I think it is perfectly fair to assume that the statistics of 1909 and 1910 showing convulsions occurring in 2 per cent. of the confinements, and this figure being reduced suddenly to less than one-tenth of 1 per cent. for the period of two consecutive years, during which we were testing our theory, without any other change being made, is due to the dietetic change.

In giving an opinion regarding each of these cases I have considered of first importance the amount of urea excreted daily and only secondarily the clinical symptoms and the amount of albumin present.

I have advised against the termination of pregnancy where the urea output has been normal, or where by giving a meat-free diet we could secure a normal urea output, and have given but very little consideration in deciding the question of possible convulsions to the amount of albumin present in the urine or to the clinical symptoms, and we have been rewarded with the natural birth of healthy children without any convulsions in the mother.

What can be learned from our two failures in 1912 and two in 1913?

In the first case, 1912, I examined the urine as a private patient in August. After two analyses, on account of low urea, I advised her physician to have her enter the hospital for observation, but she refused to come. After further analyses in September I again advised her admittance to the hospital as the urea was still low and the albumin was increasing. She once more refused, saying she felt well. On October 1 she was admitted to the hospital with a smoky urine containing 40 per cent. bulk albumin. Convulsions followed almost immediately and the patient died the next day.

In the other case the woman applied at the hospital April 11, and on April 16 she sent a sample. This on analysis showed Sp. Gr. 1010, urea .7 of 1 per cent. and a slight trace of albumin. The urea being relatively somewhat low she was notified to send the urine in again in a week. Nothing was heard from this case, however, until she was admitted June 19, labor having commenced when she appeared at the hospital complaining of vomiting, puffiness of the feet, and frequent headaches. She had four convulsions, but made a good recovery. The child died when a week old.

The first case occurring during 1913 was of an unmarried girl, who applied October 23. Her expected confinement was to be Nov. 25. Urine of October 29, 2800 c.c. Sp. Gr. 1014, total solids, 92 grams, urea, 37 grams, albumin a slight trace. Another analysis was ordered for November 12, but no urine was received. The next seen or heard from the patient was when she was admitted Nov. 24 already in convulsions.

The second patient applied Dec. 4. The specimen of urine Dec. 7 showed 1200 c.c., Sp. Gr. 1015, total solids 41 grams, urea, 16 grams; slight trace of albumin. Another specimen was ordered in two weeks. Nothing was seen or heard from the patient until she was admitted already in labor on Jan. 5. She was delivered at 3 A. M. Ether was given during the second stage. She had a convulsion at 5 A. M., and died at noon.

The two cases occurring in 1912 only serve to strengthen my belief that my theory was correct, and the two in 1913 made me more strong in my feeling that the urine should be examined as a routine procedure once a week during the last two months of pregnancy.

So far as medicine is concerned there has been no general rule in regard to the cases. Very few of them have received any medication whatever, and medicine has been given only where necessary to keep the bowels in normal condition.

It has been very interesting to notice how maternity patients on an ordinary mixed diet, with the urine showing an abnormally low urea output (although eating meat sometimes two or three times a day), would have a very decided increase in the urea output when the meat was eliminated from the diet. This increase will persist sometimes for several days. I have also found that nitrogen taken in other forms, as in milk or eggs, will not cause the same disturbance as the nitrogen from meat. Nevertheless, we have not increased the amount of nitrogen in the patient's diet where we have found it necessary to take away meat. The rule has been to allow the patients the same diet as they have previously been taking, with the exception of meat and fish.

From my experience in these cases I have come to the point where I have felt it safe to advise the continuation of pregnancy (the case being under constant supervision), even where the patients have headache, dimness, or blurring of vision, and a large amount of albumin, provided the excretion of urea does not go below normal.

I want to impress very strongly on you the fact that this theory has not been put to practical test for such a length of time that I can advise others to give up *all* consideration of the amount of albumin and the other clinical symptoms of impending convulsions, in deciding the question whether to terminate pregnancy or not.

I will report to you one case which occurred last week while I was writing this paper:

This patient had had twelve children, and she expected to be confined about the 5th of December. It was what might be called an emergency case, having been sent to the hospital on account of complete loss of sight in one eye. There was edema of the legs, intermittent headaches, great loss of vision, systolic blood pressure of 200. The uranalysis of November 24 showed 887 c.c. Sp. Gr. 1019, total solid 39 grams, urea 19 grams, very large trace of albumin. Sediment contained renal cells, blood discs, and hyaline casts, many of them having coarse granules adherent. The examination of the eyes by Dr. Horr showed right eye, choked disc, with a swelling equal to three or four diopters; left eye, vision not much affected, with a slight haze over the optic nerve. The uranalysis was made daily. The amount of urine increased and the amount of urea increased somewhat. I advised against inducing labor unless the elimination of urea should begin to decrease. The patient went on in the same gen-

eral way, taking the regular diet from which meat and fish were rigorously excluded. Labor began naturally on Dec. 2 and normal delivery followed. Patient and child are both doing well.

In conclusion I would say:

1. The work during the past two years has demonstrated that careful watching of the urea output, and making necessary changes in the diet will enable us to carry safely to the natural termination of pregnancy many cases which would otherwise go on to convulsions, or necessitate the induction of labor.

2. That the clinical symptoms are of secondary importance to the urea output in foretelling the probability of convulsions.

3. That the amount of albumin in the urine in a case of pregnancy is of secondary importance as regards the probable occurrence of convulsions.

4. That with proper and persistent prophylactic treatment puerperal convulsions may be prevented, but after convulsions have occurred the question is of more serious moment.

5. That to be on the safe side an examination of a sample of the twenty-four-hour amount of urine should be made every two weeks, in cases of pregnancy from the third to the sixth month, and once a week during the last three months.

6. I would consider that a pregnant woman whose physician does not keep careful watch of the urine after the third month would be in less danger of convulsions if she stops eating meat or fish during the last six months of pregnancy.

TWO MONTHS' SERVICE IN A SMALL HOSPITAL.

By ARMITAGE WHITMAN, M.D.,

NEW YORK.

THIS article has been written on the advice of several older surgeons, who felt that the experience of a young man exchanging the position of house surgeon in a large New York hospital for the further responsibilities and independence of a smaller semi-rural institution might be worth recording.

The writer was on the last two weeks of his service when he received an offer of the position of locum tenens from a surgeon of a very large town and country practice, the position carrying with it the office of attending surgeon to the local City Hospital. The hospital was of about eighty beds, practically all surgical, and the service under ordinary conditions amounted to between twelve and fourteen hundred operations a year. The offer was promptly accepted, and about the first of July the writer arrived on the scene of action armed with desperate resolution and Jacobson and Rowland's Operations of Surgery. One day was spent in watching the surgeon operate, and in becoming familiar with the cases then in the hospital. On the following day the surgeon left for his vacation.

While nominally the City Hospital, the institution was run by a sisterhood, which furnished a Sister Superior, corresponding to the ordinary superintendent, and a sister in charge of the operating room and of each ward. The other nurses were furnished by the pupils of a small training school, the head of which was also one of the sisters. Although, as it was summer, many of the nurses were on their vacations, one gained the impression that there might well have been more nurses if the work on hand were to be handled in the best possible way. The training received by the pupils was as good as it could have been under the circumstances, but naturally according to the ideas of one man alone, and there was so much routine ward work to be done that the sister in charge usually took entire care of the sick cases, while the pupils, instead of being thereby instructed, were solely employed in waiting on the convalescents. The charts kept were of the most meager variety—mouth temperatures taken twice a day, with pulse and respiration. Stools and urine were never recorded. Medication was supposed to be ordered by the attending in writing, as it was, when he desired anything out of the ordinary, but as a matter of custom all postoperative treatment, such as cathartics and sedatives, was left to the sisters. This method may have worked perfectly as a rule, but, as has been mentioned, vacations were playing havoc with the regular staff of both sisters and nurses, and cathartics and sedatives were given by spasms. The writer was once accosted by a hernia patient in the following heart-rending terms: "Doc, I've been in the hospital ten days. My bowels have moved twice, and it's taken two ounces of castor oil each time to do it. Say, Doc, can't they be a little more regular?" In another instance, arriving very early to inquire the state of a patient with acute intestinal obstruction operated on the day before, for whom no orders had been left, the writer was told that the patient had had a terrible night, requiring several hypodermics for relief. No one could be found who knew how much morphine had been given, or, for that matter, why it should not have been given in that particular case.

A comparison of the personnel of the operating room which the writer left with that of the one to which he came might here be of interest. His own hospital: (1) Attending surgeon; (2) assistant surgeon, interne; (3) second assistant surgeon, interne; (4) anesthetist, interne (or special anesthetist, in which case the interne anesthetist was available for third assistant if desired); (5) head nurse in charge of operating room; (6) pupil nurse, assistant to head nurse, making two nurses at the instrument tray; (7) pupil nurse, on call from the operating room, ready to give hypodermic stimulation, get extra instruments, etc.; (8) orderly in the operating room; (9) occasionally extra orderly on call in special cases. Instruments were gotten out by the head nurse, who knew unfailingly the individual preferences and operative routine of the various operators. The instrument tray was arranged according to an unvarying plan, and each instrument after being used was picked up by the assistant nurse, cleaned, and returned to its proper place on the tray. If, therefore, by any unhappy chance, the house surgeon did not have the proper instrument ready to the operator's hand, the operator knew where to get it without looking for it. Certain knots, determined by unvarying routine, were tied by the assistant, and all sponging was done by him. The second assistant held retractors. The patient was lifted to and from the table by the anesthetist, orderly, second assistant pupil nurse, and second assistant surgeon, whose sterile hands were protected by a towel as he seized the patient's feet. The nurse then removed the preliminary dressing, the second assistant scrubbed the skin, and then retired and washed his hands a second time while the patient was being draped by the head nurse. The operator and first assistant did nothing until the time came to make the incision.

At the City Hospital the personnel was as follows: (1) Attending surgeon; (2) graduate nurse, acting as first assistant, who did the sponging; (3) pupil nurse, who held retractors, or passed instruments, whichever seemed at the time most urgent; (4) anesthetist, sister in charge of the operating room, who gave any necessary orders to the nurses, got out extra instruments, etc.; (5) unsterile pupil nurse; (6) orderly, who was not allowed in the operating room after he had helped to lift the patient onto the table. The routine was somewhat after this order: While the sister was starting the anesthetic the attendant gave his hands a preliminary scrub. When the patient was wheeled into the room, he, with the orderly's assistance, lifted him to the table. He then removed as much of the night shirt as seemed necessary, scrubbed the skin with benzine and iodine mixed, and when that had dried, applied iodine to the field of operation. The graduate nurse and anesthetist then draped the patient while the surgeon gave his hands the final scrub. During the operation he tied all knots, and if he laid down an instrument woe betide him if he forgot where he put it. Sutures and ligatures up to a certain number were laid on the tray, but never handed, and if he wanted extra ones, he must break the tubes himself. He got out his own instruments, and if in the midst of an operation anything were missing there was no one to blame but himself. When the operation was over he lifted the patient from the table, and with the orderly took him back to the ward. These were normal conditions, but, as has been said, it was then summer, the regular sisters and nurses had to have vacations; the regular attending surgeon was away, and what better time could there be to paint the operating room and repair the elevator? For over a week the writer and the orderly carried sick patients upstairs and all patients downstairs; the first case of ruptured urethra was operated on in the anesthetizing room at 10 P.M. by the light of one small bulb in the ceiling, because the operating room was being painted; and the first case of strangulated hernia with resection and enteroenterostomy occurred while the graduate assistant was on vacation, and was done with the assistance of a pupil nurse who had never before assisted at any operation.

As for the laboratory side, it was left entirely to the discretion of the attending. All such urine examinations as were thought important he did himself. Blood counts he had tried, and found mostly unnecessary, except in rare blood conditions. The writer took his own apparatus, and did some for his own peace of mind, but as time went on the number of white and differential counts done in acute surgical conditions grew fewer. The cystoscope the writer was unable to use, and fortunately but one case occurred—tuberculosis of the kidney—in which he felt really uneasy without it. The *x*-ray, as he was not an expert, he was requested not to use, and was thus left dependent on a small fluoroscope, which, to his untutored eye, was practically of no use at all. This was undoubtedly the greatest deprivation, as there were a large number of fracture cases in which the *x*-ray would have been of the greatest value.

The last and greatest difference between the two the discretion of the Attending. All such urine exwriter had enjoyed to the full the ephemeral grandeur of his position. Few patients could enter the hospital without his permission; his orders, while actually the attending's, were nominally his own; patients and nurses were obsequious to a varying degree; and the amount of responsibility accorded him was just enough to convince him that recoveries of doubtful cases were due to his personal efforts and unremitting post-operative care, while the rare deaths were acts of Providence visited through the unfortunately errant hand of his attending. His own operative cases all got well, or perhaps one or two were carried off by pneumonia, "that friend of the aged." Such a halcyon existence he exchanged for a world where the patients were wont to use some such address as the following—a laborer, for instance, fresh from his ditch, "Say, Blank here? Gone away? You're the feller he's left? Well, my woman's pretty sick, but I guess I'll wait till he gets back." Democracy reigned supreme, but it must be said that gratitude was quite as much in evidence as in places where the use of titles of respect were more in vogue. The sisters were kind, but it was always to be borne in mind that there was but one real doctor in the world, that that one was "Doctor," that he was far away, and that there were none but his methods. This fact was tactfully explained to the writer about his third night, when he was so unfortunate as to order an immediate operation on an acute appendix at 10 P.M. He noticed that the nurses seemed astonished, and that the preparations took much longer than usual, and finally when the sister in charge stumbled sleepily in, he was taken to task for operating after six. He explained that it was an acute appendix, and shortly proceeded to produce a gangrenous one in what he supposed would prove his triumphant vindication. The sister was kind enough not to say anything more at the time, but later "Yes," she said, "I saw it was an acute appendix, but somehow Doctor always seems to know just what cases will wait over till morning. Why, I don't believe he's operated once at night for two years. But of course we don't expect that amount of judgment from a young man—not but what you may be just as good when you get to his age." The statement as to night operations was something of an exaggeration, as was proved by further inquiry from impartial sources. The feeling that prompted it, however, remained unchanged for some time. Another and more striking instance was shown some time later, when the writer was called to the hospital to attend a man whose femoral vein had been severed by the mud-guard of an automobile. As it had not occurred to any of the intelligent bystanders to search for the source of the hemorrhage and stop it, the patient was practically dead when he reached the hospital. An infusion was ordered at once, but no apparatus was available, and by the time a hypodermoclysis had been started with a douche bag and other improvised accessories the patient was dead. The surgeon was much annoyed at the delay in providing such emergency remedies, but when he laid down the axiom that such things should always be ready for instant use, he was told that Doctor never used them. On the inquiry as to just what Doctor would have done in such a desperate hemorrhage the commiserating answer came pat—"Doctor would never have brought such a case up to the operating room."

Needless to say, after two such sharp lessons the writer made no further effort to wrestle with the feminine intelligence, but from that time on any deviation from routine had to be carried out with his own hands, and its continuance made the subject of eternal vigilance. As an instance, he was struck with the persistent manner in which the binders on abdominal cases refused to stay in place, and suggested the use of perineal straps to remedy

the defect. Although he repeatedly demonstrated in the wards the way in which the binders slid up and left the dressing unprotected, apparently to the logical satisfaction of his audience, and requested that straps be applied to all binders, they were never used except when applied by him in the operating room, and even then were never reapplied when the binders were changed. But except in such small matters as these the sisters were kindness itself, and it is extraordinary how quickly one may become accustomed to being regarded as an amiable lunatic.

Dressings were done with unsterile rubber gloves washed off, as were the instruments used, with lysol. Sterile towels to protect the surroundings were unknown, a state of affairs that at first roused the most gloomy forebodings, but in spite of their absence infection of clean cases did not occur, and the results of operative and postoperative technique in regard to asepsis were thoroughly satisfactory. The fact that most impressed the writer during the whole two months was the lack of postoperative discomfort, and the speed with which all the patients got well. Whether this was due to the difference in mental make-up between city and country patients, or to the difference between city and country air he was unable to determine, but a second dose of morphine was decidedly the exception, postoperative distention was very slight, and pneumonia did not occur. The anesthetics, by the way, were all drop ether, adults being given a preliminary dose of morphine and scopolamine when possible.

Classification of the cases is as follows:

Acute appendicitis, 16 cases, of which 6 were drained;
Chronic appendicitis, 8 cases;
Cholelithiasis, 3 cases, in two of which the gall-bladder was removed;
Acute suppurative cholecystitis, 1 case;
Inguinal hernia, 2 cases;
Femoral hernia, 1 case;
Strangulated inguinal hernia, with gangrene of 36 inches of ileum, 1 case;
Hypertrophy of prostate, 2 cases (suprapubic prostatectomy);
Epithelioma of mandible, 1 case (2 stage operation, first removal of all glands and internal jugular vein on the affected side; two weeks later removal of the ramus of the mandible);
Rupture of male urethra, 2 cases (in one of these suprapubic lithotomy and retrograde catheterization was necessary);
Tuberculosis of kidney, nephrectomy, 1 case;
Tuboovarian abscess, salpingo-oophorectomy, 4 cases;
Strangulated ovarian cyst, 1 case;
Tuberculosis of cervical lymph glands, 3 cases;
Acute intestinal obstruction from a band, 1 case;
Fracture of patella, open reduction and wiring, 1 case;
Traumatic lateral ventral hernia, 1 case;
Miscellaneous, 34 cases.

Of these cases one patient died—a man 74 years old, suffering from hypertrophy of the prostate with acute retention, cystitis, arteriosclerosis, chronic nephritis, etc., who found his condition so unbearable that he insisted on being operated on, contrary to the advice of the surgeon. Several days were spent in trying to improve his condition, without much success, and he died 24 hours after the operation from suppression of urine. The first case of ruptured urethra, in which suprapubic lithotomy was done, progressed satisfactorily until the third night after operation, when, in spite of its having been sewn in place, the night orderly pulled out his retention catheter. It was impossible to replace it, and as the patient was over 60 he refused further operative interference at the time, preferring his suprapubic fistula. The cases, at least as far as the writer was able to ascertain at the time of his departure, had all done well.

The lessons learned by the two months' experience were of course many and of great value. Older men know them. House surgeons of the immediate past and future, however, are adjured by one of them who has suffered, to do without, at least in their preliminary diagnoses, those special aids of which the author was deprived—or better still, to become familiar with their technique. In conclusion he wishes particularly to emphasize the fact that his article has been written entirely with a view to comparison, not to criticism, and that he is very happy to acknowledge that many of the simple methods which he at first was inclined to term barbaric were productive of quite as good results as any that he had obtained by possibly more scientific, but certainly more complicated procedure.

283 Lexington Avenue.

A CANNULA AND NEEDLE FOR BLOOD TRANSFUSION AND INTRAVENOUS INFUSIONS.

By DAVID J. KALISKI, M.D.,

NEW YORK.

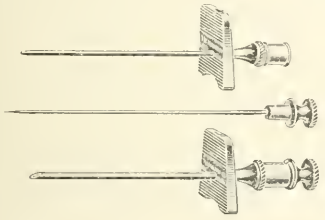
Blood transfusion by the indirect method can be greatly facilitated and simplified by the use of properly designed and constructed cannulas or needles. It is the purpose of this brief communication to describe the apparatus used by the author for blood transfusion and to draw attention to the fact that by the use of cannulas or needles of the type under consideration it is possible to aspirate or inject blood by direct introduction of the apparatus into the vein without the necessity of exposing the vessel. Tiny or marantic infants offer possible exceptions. In these it may be necessary to expose the jugular or one of the cubital veins. In the experience of the author and his associate, Dr. Ottenberg, the introduction of the cannula into the vein of the donor or patient represents the greatest problem in technique of the operator using any of the indirect methods of transfusion. Inasmuch as doing away with the necessity of an incision has been a great factor in popularizing such methods, the use of, and familiarization with, an instrument of the type to be described and illustrated is apparent. Once the cannula is properly and securely introduced into the vein the remainder of the procedure presents no difficulty.

The cannula is constructed like an ordinary aspirating trochar and cannula, with the exception that the trochar point is rounded and fits the cannula perfectly and snugly so that there is practically no collar at the point of junction of the two, thus offering no resistance to the smooth introduction of the instrument through the skin into the vein. There should be at least from three-sixteenths to one-quarter of an inch protrusion of the trochar from the tip of the cannula. This is for the purpose of making an adequate puncture through the skin. The instrument must be made with the greatest care and of the hardest steel, so as to assure a sharp cutting point. The cannula pierces a bridge

of heavy steel which raises the cannula-hub sufficiently far from the skin to permit of the coupling of the syringe and its detachment without disturbing the position of the cannula in the vein. This is a factor of great importance since in a transfusion by the syringe method popularized by Lindeman, the introduction of, say 500 c.c. of blood, requires this manipulation at least twenty-five times. The bridge also acts as a support in obtaining a firm grip in inserting the apparatus and holding it in position afterwards.

The cannulæ vary in length from two to three inches and in caliber from 13 to 16 gauge B. & S. The hub is made to take the regular Record syringe point, or any other tip may be used by means of a coupler that can be slipped on the syringe tip. The finer caliber cannula is used in women and children, or men with small veins, the larger ones for the donors or for the patient, if the size of the vessel permits. One liter of blood can be transfused through the smallest cannula without difficulty. The author has transfused with ease as much as two liters through the medium sized cannula.

The cannula is also made with a cutting point, as illustrated. This needle is occasionally of use in donors with very thick skin or for the introduction of a very large sized instrument for phlebotomy or withdrawal of blood into an anticoagulating solution, for example, sodium citrate. It is rarely if



ever necessary to use the cutting point. The withdrawal of the trochar after the cannula has been freely introduced into the vein leaves a blunt-pointed tube *in situ* which it is exceedingly difficult to push through the posterior wall of the vein, through which a continuous stream of blood emerges while the constricting band is in place, and which will not easily be dislodged from its position.

Technical Suggestions.—A few points in technique suggest themselves here which it might not ba amiss to emphasize. The tourniquet should not be too heavy, a light-weight, soft-rubber catheter serving this purpose best. It should be applied only firmly enough to cause venous stasis; the pulse should not be obliterated. The vein should be filled up by milking or massaging the arm in the direction of the tourniquet, then the skin should be stretched in the axis of the vein to be punctured by grasping the forearm, for example, with the palm of the left hand under the arm, using the thumb to stretch, and fix or immobilize the vein. The cannula is then held so that the index and second finger bulbs of the right hand grasp the bridge, and the thumb bulb holds the cap of the trochar at the hub-end in place, and the cannula is firmly pushed through the skin into the vein. When the cannula enters the vein, there being no further resistance to its progress, it should be pushed into the lumen of the vessel at least an inch. When the trochar is withdrawn, if the needle is properly *in situ* in the vein there will be a free spirt of blood. If this point in technique is acquired, the aspiration or injection of the blood will offer no further difficulty. No attempt should be made either to aspirate or to inject until the cannula is free within the lumen of the vein, else there will occur an hematoma from the injection of blood into the tissues about the vein or a leakage of blood from the improperly punctured vessel if the tourniquet is left in place, as in the case of the donor. This will render the vein unfit for use and make another puncture necessary. Occasionally in introducing the cannula after the withdrawal of the trochar the blood issues only in a small stream or not at all. If the instrument is very slowly and gradually withdrawn without the trochar in place, blood may presently issue freely from the cannula, showing that the tip was occluded by a vein valve or by the wall of the vein. The operator should familiarize himself with the "feel" of a distended vein by developing the tactile sense. Large veins are occasionally deep seated at the bend of the elbow, especially in obese persons and children. The constricting band is left in place throughout the operation on the donor, being removed for a few moments should the arm become too deeply congested from too tight construction. In the recipient the tourniquet is removed as soon as the operator is certain the needle is properly introduced.

The cannulæ can be used for saline infusions, salvarsan injections, infusions of citrated blood by the method of Weil or of Lewisohn, and phlebotomies. They can be obtained from Tiemann & Co., New York City.

1070 Madison Avenue.

Medicolegal Notes.

Degree of Care and Skill Required—Admissibility of Evidence.—Action was brought against a physician and surgeon for alleged malpractice consisting of failure to properly reduce a dislocated hip for the plaintiff. It was a disputed question whether the dislocation was or was not properly reduced, and there was some evidence tending to show that the plaintiff about a month later fell and reinjured his hip. Several months after the treatment of the limb by the defendant an *x*-ray photograph was taken of the joint. The plaintiff insisted that the trial court erred in not permitting him to show to the jury the unsuccessful efforts he made to get the *x*-ray plates. The defendant had nothing to do with taking the photographs and never had possession of them. It was held that there was no error in the ruling of the court.

An instruction given for the defendant which defined ordinary care and skill required of physicians and surgeons as being "that care and skill exercised by physicians and surgeons in this locality and of the school of which defendant belongs" was held to be erroneous and misleading because of the insertion of the words "and of the school of which defendant belongs," thus limiting the care and skill required to that of some particular sect of physicians and surgeons in the locality. It was also held erroneous because there was no evidence as to what school the defendant belonged, except that he was a graduate of the medical department of the University of Illinois College of Physicians and Surgeons. Judgment for the defendant was reversed and the case remanded.—Bacon v. Walsh, 184 Ill. App. 377.

When Physician's Opinion Is Inadmissible.—In an action for personal injuries where the manner in which the plaintiff was injured was not disputed, it was held improper to permit physicians to testify as to whether the circumstances of the accident would have caused the injury, basing their opinion upon the testimony of the plaintiff as to how he had been injured.—Johnson v. Danville U. & C. Ry. Co., 185 Ill. App. 83.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 20, 1915.

DEVELOPMENTS IN SCARLATINA THERAPY.

WITHIN recent years there have been introduced in the treatment of particularly severe cases of scarlet fever two methods that offer considerable promise. One of these is the use of salvarsan or neosalvarsan; the other is the employment of the blood serum of convalescent scarlet fever patients. These methods are representative of the two main trends in the treatment of infectious disease, namely, chemotherapy and serum therapy.

Salvarsan was first employed in 1910 by Rumpel in three cases of scarlet fever but without success. Later Lenzmann, Klemperer and Waita, Lorey, Schreiber, and Jochmann employed the same drug and all seemed to agree that salvarsan has a favorable influence on the course of the disease, particularly in controlling the severe angina. The latest to investigate the merits of this mode of treatment is F. Poensgen, who reports his results in the *Beiträge zur Klinik der Infektionskrankheiten und zur Immunitätsforschung*, Vol. 3, Nos. 1 and 2. His experience comprises 35 cases which represented severe types of the disease. Salvarsan was administered intravenously in 30 of the cases, with positive results in 10, negative results in 15, and doubtful results in 5. In the 5 cases in which neosalvarsan was used the results were negative in all. There was no question that salvarsan saved a large percentage of the particularly severe cases of scarlet fever. In no instance could any unfavorable action of the drug be observed. Complications were, however, neither ameliorated nor prevented, a circumstance explained by the fact that these complications are the result of the action of streptococci which are apparently not affected by the salvarsan. Although of value in some of the severe cases of scarlet fever, salvarsan cannot be regarded as a specific against this disease.

The favorable results obtained by the use of the blood serum of patients convalescing from scarlet fever were first reported, on the basis of 12 cases thus treated, by Reiss and Jungmann. These results were confirmed in the similar management of 22 cases by R. Koch (*Münchener medizinische Wochenschrift*, 1913, No. 47). These cases were all severe ones, and death occurred only in one instance, in the case of a patient who was already in the agonal condition. Even in the late stage of the disease when the local streptococcal manifestations dominate the clinical picture, and in the septic type, a distinctly favorable influence is to be observed. This method of treatment was not responsible for the production of hemorrhagic nephritis.

The results thus far obtained in the treatment of scarlet fever by means of neosalvarsan or convalescent serum are sufficiently encouraging to warrant the further trial of these methods.

HYPERSENSITIVENESS AND IMMUNITY.

THERE is abundant evidence that hypersensitiveness and immunity are closely related to each other, but the significance of this relationship is as yet obscure. P. W. Clough (Bulletin of the Johns Hopkins Hospital, February, 1915) has performed a series of experiments to determine whether there is any constant relation between pneumococcus infection and hypersensitiveness to pneumococcus protein. Reference is made to the theory advanced by Friedberger, namely, that bacterial protein is broken up by specific ferments which are present in small amounts in normal individuals but which increase in amount when the foreign protein persists in the circulation. As a result of this there is a rapid decomposition of the foreign protein with the production of immunity or hypersensitiveness.

The real distinction between these two phenomena depends upon the following circumstance: If the foreign protein is one which does not increase after its introduction into the body, the rapid decomposition of the protein causes the production of poisons which may be fatal to the animal if the dose of protein is large. The animal is hypersensitive. If, on the other hand, the foreign protein is a living virus and increases in amount after introduction into the body, the accelerated action of the protective ferments is sufficient to destroy the invading microorganisms. If these are not too numerous, the poisons resulting from their decomposition are not sufficient to cause dangerous effects. The animal is immune. According to Friedberger the general symptoms of an infectious disease are the result of the intermediate poisons formed by the decomposition of the bacterial protein. The latent period following infection is attributed to the fact that symptoms are produced only after antibodies have been formed in sufficient quantity to cause a very rapid decomposition of the bacterial protein.

Clough obtained from pneumococci a protein extract which would sensitize normal guinea-pigs and intoxicate suitably sensitized guinea-pigs. The latter show inconstantly a very slight degree of immunity to infection with living virulent cultures of pneumococci. Animals highly immunized by repeated subcutaneous injections of the latter show on the other hand a marked degree of hypersensitiveness to pneumococcus extracts. Clough has not succeeded, however, in demonstrating this hypersensitiveness in pneumonia patients by the local application of a solution of the protein to the conjunctiva or by intracutaneous injections.

FOOT AND MOUTH DISEASE IN GERMANY.

We are having our own troubles in times of peace with the foot and mouth disease in cattle and the question has no doubt come into the minds of national economists of the significance of this plague in a nation at war. In Germany there is such a shortage of fodder that ten per cent. of all the milch cows will have to be killed. No absolute loss need result, however, for the beef can be cured in various ways, aside from the fraction which will be eaten fresh. But when foot and mouth disease prevails, herds would have to be sacrificed at a total loss—unless some of the meat and milk can be pronounced fit for human consumption. This possibility was thoroughly realized in Germany several years ago.

At one of the military medical evenings held during January at Berlin (*Berliner klinische Wochenschrift*, January 25) Schütz stated that Germany was pronounced free from foot and mouth disease in 1910, but the scourge was introduced anew from Russia. At first the border suffered, then East Prussia, and finally the other provinces. In 1911 the disease had reached its climax. The author assisted Koch in combating the epidemic and much knowledge of its nature accrued in the following year, which is incorporated in the most recent reference works. Measures were then devised to prevent total food and milk loss and these were in force long before war was declared.

The beginning of the war found cases of the disease throughout Germany. The Russians seized affected animals as booty, while von Hindenburg returned them to the Fatherland. Infected animals have thus been scattered throughout Prussia. To the domestic campaign is therefore superadded the problem of fresh arrivals from Russia. Germany has the two-fold problem of checking the spread of the epizootic and the salvage of food products. With the shortage of fodder it seems inevitable that the cattle to be killed off will correspond more or less closely with the most tainted herds.

NEW THERAPEUTIC MEASURES IN TYPHOID FEVER

The surgeons are not the only ones who are applying their resourcefulness in trying to solve the many important problems arising in the present war. The internists are also profiting by the vast amount of material at their disposal in the various military hospitals. Typhoid fever is the disease which as usual is engaging most attention in this respect. In the *Presse Médicale*, January 14, 1915, there appear two papers in which are reported new routine methods of treating typhoid fever. M. E. de Massary advocates the use of continuous refrigeration of the abdomen by means of an ice-bag, the skin being protected by a thick layer of talcum powder and a piece of light flannel. In conjunction with this measure there is enforced absolute rest, and the patient is given a large amount of water to drink. This method was employed in 140 patients with a mortality of 8.5 per cent. In the second paper E. Weil extols the use of the Murphy drip as an efficient procedure in combating typhoid fever. The solution used is a liter of water at 40°C., containing 50 grams of glucose. It has both nutritive and diuretic properties, reduces the temperature of the patient, and in other respects improves his condition. The nervous manifestations particularly are said to be relieved.

RUPTURE OF THE DIAPHRAGM FROM IMPENDING SUFFOCATION.

Professor Sauerbruch, the eminent thoracic surgeon, who was living in Zürich at the outbreak of the war and was at once placed in charge of the military hospital in Strassburg, was later transferred in the same capacity to conquered Lille. At a "military medical evening" in the latter city last December he reported a unique case (*Münchener medizinische Wochenschrift*, January 19), in which an erroneous diagnosis figured. An officer was buried under the earth in a trench. He was extricated and taken to the hospital in collapse with cyanosis and pulse hardly palpable. The expiration was of a peculiar forced character, occuring in impulses. Inspiration was superficial. On the entire left side tympanites of the highest type was present. The diagnosis seemed self-evident—rupture of the lung with tension pneumothorax. The term of survival is not mentioned, but operation was probably contraindicated by the general condition. Autopsy showed that while the lung had been torn there was an enormous rent in the diaphragm through which the strongly inflated stomach had entered the pleural cavity. The officer was 32 years old, and must have had an abnormally elastic thorax, for traumatic rupture of the normal lung should not occur at this relatively advanced age.

THE HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.

The Hospital Saturday and Sunday Association of New York City has done good work in the past, and the possibilities are promising that it will do even better in the future. Recently Dr. S. S. Goldwater, Commissioner of Health of New York City, delivered an address before the annual meeting of the association, in the course of which he suggested that the public would support a more comprehensive program. He pointed out that many problems were impending which would render it desirable that the hospitals should be so managed that they would fit in with the schemes of reform. He further drew attention to the fact that hospital statistics were neither complete nor adequate and suggested that in this direction the association should cover the entire field. The speaker particularly emphasized the urgency of the dispensary problem and was of the opinion that the association, with $50,000 or $100,000 in hand and with a clear conception of what dispensary work ought to be, should have no difficulty in persuading dispensaries to change their methods for the better. The address throughout was a strong plea to the association to endeavor to initiate some much needed reforms in the working of voluntary hospitals and especially of dispensaries.

INSANITY IN RELATION TO SEX AND AGE.

While neurasthenia, hysteria, and the other neuroses are more prevalent among women than men, it appears that insanity is considerably more rife among men than women. The Bureau of the Census of the Department of Commerce has published recently a report through William J. Harris, Director of the Census, prepared by Dr. Joseph A.

Hill. Without entering into details, it may be said that this report shows clearly that in a typical community of 200,000 persons equally divided as to sex 208 of the males would be found in insane hospitals and 200 of the females, and in the course of one year 72 males would be admitted to the hospitals, as compared with 60 females. Further, the number of males in hospitals for the insane has increased faster than the number of females. The chief reason for this state of affairs is said to be that, men being more addicted than women to vice and dissipation, the alcoholic psychoses and general paralysis are more common among men. Indeed, if the cases of insanity arising from these conditions were eliminated there would be little disparity between the two sexes. The conclusions to be drawn from the report are that putting on one side the cases of general paralysis and alcoholic psychosis, there are more cases of other forms of insanity among women than among men in the period of life from 30 years of age up to about 56, but fewer in early life and in old age.

News of the Week.

Red Cross Units for Belgium.—The American Red Cross announced last week that on request of Surgeon General De Page of the Belgian Red Cross, the organization will send to Europe for service with the Belgian Army two Red Cross units of three surgeons and twelve nurses each.

Disease Ridden Serbia.—A Berlin news agency states on the authority of Dr. Tinhoven, chief of the Netherlands Red Cross Mission to Serbia, who has returned home after a long stay in that country, that the military and civil population are suffering from violent epidemics of dysentery, typhus, and typhoid fever. Everywhere hospital conditions are piteously inadequate, and the country faces devastation worse than war. Sixty-three physicians have already died of typhus.

Committee of American Physicians for the Aid of the Belgian Profession.—Dr. F. F. Simpson, treasurer of the committee, reports the following contributions received during the week ending March 13, 1915:

Dr. Frank Slopanskey, Helper, Utah	$5.00
McKees Rocks Medical Society, McKees Rocks, Pa.	6.50
Dr. James M. Anders, Philadelphia, Pa.	15.00
Dr. Charles M. Green, Boston, Mass.	25.00
Dr. J. M. Miller, Hickory, Pa.	5.00
Dr. John Woodman, New York, N. Y.	10.00
Dr. R. L. Bradley, Roswell, New Mexico	5.00
Dr. Everett D. Peek, Thompson Falls, Mont.	25.00
Dr. Charles L. Minor, Asheville, N. C.	15.00
J. M. H., Ft. Logan H. Roots, Ark.	5.00
Dr. Fred E. Thompson, Detroit, Mich.	25.00
Dr. Alfred H. Tickell, Nevada City, Cal.	2.00
Dr. Z. H. McClanahan, Colorado Springs, Colo.	5.00
Dr. C. Dunbar Roy, Atlanta, Ga.	5.00
Hempstead Academy of Medicine, Portsmouth Ohio.	10.00
Dr. Halsey Beach Loder Boston, Mass.	5.00
Dr. and Mrs. James R. Judd, Honolulu, Hawaii	25.00
Dr. Hugh T. Patrick, Chicago, Ill.	25.00
Receipts for week ending March 13	$218.50
Previously reported receipts	4,611.50
Total receipts	$4,830.00
Previously reported disbursements $4,614.60	
Disbursements week ending March 13, 90 boxes of food at $2.30 207.00	
Total disbursements	$4,821.60
Balance	$8.40

Resignation of the Health Commissioner.—It is reported that Health Commissioner Goldwater of New York City will retire on April 1, as his leave of absence as superintendent of Mt. Sinai expires on that date and his services are needed for the planning of an annex to the hospital. We hope the report is incorrect, for Dr. Goldwater has proved himself a most efficient health administrator and the city can ill spare him while there is yet so much to be done before all the reforms he has undertaken have been accomplished.

New York's Death Rate.—The mortality in Greater New York for the week ending March 6 was noteworthy by reason of the extreme low point reached by the death rate, namely, 13.91 per 1,000 of the population. This is an unprecedently low figure for this season of the year. The death rate for the first ten weeks of this year was 13.90 for 1,000 of the population, against 15.41 for the corresponding period in 1914, a decrease of 1.51 of a point.

Dr. Sidney Porter of New Orleans, who was elected State medical officer of the Louisiana Board of Health, at the December meeting of the Board, has resigned that office, giving as his reason that the duties conflict with his private practice.

A Law Against Division of Fees.—The Kansas Senate has passed unanimously a bill prohibiting surgeons paying commissions to physicians who may send patients to them, or advise patients to go to them for treatment or operations. However, the bill specifically states that it shall not be unlawful for the attending physician to receive a fee from the surgeon or specialist for services actually performed in case the patient is informed in advance as to the amount of the fee which the physician is to receive.

The United States Civil Service Commission announces an open competitive examination for mine surgeon. for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Bureau of Mines, Pittsburgh, Pa., at a salary ranging from $2,400 to $2,700 a year. The duties of the person appointed to fill the position of mine surgeon will be to travel with the Bureau of Mines rescue cars and make a physical examination of all applicants for first-aid and mine-rescue training; to assist the Bureau of Mines first-aid miners in improving the technique of first-aid methods pertinent to mining and metallurgical accidents; to enter mines after fires and explosions for the purpose of taking blood samples and making other physical examinations of the victims before their removal; to make physicial examination of those engaged in mining and metallurgical industries to determine the effect, if any, of such occupations on the health and physical well-being of those employed therein; to examine the sanitary and hygienic conditions in and about mines and mining villages with a view of determining the effect of such conditions on the health and physical well-being of those engaged therein. Application should be made for forms 304 and 2095, stating the title of the examination, to the U. S. Civil Service Commission, Washington, D. C.

Appropriation for a Medical College.—The Oregon legislature has appropriated $50,000 for a new building for the University of Oregon Medical College and plans are being formulated to raise an equal amount from other sources so that at least $100,000 will be used in putting up the first unit of a building that will eventlly cost in the neighborhood of $350,000 to $400,000 and will accommodate 250 to 300 students.

Opposition to the Mayo Foundation.—The Hennepin County, Minn., Medical Society, at a meeting held March 1, adopted resolutions opposing the affiliation of the Mayo foundation at Rochester with the medical department of the University of Minnesota.

If the proposed plan is adopted, the resolutions state, "the university of the great State of Minnesota, perpetual in a sense, and destined if it may be judged by its past to a great future, will be hampered in one of its schools, possibly the most important one to the commonwealth by a private financial institution, successful, large, and powerful to be sure at present, but destined sooner or later as all experience of similar institutions shows, to deterioration."

The Interstate Association of Anesthetists will hold its organization meeting in conjunction with the Ohio State Medical Association in Cincinnati, Ohio, May 4 and 5, 1915, at which time an elaborate scientific program, devoted exclusively to anesthesia and analgesia, will be presented. Headquarters, assembly room, and exhibits will be in the New Hotel Gibson, in which all the sections of the Ohio State Medical Association will also meet. An informal organization dinner will be served on the evening of May 4, after which the visiting anesthetists will be entertained at a smoker by the local entertainment committee of the Academy of Medicine. Anesthetists, surgical and dental, as well as interested surgeons, research-workers and general practitioners who wish to participate in the proceedings are cordially invited to attend. Those desiring further information or dinner reservations may address Dr. F. H. McMechan, Secretary, 1044 Wesley Ave., Cincinnati, Ohio.

Post-Graduate Course in Infectious Diseases.—Through the cooperation of the Medical Board of the Willard Parker Hospital, the Bureau of Hospitals, and the Bureau of Laboratories, a series of courses of clinical lectures and demonstrations in contagious diseases have been arranged for practising physicians. Each course consists of eight lessons, of which six are devoted to clinical bedside instruction and two to practical laboratory work. The sections are limited to ten members and only practising physicians are admitted. There are no fees, but physicians entering a course are expected to attend regularly. The first course began on Tuesday, March 2. Instruction is given on Tuesdays, Wednesdays, Thursdays, and Fridays of two consecutive weeks.

Regents Revoke Medical License.—At a meeting of the New York Board of Regents, held March 4, formal action was taken revoking the medical license of Walter E. Colgrove, M. D., and annulling his registration.

A Proposed Amendment to the Massachusetts Medical Law.—The Massachusetts State Board of Registration in Medicine has requested the Legislature to amend the registration law so that hereafter all applicants for examination shall hold the degree of M.D. conferred by a legally chartered medical school. All but three States of the Union demand a degree in medicine as a prerequisite to examination, but Massachusetts allows any one to take her examination if of good moral character, 21 years of age, and willing to pay the fee of $20.

Vacancies for Volunteer Clinic Physicians.—There are at present a few vacancies for volunteer assistant attending physicians in the Tuberculosis Clinics of the Department of Health in the Boroughs of Brooklyn and Queens. No salary is attached to these positions. Those holding them, however, are usually selected to fill the salaried positions in the clinics, when vacancies arise. Physicians desiring these positions should communicate at once in writing to Dr. B. H. Waters, Chief of the Division of Tuberculosis, Bureau of Infectious Diseases, Department of Health, 139 Center street, New York City.

Dr. Frank S. Wells, who had completed fifty years in the practice of dentistry, was the guest of honor at a dinner at Truell Inn on March 10, given by the Plainfield Dental Society, at which he was presented with a diamond pin.

Dr. Richard Mills Pearce of the University of Pennsylvania, addressed the Buffalo Academy of Medicine on Wednesday evening, February 24, on "Experimental Studies of the Spleen in its Relation to Anemia, Hemolysis, and Hemolytic Jaundice."

Dr. Janet T. Howell, lecturer in physics at Bryn Mawr College, has been awarded the Sarah Berliner Fellowship for Women. This fellowship carries with it a gift of $1,000 to enable the recipient to engage in research work in physics, chemistry, or biology. She is the daughter of Dr. William Howell of Johns Hopkins University.

A Woman's Number.—The May issue of the *Medical Review of Reviews* is to be a woman's number, all the articles contributed being from the pens of women physicians.

Typhoid Fever in New York City.—Statistics for typhoid fever in this city during the fourth quarter of 1914 have recently been published by the Health Department. The case incidence for this quarter is 1.2 for each 10,000 of the population, as compared with 2.8 in the corresponding period of 1913. Despite the fact that immunization free of charge is offered by the Department of Health, only about 10 per cent. of the persons exposed to typhoid fever availed themselves of this offer.

Charitable Bequests.—By the will of the late Edward Smith Kelly of Philadelphia the sum of $2,500 is bequeathed to the Howard Hospital.

By the will of the late Dr. John L. Bromley of Philadelphia the sum of $1,000 is bequeathed to St. Timothy's Hospital and a like sum to the Episcopal Hospital.

be judged by its past to a great future, will be hamlicense of Walter E. Colgrove, M.D., and annulling

Medical Society Elections.—The New Britain (Conn.) Medical Association, at its annual meeting held on January 7, elected the following officers: *President,* Dr. Maurice W. Maloney; *Vice-President,* Dr. R. M. Griswold; *Secretary,* Dr. T. W. Fox; *Censors,* Drs. Strosser, Reeks, and Potts.

The Vernon Parish (La.) Medical Society, at its annual meeting in Leesville on December 26, elected the following officers: *President,* Dr. D. O. Willis; *Vice-President,* Dr. J. H. Wood; *Secretary-Treasurer,* Dr. M. R. McAlpin; *Delegate to the State Society,* Dr. J. H. Wood; *Alternate,* Dr. F. P. Jones.

The Erie County (Pa.) Medical Society, at a meeting held January 5, elected officers as follows: *President,* Dr. Wallace R. Hunter; *Vice-President,* Dr. A. H. Roth; *Secretary,* Dr. Scott D. Gleeten; *Treasurer,* Dr. Hugh M. Moorhead; *Recorder,* Dr. C. H. McCallum; *Librarian,* Dr. Fred E. Ross; *Censors,* Drs. George A. Reed, D. H. Strickland, O. M. Shreve, John J. Bell, and David N. Dennis.

The Knox County (Ky.) Medical Society, at its annual meeting in Barbourville on January 5, elected the following officers: *President,* Dr. G. H. Albright; *Vice-President,* Dr. William Burnside; *Secretary and Treasurer,* Dr. Charles L. Heath; *Delegates to the State Assoeiation,* Drs. J. W. Parper and S. C. Jones.

The Hartford (Conn.) Medical Society held its annual meeting on January 4, electing the following officers: *President,* Dr. Frederick T. Simp-

son; *Vice-President,* Dr. Joseph E. Root; *Secretary,* Dr. Arthur H. Griswold; *Assistant Secretary,* Dr. Amos T. Harrington; *Treasurer,* Dr. Philip D. Bunce; *Librarian,* Dr. Walter R. Steiner; *Board of Trustees,* Dr. Phineas H. Ingalls, for three years; *Executive Committee,* Dr. J. B. McCook, for three years; *Board of Censors,* Dr. Levi B. Cochran, for three years.

The Washington County (R. I.) Medical Society, at its quarterly meeting, held at Westerly on January 14, elected the following officers: *President,* Dr. H. B. Potter, Wakefield; *First Vice-President,* Dr. A. S. Briggs, Ashaway; *Second Vice-President,* Dr. F. C. Pagan, Westerly; *Secretary and Treasurer,* Dr. W. A. Hillard, Westerly; *Auditor,* Dr. R. B. Smith, Westerly.

The Medical Society of Northampton County, Pa., met at Easton on January 15 and elected the following officers: *President,* Dr. T. C. Zulick, Easton; *First Vice-President,* Dr. C. C. McCormick, Pen Argyl; *Second Vice-President,* Dr. C. F. Welden, Bethlehem; *Recording Secretary,* Dr. W. G. Gilbert, Easton; *Corresponding Secretary,* Dr. F. E. Ward, Easton; *Treasurer,* Dr. C. F. Stoffiet; *Reporter,* Dr. W. D. Chase, Bethlehem; *Censors,* Drs. W. D. Walker, Bethlehem; W. P. O. Thomason, Easton, and A. A. Seen, Bangor.

The Upper Mississippi Valley Medical Society, at a meeting held at Brainerd, Minn., on January 13, elected the following officers: *President,* Dr. Lowthian, of Akeley; *First Vice-President,* Dr. O. R. Sanborn, of Bermidji; *Second Vice-President,* Dr. Werner Hempstead, of Brainerd; *Third Vice-President,* Dr. F. H. Allen, of Staples; *Secretary,* Dr. F. A. Bennett; *Treasurer,* Dr. Paul Kenyon, of Wadena; *Censor,* Dr. J. A. Thabes, of Brainerd; *Delegates to State Medical Society,* Drs. G. W. Beach of the State sanatorium, and Paul Kenyon, of Wadena.

The Medical Society of the County of Jefferson, N. Y., at a meeting held January 14, elected the following officers: *President,* Dr. S. E. Douglass, of Adams; *Vice-President,* Dr. J. D. Olin; *Secretary,* Dr. C. E. Pierce; *Treasurer,* Dr. Paige Thornhill; *Delegate to the State Society,* Dr. C. N. Bibbins; *Delegate to the Fifth District Branch,* Dr. J. D. Olin.

Obituary Notes.—Dr. John Patrick McGowan of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1888, surgeon on the gunboat *Yankee* during the Spanish-American War, visiting physician to the New York Foundling Hospital, visiting surgeon to St. Bartholomew's Clinic, consulting surgeon to the French Hospital, and a member of the New York State and County Medical Societies, the American Urological Association, the Association of Military Surgeons of the United States, the American Dermatological Association, and the American Association of Genito-Urinary Surgeons, died at his home after a long illness on February 28, aged 49 years.

Dr. Joseph Palmer Watts of Wakefield, Mass., a graduate of the Harvard University Medical School in 1905, and a member of the Massachusetts Medical Society and the Middlesex District Medical Society, died at his home, from tuberculosis, after a long illness, on February 16, aged 31 years.

Dr. Charles Eugene Lack of Brooklyn, N. Y., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1895, assistant surgeon to the Norwegian and Methodist Episcopal Hospitals, surgeon to the Coney Island Hospital, and a member of the American Medical Association, the New York State and Kings County Medical Societies, the Brooklyn Surgical Society, the Brooklyn Pathological Society, the Long Island Medical Society, and the Associated Physicians of Long Island, died recently at his home, aged 43 years.

Dr. Lester C. Mitchell of Hamburg, N. Y., and formerly of Minneapolis, Minn., where he was for many years superintendent of the Minnesota College Hospital, a graduate of the New York University Medical College, New York, in 1867, and a member of the Minneapolis State Medical Association and the Hennepin County Medical Society, died at his home on February 13, aged 72 years.

Dr. Lefferson A. D. Allen died at Woodstown, N. J., on February 17 at the age of 75 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1867.

Dr. Thomas Biddle died at Philadelphia of pneumonia on February 19 at the age of 62 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1876.

Dr. William Orlando Griggs died at Philadelphia on February 21 at the age of 70 years. He was graduated from Jefferson Medical College in the class of 1866.

Dr. Walter Montgomery James died at Philadelphia on February 24 at the age of 69 years. He was graduated from the Homeopathic Medical College of Pennsylvania in the class of 1869. He was for many years editor of the Homeopathic Physicians' Journal. He was a member of the Germantown Homeopathic Club.

Dr. George H. Rhodes of Tobyhanna, Pa., died at Savannah, Ga., on February 26 at the age of 58 years. He was graduated from Jefferson Medical College in the class of 1879. He was a member of the Crawford County Medical Society, and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. Fred H. Klaer died in the University Hospital at Philadelphia on February 27 after a protracted illness, at the age of 36 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1904 and he was instructor in medicine in the University. He was also consulting physician to the Westchester Hospital. He was a member of the Philadelphia County Medical Society, and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association. He was a member of the Pathological Society of Philadelphia and for a number of years its Recorder.

Dr. Alfred Walter Maynard of New York, a graduate of the College of Physicians and Surgeons, New York, in 1872, and a member of the American Medical Association and the New York State and County Medical Societies, died at his home on March 1, aged 64 years.

Dr. James Peckham Campbell of New York, a graduate of the Syracuse Medical College, Eclectic, Rochester, N. Y., in 1854, died at his home on February 27, aged 81 years.

Dr. Hugh Lewis Sutherland of Benoit, Miss., a graduate of the Tulane University of Louisiana, School of Medicine, New Orleans, in 1873, formerly on the State Board of Health, and a member of the American Medical Association, the Mississippi State Medical Association, and the Clarksdale and Six Counties Medical Society, died at his home on February 20, aged 66 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR NOTES—EFFECT ON SOCIETIES—ROYAL MEDICAL BENEVOLENT FUND—"MENTIONED IN DISPATCHES"—GUNSHOT WOUNDS OF THE HEAD—OBITUARIES.

LONDON, Feb 26, 1915.

WE have organized a Professional Classes War Relief Council and the Lord Mayor presided last week over a distinguished meeting in its support. It is composed of representatives of a number of societies and funds devoted to the investigation and alleviation of distress caused by the war. Among persons of the professional class it is specially intended to assist the families of those members of the class who have enlisted in regard to the education and training for the juniors and the employment or emigration or even maternity necessities of the seniors.

The Royal Medical Benevolent Fund is represented on this new council by Sir John Tweedy and Dr. Samuel West, and medical applicants for help to the War Relief Council will probably be first of all referred to the fund. In reference to other professions some have no organization able to play a corresponding part and may also be poor, while others are able to support the average distress within them, and in fact do it and more, contributing to the necessities of the less fortunate associations. The theatrical profession is in this happy position, as Sir Herbert Tree and Sir George Alexander stated it could provide for all its benevolent purposes and was always found ready to contribute to the distress of outside professional needs.

The event of the last year of the Royal Medical Benevolent Fund was its incorporation under the Companies' Acts, the cost of which had been met to a considerable extent by the president's donation. The working expenses equal about 7 per cent. of the income. The fund distributed during the year £5,302 10s. 8d., being an increase of £182 5s. 8d. over the previous year's distribution. In addition to this the guild distributed £540 8s. 7d. In the Grant Department £2,881 4s. had been expended on 254 cases—more than the amount subscribed, which was only £2,481 3s. 1d. The total income of the Fund and Guild, including receipts from investments, was £7,480 15s. 1d. and there was a balance in hand of £1,012 15s. 3d.

The effect of the war on our medical societies is conspicuous. At the meetings many faces are missed and the officers have considerable difficulty in securing material for discussion. Some sections have felt constrained to postpone proceedings and a feeling seems general that probably the appointed program is so uncertain of fulfillment that it is hardly worth while to attend. On the other hand the war provides abundant subjects for discussion and the meetings give the opportunity of talking over the news, congratulating any member of the R. A. M. C. who may be present on their gallant and distinguished services in the fields of our confrères, as described by the F. M. Commander-in-Chief, Sir John French. The large number "mentioned in dispatches" is commented on by the newspapers as is the sadder list of those who have not survived. One of them, Lieutenant Martin Leake, has been awarded the Victorian Cross a second time, having won it the first time in South Africa (1902), since when he has been in private practice, but again sought a commission on the outbreak of the present war and has already gained a second Victorian Cross.

At the Medical Society of London an opportune discussion was arranged on "Gunshot Wounds of the Head." It was opened by Sir Victor Horsley, who thought wide as the subject is, it could be profitably considered as to the causes of death and how to prevent them. He said he made many experiments some twenty years ago which confirmed those of Kocher as to the so-called explosive effect of high velocity projectiles. To register the effect he employed modeling clay which has some resemblance to the texture of tissues but retains exactly its change of shape, as altered by the projectile, so it was only necessary to fill the cavities produced by bullets to get an exact record of the complete effect of the shot. This method showed him that the explosive effect of the bullet was directly proportional to (1) the sectional area of the bullet, (2) its velocity, (3) the amount of water present in the substance through which a bullet passes, (4) that the forces of disruption were at an angle to the axis of the flight of the bullet, which he had not been able to completely determine. He had however obtained by this method points not otherwise obtainable but of some importance as (*a*) wherein the course of the bullet is most mischief done, and (*b*) by what force? The casts show the answer to *a* to be—as soon as the bullet at its highest velocity is surrounded by the largest mass of wet tissue. In the animal additional conditions are concerned. In answer to *b* there were two movements of the bullet—its progression forward and its spin around a central axis given to it by the rifling.

Misconception has prevailed as regards the turning over of a bullet. Some have supposed a very pointed one might turn over and over round a transverse axis through the middle of its length, progressing like a wheel, but this is not so; it only turns over once and does not do that until nearly half its course is passed, that is, when the progressive velocity is greatly reduced and the advance is more sensitive to obstructions which will first affect the light tip, the momentum in that differing greatly from that in the base. Further when traveling at right angles its traverse of the tissues is reduced, but the spin due to the rifling continues to the end. The conclusion follows that the turning over has been unduly credited with the great destruction of tissue which is really due to the high velocity and rapid spin.

In the discussion that followed Sir D. Ferrier, Mr. Richard Warren, Mr. W. H. H. Jessop and Major Bathe Rawling joined and many interesting observations were contributed.

The London Insurance Drug Committee is informed by the medical sub-committee that there appears a deficit in the amount available for drugs and appliances, approximately about £53,000. The attention of the Insurance Commissioners is called to this condition of the fund.

The death is announced of Dr. Edward C. Seaton in his sixty-eighth year. He was lecturer on Public Health at St. Thomas' Hospital and had been examiner in the subject at Cambridge, Oxford and the two Royal Colleges. He had taken a prominent part in obtaining the introduction of the Notification of Infectious Diseases Act and done much

other work in connection with public health.

Deputy Surgeon General Arthur Rudge has died at the age of eighty-nine. He received his first commission in 1850. He retierd on half pay in 1875.

OUR BERLIN LETTER.

(From Our Regular Correspondent.)

ETHYLHYDROCUPREIN IN PNEUMOCOCCUS INFECTIONS —ITS VALUE IN ULCUS CORNEÆ SERPENS—MODE OF ADMINISTRATION IN PNEUMONIA—RÔLE OF WORMS AND PROTOZOA IN THE ETIOLOGY OF TUMORS—EXPOSITION ON THE CARE OF THE WOUNDED AND SICK IN THE ARMY AND NAVY.

BERLIN, January 15, 1915.

SINCE the war began the various Berlin medical societies have held their meetings in common. At the first of these Morgenroth discussed the subject of the chemotherapy of pneumococcus infection. As the result of his extensive investigations he has found that the most active agent against the pneumococcus is ethylhydrocuprein. In experimental pneumococcus infection in mice and guinea-pigs the effect of this agent is an extraordinary one. As regards pneumococcus infections in human beings, there is a unanimity of opinion among opthalmologists that the remedy is particularly effective in ulcus serpens corneæ. Results so far obtained in the treatment of pneumonia have permitted no decisive judgment as to the value of this agent. Properly used at the beginning of the attack, this drug seems to shorten the course and diminish the severity of the disease. Following doses of 0.5 gram three times a day no adverse effects have been observed. No lasting disturbance of the organ of hearing has been recorded. If the drug is given in conjunction with the pneumococcus serum of Neufeld and Händel the effectiveness of the latter is greatly increased. The technique of the employment of ethylhydrocuprein in cases of corneal ulcer is as follows: Instillations of a 1 per cent. solution are made into the conjunctival sac, or instillations of a 1 to 2 per cent. solution following direct application of a 2 per cent. solution to the ulcer. Inunctions of a 1 per cent. salve six times daily may also be used. The speaker advocated the use of even stronger concentrations of the drug and also continuing the treatment during the night. In this manner may be prevented the drug-fast condition of the pneumococci resulting from the long intervals. For twelve to twenty-four hours prior to operations on the eye instillations of this drug into the conjunctival sac frees the latter of pneumococci. In pneumonia ethylhydrocuprein should be used in acute cases only and never later than the third day of the disease. Under these circumstances the temperature falls by lysis usually before the fifth day. The general condition and the respiration are greatly improved. Animal experiments as well as clinical observations show that the pneumococcus toxins increase the susceptibility of the conjunctiva to quinine. For this reason adverse effects are the more rarely observed the earlier the treatment is instituted. In the treatment of pneumonia Morgenroth also continues the administration of the drug during the night in order to prevent a condition of drug-fastness of the pneumococci. In malaria ethylhydrocuprein is more powerful even than quinine, the daily dose being 1.5 grams.

In the discussion Leschke reported his experiences with this drug. Even though a favorable influence may be observed at the height of hepatization, the least results are to be expected if the drug is administered on the first or second day of the disease. With the improvement in the general condition and in the breathing, the difficulties of nursing are greatly relieved. The height and the duration of the fever are shortened. Similarly in pneumococcus angina and pneumococcus infection complicating influenza the results of treatment are quite favorable. In pneumococcus otitis insufflations of ethylhydrocuprein are indicated. That the action of this drug is specific for pneumococcus infections is indicated by the fact that it is powerless in all other types of infections.

The rôle of worms and protozoa in the etiology of tumors was the subject of a paper by Saul. The parasites are not to be regarded as the intermediary host of bacteria that excite tumor formation. The action is rather as follows: the metabolic products of the parasites provide the stimulus which causes a melting down of the tissues in the immediate environment, and a proliferation of the more remote tissues. This is the influence exerted by the coccidia in the biliary passages and by gall-insects in plants. A similar phenomenon is observed in normal physiology, in the implantation of the fertilized ovum in the mucosa of the uterus.

It may be said at the present time that the Germans are divided into two great groups. One of these is facing the enemy in mortal combat for the preservation of Germany. The other group is busily engaged in lightening the burdens of those who are fighting under the colors. In order to bring before the eyes of the public what is actually being done for the soldiers, there is being held in the halls of the Reichstag an exposition on the care of the wounded and sick in the army. In one group there is demonstrated the entire sanitary service of the forces in the field. In the first place there is shown the first-aid kit which every soldier has sewed into his coat. Then there are shown the cases of instruments used in the various military divisions, the *x*-ray wagon, the instrument equipment of the field-hospital, and models of hospital tents and barracks. In a large battle model 12 meters long showing an attack upon a city and fortress of the enemy, there is presented a demonstration of every phase of activity of the medical corps. There are seen the medical officers, amid the rain of bullets, lying on their stomachs and bandaging wounded; the medical corps are seen at work in the transportation of the wounded, and at the dressing stations, the field hospitals, and base hospitals. Models are shown of transport wagons for the wounded, hospital trains, etc. There is also a demonstration of the medical equipment of the navy with models of sections of warships in the Imperial navy. A full-sized reproduction of the dressing stations on a modern warship is exhibited. Situated in the lower part of the ship, these rooms with their operating table and other equipment are specially constructed to adapt them to the motion of the ship. Then there are the ship's hospital with its beds similarly adapted, and the drug room with the chemical and bacteriological laboratory. Of special interest is the demonstration of the methods of transporting the wounded on board ship. A sliding hammock suspended from a rail has proved to be most serviceable. A third section of the exposition deals with the care of the sick. There are shown pictures and cultures of the various bacteria, and illustrations of the preparation of sera, etc. There are tables showing the results of preventive inoculation. This section also

contains exhibits on tuberculosis, the use of the *x*-rays in the management of the wounded, and the modern technique in the nursing of the sick, including their clothing, nourishment, exercise, etc. Diagrams and models show the progress made in the care of those who have become crippled. The occupations which are open to cripples are also demonstrated. Thus it is shown how an individual who has lost both hands and both feet may not only be able to dress and feed himself, but may also perform the work of a farmer. Another section of the exposition deals with the work of voluntary nursing in the army, including the organization and activity of the Red Cross. Last but not least must be mentioned the representation of the history of the sanitary service in armies from ancient to modern times. Among the lectures which were delivered in connection with this exposition may be mentioned the following: "Our Daily Bread: a Wartime Consideration," by Rubner; "The Treatment of Wounds in War," by Bier; "Voluntary Nursing in War," by Kimmle; "The Prevention and Management of Disease During War," by Kirchner; and "The Historical Evolution of War Sanitary Science," by Halländer.

THE FIGHT AGAINST TUBERCULOSIS.

To the Editor of the Medical Record:

Sir:—In regard to an editorial article with the above title, published in your issue of February 27, I take the liberty of offering a few remarks. All are agreed that tuberculosis or consumption has materially diminished on the whole for a long time, as your reference to Hoffman's statistics demonstrates; but Dr. Sweeny raises the very practical point whether the expenditure which has been incurred by the present attempts to eradicate this disease is warranted by the decrease in its death-rate, and arrives at the altogether defensible conclusion that it is not justified. However, you incline to the opposite opinion, and state that the death-rate of this disease began to drop immediately after the discovery of the tubercle bacillus in 1882, by reason of the greater care which had been observed in avoiding contagion, and that the evident slackening in the decrease since 1895, you believe, is due to the inefficiency of the present prevention apparatus which has, so far, only been capable of thwarting the incidence of the disease among "the middle and upper" or the intelligent "walks of the social strata," while the "lower, or the submerged tenth, has not been reached."

Now, all things being considered, it seems most likely that if any decrease in the death-rate of this disease occurred in consequence of the activity of the prevention-crusade, this hardly took place in 1882 (for Hoffman's table shows that there was a decline of 7.35 per cent, in the period immediately preceding that year), but directly after the contagiousness of the disease became officially acknowledged, and after Health Boards took legal action in regard to its registration, disinfection, and segregation. The earliest move of this kind was taken by New York city in 1896, Boston in 1900, Philadelphia and Chicago in 1902, and in other cities later. Hence it is probable that about 1899 or 1900 is the time when the preventive-measures began to be felt, if at all.

Taking Hoffman's table as a guide, the death-rate in New York, Philadelphia, and Boston from 1882 to 1901 was 3.40 per mille, and from 1892-1901, 2.51 per mile, and from 1902-1911, 2.13 per mile, giving a decrease of 0.89 per mille, or 26.17 per cent. between the first and the middle base, and only 0.38 per mille, or 15.13 per cent. between the middle and the last base. The 26.17 per cent. represents the decrease when no, or very trifling, prevention efforts were made, while 15.13 per cent. gives the decrease when all the possible preventive efforts, aided by millions of money were invoked to annihilate this disease, and in spite of this its death-rate increased 11.04 per cent. over that of the immediately preceding period. To show that the preventive attempts of the day are practically *nil*, it is but necessary to point out that the decrease in the death-rate between 1838 and 1841, and 1842-1851, when not a thought was given or a hand lifted in favor of special prevention, was 13.92 per cent., or only 1.21 per cent. less than is shown in the above period between 1882-1901 and 1902-1911, during which time, as stated, the so-called prevention-movement was in its most active stage.

I believe it was Hoffman who first voiced the maxim that the lowering of the first fifty per cent. of the death-rate of this disease is a comparatively easy matter, because this is effected among the thinking and intellectual classes, but to reach the second fifty per cent., which largely relates to the ignorant and submerged strata, is a far different and much more difficult undertaking. On the surface it appears to be a self-contradictory conception. For, if consumption is caused by a specific germ, which is transmitted to the well from the sick through contagion or infection, it must be a specific infectious disease, differing in no wise from smallpox and similar diseases. Why should the intelligent be more readily relieved of this specific disease by a consumption-prevention apparatus, than the ignorant or the submerged? A specific germ is no respecter of persons, whether high or low, and cannot be conquered by an appeal to intelligence, ignorance, bigotry, filth, poverty, or to any object except to the germ itself. When smallpox, syphilis, typhoid fever, diphtheria, and other specific infectious diseases are to be exterminated all attention is given and concentrated against circumventing the virulency of the specific microbe which gives them life and activity, and on nothing else. No more or less can be done in the case of pulmonary tuberculosis or consumption if the prevailing doctrine concerning its causation is correct. And it is perfectly natural that any preventive movement that is capable of wiping out one-half of the extent of the disease in a certain time, is able to annihilate the remaining half with the same facility and in less time.

Thomas J. Mays, M. D.

Philadelphia, Penna.

The doctrine that cleanliness, proper nourishment, right living, and the observance of all the rules of hygiene are of no avail in strengthening the defences against infectious disease is a novel one.—[Ed.]

The Cultivation of Human Tumor Tissue in Vitro.—D. and J. G. Thomson conclude that the growth of human tumor tissue and normal human tissue can be obtained *in vitro* in a medium composed of fowl plasma to which extract of the human tissue or extract of chick embryo has been added. The growth of epithelial cells differs from that of connective tissue cells. The former grow out in the form of buds or in a solid, advancing mass, whereas the latter radiate out in long, branching lines.—*Royal Society of Medicine.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 4, 1915.

1. The Carnivorous and Herbivorous Types in Man. J. Bryant.
2. The Roentgen Diagnosis of Gallstones by Improved Methods. L. G. Cole and A. W. George.
3. A Study of the Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. A Critical Analysis of 134 Microscopically Proven Cases. T. W. Harmer.
4. A Study of Disturbances of the Stomach. H. F. Hewes.

1. The Carnivorous and Herbivorous Types in Man.—J. Bryant mentions the following facts as established in comparative anatomy. Body form influences intestinal length, regardless of food habits. Intestinal length varies with the species regardless of food habits. In a given species intestinal length may vary 100 per cent. This variation depends chiefly upon the digestibility of the food. Offspring of one mother have at birth approximately the same intestinal length. In a given adult individual of one species body form and intestinal length are dependent chiefly upon heredity, the form or digestibility of the food presented during the growing period, and the general habits of life. Sex plays an almost negligible part in this regard. The carnivorous or herbivorous habit is not obligatory. Animals predisposed by their species to one or the other of these extremes of food habit, may within wide limits when forced by necessity reverse their normal manner of life, being thus as it were facultatively carnivorous or the reverse. For example, the polar bear may be forced to live upon kelp, and the cow may exist in comparative comfort upon fish. In the group of mammals, the carnivora are distinguished by a long thin body form, and a short simple type of intestine in which the small intestine is markedly longer than the colon. The herbivora, on the other hand, present a marked contrast; the body form is short and thick, and the intestine long and complex, with the small intestine perhaps barely equal in length to the colon. In man, the intestine is of intermediate character, nearer to the carnivora than to the herbivora, but here also one finds extremes of difference in intestinal length amounting as in the lower animals to at least 100 per cent. at a given age or height. The author presents a series of tables bringing out the contrasts between the two types as regards the biliary and cardiorenal systems, chemical phenomena, the ductless glands, the digestive apparatus, diet, the eye, habits and diseases, etc. Two general principles underlie these contrasts. The first is termed the law of contrasts, *i.e.* where one can prove a given point for one type, its opposite may be expected to prove true in the other type. The second general principle is, that in a broad way the herbivor would appear from a study of the tables as a positive and the carnivore as a negative organism. The carnivore in short may be regarded either as an inferior or as a very highly specialized organism, for in him the only systems developed or remaining present in excess, are those necessary to the perpetuation of the species: the central nervous system, and the reproductive system.

3. The Coley Toxins in Inoperable Sarcoma.—T. W. Harmer has made a study to determine, if possible, the type or types of cases in which this treatment offers an expectation of benefit. The study is based upon 134 microscopically proven cases. It is concluded that the mixed toxins of streptococcus and the *Bacillus prodigiosus* are of value in certain cases of inoperable sarcoma. The treatment of primary or recurrent inoperable sarcoma with mixed toxins must be intensive. The increment of the dose and the interval between injections require some experience. This method of treatment is distressing and is never certain. This analysis has been undertaken, therefore, in the hope of ascertaining the types of cases which offer reasonable expectation of benefit. The institution of this treatment is unjustifiable in cases in which operative measures of reasonable safety offer possible hope for removal. A frank statement of the nature and the severity of reactions, and the probability of benefit should be made to the patient or some responsible person before the treatment is undertaken. Seventy-three cases after most rigorous criticism have been regarded as apparent cures. The small round-cell type apparently offers the greatest expectation of benefit followed closely by the spindle-cell type (excluding fibrosarcoma). Only a relatively small number of mixed cell type have been benefited. The use of toxins in cases with multiple melanotic growths does not seem justifiable but their use in single melanotic growths is legitimate. Regarding the tissue of origin the greatest number of apparent cures have occurred in bone sarcomata (exclusive of giant-cell cases) over 18 per cent. of the total number of apparent cures, with an equal division of round cell and small cell types. Giant cell cases furnish about 15 per cent. of the total number of apparent cures. The records seem to justify preliminary trials of toxins in carefully chosen cases in which slowly growing tumors have ruptured more or less extensively into the soft parts rather than immediate amputation. With skilful judgment a few limbs have apparently been saved. If such treatment is practised, the patient should understand that amputation may ultimately be necessary, and it should not be long deferred in the advent of increased rapidity of growth, repeated hemorrhages, considerable absorption, or superimposed infection. A small group on account of anatomical situation, viz., extensive involvement of the vertebræ, defy surgical eradication. These should be submitted primarily to surgical attack followed immediately by toxin treatment. The records justify this practice. Primary inoperable round-cell sarcomata of the cervical glands compose about 10 per cent. of apparent cures. Sarcomata arising from fascia and muscle, which have been apparently cured, have been situated in the lower extremity, abdominal wall, and back. They compose about 16 per cent. of the total number of apparent cures. Nine of twelve are of spindle-cell type. In a small number of cases the toxins produce a striking relief of pain.

New York Medical Journal.

March 6, 1915.

1. Spinal Anesthesia in Gynecology. H. J. Boldt.
2. Symptoms of Disease of the Pituitary Body. J. H. W. Rhein.
3. The Differential Diagnosis Between the Acute Pathological Perforations Within the Abdomen. J. E. Summers.
4. The Nature and Pathogenesis of Epilepsy. L. Pierce Clark.
5. The Applicability of Binet-Simon Intelligence Tests in Psychoses of the Senium. L. Wender.
6. Vincent's Angina. M. J. Sinnott.
7. The X-Ray Treatment of Exophthalmic Goiter. M. K. Fisher.
8. Gonorrhea with Unusual Complications. M. Zigler.
9. Röntgen Diagnosis of Some Pathological Conditions of the Large Intestines. L. Laches and M. Rosensohn.

1. Spinal Anesthesia in Gynecology.—H. J. Boldt states that in the thousands of cases of spinal anesthesia in which novocaine has been used there has been recorded no fatality attributable directly or indirectly to the drug. In the author's experience the undesirable effects of the drug are limited to the more or less severe headaches which sometimes continue for several days, but which are relieved by the administration of the mixed bromides. An important consideration in spinal anesthesia is the preliminary narcosis by means of scopolamine and morphine freshly prepared. Spinal anesthesia is indicated in comparatively few cases: in patients in whom inhalation anesthesia is contraindicated

because of some organic defect or because of exceptional obesity. Another advantage of the method resides in the fact that one can dispense with one assistant.

4. **Epilepsy.**—L. Pierce Clark summarizes the main points of his thesis as follows: The epileptic is possessed of a particular type of constitutional makeup which antedates the occurrence of the first epileptic fit; this make-up is predominatingly infantile in the emotional sphere of development; the affective defect is due to infantile psychosexual immaturity; the latter is largely due to early libidinous fixations on the mother or father and also may possess secondary but lesser fixations in other stages of sexual evolution on its way to adult heterosexuality; the fit is essentially a libidinous outlet or striving of the unconscious forces, which, though widely variant, yet possess many of the characteristics of the dream language and motive; all the epileptic manifestations are in harmony with each other, flow out of the disease and are reciprocal and comparable as a whole. It would seem in future that the prognostic points in any given case of epilepsy should be based largely upon the degree of defect in infantilism, the rigidity of libidinous fixation, and the readiness with which the individual epileptic may be induced to assume a proper adaptation to adult emotional life. This latter problem is largely the main issue in all the psychoneuroses. The physical handicaps of defective metabolism, such as constipation, mucocolitis, and the so-called autointoxication, need also to be considered; the latter act in the essential epilepsies only as contributing and exciting factors in undervitalized individuals who do not arise from hardy family stock. The truth of this statement may be shown in that the majority of epileptics have come disorder of metabolism, but when the same has been overcome the epilepsy in the larger number of such individuals still endures.

5. **The Binet-Simon Tests in Psychoses of the Senium.**—L. Wender believes that the Binet-Simon scale may be of some use in the diagnosis of early cases of mental enfeeblement in the aged, and that even in the absence of those gross disorders of conduct which would justify commitment to a hospital a definite diagnosis can be made by means of these tests. Furthermore these tests will become progressively more fit for the diagnosis of mental defectiveness if the various changes indicated are adopted.

Journal of the American Medical Association.

March 6, 1915.

1. Reorganization of Clinical Teaching. A Compilation of Reports of a Special Committee Presented by the Chairman. V. C. Vaughan.
2. The University and Higher Degrees in Medicine. G. E. Vincent.
3. Courses and Degrees in Public-Health Work. M. J. Roseneau.
4. Splenectomy in Primary Pernicious Anemia. W. W. Roblee.
5. Complement Fixation in Parasitic Skin Diseases. J. A. Kolmer and A. L. Strickler.
6. Some Clinical Features of the Wassermann Reaction. E. L. Keyes, Jr.
7. Oroya Fever. Second Report. R. P. Strong, E. E. Tyzzer and A. W. Sellards.
8. Clinical Experience with Liquid Paraffin (Liquid Petrolatum). A Comparative Investigation Made Under the Auspices of the Council on Pharmacy and Chemistry. W. A. Bastedo.
9. A Study of the Commercial Preparation of Bacillus Bulgaricus. A. J. Benedick.
10. A Monilia Found in Certain Cases of Sprue. Preliminary Note. B. K. Ashford.
11. Nitrous Oxide Gas Analgesia in Obstetrics. J. Webster.
12. Nitrous Oxide Gas Analgesia in Obstetrics. F. W. Lynch.
13. Lead Poisoning from the Use of Cosmetics. Two Cases of the Neuromuscular Type. G. W. Robinson.
14. Report of Case of Tetanus. T. H. Kelley.
15. Hydrocephalus. The Possible Relation of a Contracted Pelvis to Hydrocephalus Developing After Birth. J. E. Oden.
16. Report of Four Cases of Foreign Body in the Air Passages or Esophagus. G. W. Boot.
17. A Specimen of Congenital Inguinal Implantation of the Vermiform Appendix. H. W. Wade.

4. **Splenectomy in Primary Pernicious Anemia.**—W. W. Roblee states that: 1. Primary pernicious anemia is probably due to a toxin which may be of bacterial, chemical or parasitic origin, and in some cases there is an increase of the unsaturated fatty acids. The spleen seems to exercise an influence favorable to the elaboration of these substances. These toxins appear also to cause a hyperemia of the splenic pulp because of changes in the blood vessels, which cause the blood to be poured directly into the pulp. The presence of the spleen seems to cause a diminution in the amount of the total fats and cholesterins of the blood which are antihemolytic. For these theoretical reasons, and because of the numerous cases on record in which a cure has been obtained in Banti's disease, which is closely related to pernicious anemia, splenectomy appears to be indicated in these and the closely associated anemias. 2. Removal of the spleen either in sickness or in health does not affect the patient injuriously. The operative mortality is not high even in very weak patients. 3. A rapid and striking remission of all symptoms appears, the change in the blood picture coming quickly and quite certainly. It is too soon to know whether or not any patients will be permanently cured, but it is quite probable that a large percentage will succumb to the disease within a few months after operation. Other methods of treatment should be combined with splenectomy, as more than one factor is doubtless at work in these cases. It will prolong life, and in one's incomplete knowledge of the etiology of this disease and the certainty that death will come under every other known method of treatment, the author believes that these patients should be offered this additional chance of recovery. Some patients have been reported symptomatically well at the end of nine months, even though the blood was not entirely normal.

5. **Complement Fixation in Parasitic Skin Diseases.**—J. A. Kolmer and A. L. Strickler present the following summary of their experiments: 1. With a polyvalent antigen of *Microsporon audouini*, complement fixation was found to occur in 78 per cent. of persons suffering with ringworm of the scalp. 2. The serums of two cases of favus studied yielded positive reactions with an antigen of the achorion of Schönlein. 3. The degree of reaction in both ringworm and favus was observed to depend in general, first, on the severity of the infection, and second, on the duration of the infection. 4. A culture of the scales of tinea versicolor, regarded as a doubtful culture of *Microsporon furfur*, reacted weakly or irregularly with the serums of ringworm and favus patients, and negatively with the serum of a case of tinea versicolor. 5. The ringworm and favus antibodies (amboceptors) fixed complement best with their respective antigens, but with relatively large doses of serum this specificity was not observed, owing probably to a biological relationship of *Microsporon audouini* and *Achorion schönleinii*. 6. The antigens of the fungi did not fix complement with the serums of syphilitics and that of persons suffering from scabies, impetigo contagiosa, eczema, acne vulgaris, and other diseases.

6. **Clinical Features of the Wassermann Reaction.**—E. L. Keyes, Jr., finds that: 1. A negative Wassermann is not sufficient evidence of the cure or absence of syphilis. 2. A positive Wassermann, unsupported by clinical evidence, is not sufficient evidence of the presence of syphilis. 3. A positive Wasserman does not prohibit matrimony. 4. A fixed, positive Wassermann in the later years of the disease does not inevitably point to the prospect of grave lesions. 5. A negative Wassermann after salvarsan, in the first year of the disease, does not mean that the patient is cured, or that lesions will not reappear before the reaction again becomes positive. 6. The return of chancre, glands, eruption

and positive Wassermann reaction, a few months after control of the disease by salvarsan in its first few weeks, does not prove reinfection.

11. Nitrous-Oxide Gas in Obstetrics.—J. C. Webster states that about ten years ago he began to use nitrous oxide gas in certain complicated obstetric cases. It was noticed that the administration caused no ill-effect to mother or child, did not affect the strength of uterine contraction, or lead to postpartum inertia. On a number of occasions the gas was employed during the passage of the head through the vulva, and relieved the patient's sufferings without interfering with the progress of delivery. During the past year in the author's service at the Presbyterian Hospital, Chicago, nitrous oxide gas has been used in labor to abolish the pains caused by uterine contractions. The technique is simple. Usually the administration is begun when the patient complains of second stage pains, though it may also be used during the first stage. In the majority of cases, however, gas is not necessary during the greater portion of this period. It has been found best to use a small nasal inhaler, the mouth of the patient being uncovered. The gas-bag attached to the tank is kept under low pressure and, as the pain begins, the patient is instructed to breathe quietly, keeping her mouth closed. Ordinarily, light inhalation suffices to produce the analgesic effect. It is not necessary to cause asphyxiation or jactitation, which are due to the inhalation of large quantities of gas. Expulsive efforts on the part of the patient are not interfered with, to any appreciable extent. As soon as the uterine contraction begins to subside the inhaler is removed and the patient is again conscious. This procedure may be kept up for hours if necessary. A nurse or assistant may be instructed so as to carry out the administration satisfactorily. Pure nitrous oxide gas or gas with oxygen (3 per cent.) may be employed. The former is, perhaps, most universally applicable. It may be used in private houses as well as in hospitals, the necessary apparatus being small, compact and easily transported. The amount of gas varies according to the duration of painful contractions, and the cost is therefore a variable factor. In the Presbyterian Hospital the ordinary small gas-tanks have chiefly been used, the expense of administration being comparatively small. In hospitals where large tanks may be employed, the cost may be reduced about one-half. This method is recommended as the safest and simplest method of conducting painless labor. Its advantages are as follows: The apparatus is simple, easily transported, and may be used by any practitioner. Deep anesthesia is not necessary. There are no ill-effects to mother or child. The strength of uterine contractions is not diminished, no matter how long the administration of the nitrous oxide gas is continued. The administration is under control all the tme, and can be stopped at any moment. This is a very decided advantage which is not possessed by any method which necessitates placing a patient under the influence of drugs administered internally.

Berliner klinische Wochenschrift.

February 1, 1915.

The Potato as a Universal Aliment.—Richter states that a universal food substance is one which is necessary to the life of a community, is within the reach of the smallest purse and is palatable either *per se* or through various forms of cookery. The great monotony of the menu in the poorest strata of society undoubtedly leads to the use of alcohol. A universal foodstuff must of course be one which is readily obtainable, and therefore one which can be readily stored in sufficient quantities. It must be grown on home soil and in quantities so large that imports become unnecessary. Does the potato fill all these requirements? This tuber originated in South America and about 1560 it was introduced by way of Spain to Italy and Burgundy, reaching England in 1584, encountering strong opposition. It was first grown in Austria in 1686 and in Saxony 1705, and strong prejudices had to be overcome before it became an article of diet; and perhaps only famine was responsible for its free consumption. In France it was unknown before the Revolution. The prejudice was due in part to confusion of the tuber with the fruit, the latter being unfit for consumption. At present the German acreage exceeds that of every other country, 12.6 per cent. of arable land being given up to the potato or over five times the acreage of England. The tonnage of the potato crop has increased enormously in late years. An acre of potatoes contains more nutriment than an acre of vegetables or cereals. In addition to an enormous human consumption potatoes are used very largely for fodder, and for making spirits. The per capita consumption of potatoes of human beings is about 400 lbs. per annum, but the amount used for fodder exceeds considerably that used for human food, while half as much is used for distilling as for feeding the people. By cutting down the fodder or spirit production, or both, the public can benefit by large reserves of food. The potato is far from being an ideal food in itself, for it is almost fat free, and its protein content is small, although quite utilizable. The tuber loses nearly a fourth of its nutriment by peeling. To depend upon the potato for all the protein requirement an Irish day-laborer finds it necessary to eat about 13 pounds a day, and the same ration obtains among the peasants in parts of Silesia and Bavaria. However, under the more recent teachings concerning the sufficiency of low-protein diet such amounts may be far too large. In other words, from half to two-thirds the amount of potatoes mentioned above may furnish the protein requirement of subjects engaged in moderate activities, while at rest a much less amount will sustain life and even give a surplus of stored N. This laboratory find does not quite agree with clinical experience, however, for a potato diet is used to some extent successfully for the reduction of weight. When eaten as usual with butter loss of weight does not occur. Those who have used the potato diet in practice further state that if more than five pounds daily are consumed beyond an interval of several weeks symptoms of intestinal insufficiency develops. Those who are forced to eat these large amounts as sole aliment develop the well-known "potato belly" of the very poor man. From all that has been said, therefore, the potato will serve admirably as a leading constituent of diet. The theoretically advised eating of the skins is met by the objection that the latter cover up decayed regions and that only after peeling can these be detected and removed. Potato porridge, mashed potato, etc., form the best utilizable methods of preparation. Dried potatoes have never made good as a food product.

Latent Microbism in Surgery.—Melchior, who uses the term "quiescent infection" as equivalent to latent microbism, advises the surgeon to be careful in adjudging this or that surgical affection as cured lest delayed phlegmon, osteomyelitis, etc., appear because of latent microbism. Many phenomena which in the past have depended for explanation on the supposed presence of hypothetical "diatheses" and "constitutional predispositions" could be more simply accounted for by a demonstrable condition, such as latent germ life in which the germs become mobilized from one or another cause. Such a sequence obtains especially in wounds, in which adventitious germs are forced into the tissues but do

not at once manifest their activities. Extirpation of infected structures like tuberculous lymph-glands represents a condition parallel to the preceding. While the subject is in general a very old one, particular types are constantly coming to light, and the present war will develop others. The author refers especially to latent osteomyelitis from bullet wounds, appearing later as local lighting up or metastasis.

Münchener medizinische Wochenschrift.

February 2, 1915.

Peculiar Case of Anaphylaxis Towards Fly Stings.—Weber states that human beings often show a supersensitiveness toward animal substances, such as crabs, fish, and egg, which absorbed by the gastroenteric tract irritate the nervi vasorum of the skin and cause the formation of wheals, along with general phenomena which together make up the picture of urticara ab ingestis. When toxic substances are introduced parenterally into the body through the stings of fleas, diptera (bugs), certain hymenoptera (bees, etc.), coelenterata, etc., the individual reaction differ much among themselves not only in mankind but in animals as well. The frog is believed to be immune against hymenoptera (wasps) as far as swallowing them goes, but if fairly stung upon its tongue suffers greatly. The sting or "bite" of the tabanidæ (horseflies) causes the rapid formation of wheals, with formation of a circumscribed inflammatory exudate. The lesion is painful and itches intensely, and when it occupies the lip may be very large, becoming more so through rubbing; it may not disappear before two weeks. The course as a rule is benign, but at times the lesions behave like boils and may persist for weeks. In the case cited by the author the patient was a robust man in his forties. After a fly bite on the finger he was at once seized with vertigo, cyanosis, dyspnea, and collapse pulse. Later the face and eyes were injected; there was mental excitement and confusion, pupils were narrow and almost immobile. The wheal which formed locally occupied the site of the scar from a former horsefly bite.

Alcohol Criminality in Bavaria in 1913.—Rupprecht, a medical jurist, gives some data on this subject which should be of interest because of the great per capita consumption of strong beer, to say nothing of other alcoholic beverages, in this kingdom. The year 1912 showed a maximum over preceding years and led to a falling off during 1913. In 1912 12.47 per cent. of all those sentenced were drinkers, while in the following year the percentage agreed closely with that of 1911. These figures do not apply to the city of Munich, for here there was an increase in 1913 over 1912. For the entire kingdom the number of people sentenced for acts committed while drunk reached 8,639 in 1912, and fell to 7,637 in 1913 (7,695 in 1911). As is well known, alcoholic offences are characterized by their general rawness, grossness, etc. In about a half of all these crimes there was violence to the person. These appear most strikingly in rural districts, but there is also a notable distinction between the inhabitants of upper and lower Bavaria. Resistance to arrest is more in evidence in the cities—twice that in the rural districts. As to the personnel of the arrested, about one-half are day-laborers in the cities. In the rural districts farm laborers show a much smaller contingent of arrest. Adolescents (twelve to eighteen) contributed only about 2 per cent. of offenders, chiefly in rural districts. Considering the buoyancy and irresponsibility of youth and the number of dances, christenings, etc., which they frequent, this figure is not discouraging for the future, and leads to the conclusion that the city youth is more menaced by the alcohol peril.

Case of Balantidiosis Treated with Emetine.—Axter-Haberfeld, a practitioner of Brazil, relates the case of a woman, aged sixty, who had suffered for four years from diarrhea; she had up to twelve movements daily, with pus and occasionally much blood intermingled with water. She had become much emaciated and very weak. There was no fever nor any evidences of other affections. Microscopic examination of stools showed abundance of *Balanditium coli*, twelve or so to each field, and all in active motion. Treatment caused some improvement, but this did not progress beyond a certain point. Emetine was then substituted with most brilliant results. Even after three hypodermics of 0.039 the balantidium could no longer be found in the stools. The cure was permanent. Balantidiosis is not common in this locality.

Deutsche medizinische Wochenschrift.

January 14, 1915.

Nutrition Folder.—This number of the *Wochenschrift* contains a specimen of the folder which is being distributed throughout Germany from a central station in Berlin. After warning the public of the isolation of the Empire by its foes, the need of economizing in food is brought home by practical advice. The German is told that he should avoid meat for breakfast and supper, and also on certain days eat no meat at all. All meat scraps should be saved for soup stock, etc. The same prescription applies to fish. Fats are pronounced very expensive food stuffs (butter, cream). Economy should be practised also in the use of fat in cookery. All residues of fat should be saved for this purpose. Milk as well as sour milk and buttermilk should be used freely. Skim-milk is very cheap and may be utilized in various ways. Cheese made from milk is also cheap, and along with the latter may replace meat and eggs. Of cereals and breadstuffs, rye bread only is recommended and cereal porridges. All bread should be eaten stale and bread crumbs and fragments should be dried and kept for further use. Potatoes should be used freely, cooked in every possible way, when possible in their skins and eaten without peeling. At the hearty meal of the day vegetables should be eaten freely. Fruit cooked with sugar may acquire much food value, and jams and marmalades may replace butter. Water and milk are the best beverages. Alcoholic drinks should be used in moderation, but brandy should not be used, nor any excess of tea and coffee.

Disturbances of the Internal Secretion in Dysentery.—Peiser has long remarked certain peculiarities in the course of dysentery and after convalescence from the same. These could be connected with the operation of the internal secretions. The most striking, such as exophthalmus and lustrous eyes, suggested hyperthyroidism and as a matter of fact these were all the evidences of this state. The thymus as far as could be recognized was hypoplastic, while the thyroid in these cases was often found to be increased in size. Pancreatic insufficiency was recognized by several tests, including the results of installation of adrenalin (dilatation of pupils). More significant, however, as evidence of disturbed internal secretions, was the behavior of the organism towards carbohydrates. There was a marked tendency to intolerance and to glycosuria, which the author brought into relationship with the sympathetic (increased sympathicotonus). All these in association with other symptoms appeared to show that the balance between the thyroid-adrenal and parathyroid-pancreas groups was disturbed as if by the activity of the dysentery toxins. A practical hint is that belladonna should be used to lower the increased tonus of the sympathetic. The theoretical possibility was borne out by a trial. When ptyalism and gastrosuccorrhea are present opiates give good results.

Insurance Medicine.

The Betterment of American Mortality Statistics.—Perhaps it is but natural that only a comparatively small percentage of a nation's population even faintly senses the real importance of its vital statistics. Edward B. Phelps, editor of the *American Underwriter,* in writing upon this subject says that to most people mere figures of any magnitude are in the nature of hieroglyphics, and those recording births and deaths by hundreds of thousands probably make about as deep a dent in the average mind as would the photographic reproduction of a mass of newly-discovered cuneiform inscriptions of Nebuchadenezzar's time.

The medical profession of a country may be regarded as the architect of that country's vital statistics, every stone in the foundation of which is laid by some member of the medical profession, to wit, by the doctor who signed and filed this or that individual birth or death return. The statisticians who compile the vital statistics can only work with the building materials—certificates of births and deaths—which are placed in their hands by the doctors. If the metaphorical bricks of which the structure of vital statistics is to be builded are out of alignment through inaccuracy the structure is bound to suffer and be out of plumb, according to the degree of inaccuracy in the material supplied. Unfortunately the medical profession is anything but keenly alive to its responsibilities in this branch of its work. That fact is proven beyond all peradventure by the woefully defective registration of births in the vast majority of States in this country, and by the incomplete, inaccurate, and often positively misleading death returns, which certain medical investigations, or follow-up inquiries by statistical bureaus, have demonstrated.

The educational campaign in behalf of the general registration of birth returns, which has been conducted in the last few years by various public bodies and officials, under the expert leadership of Dr. Cressy L. Wilbur, Chief of the Division of Vital Statistics, Bureau of the Census, promises eventually to create a public sentiment which will demand the right kind of legislation necessary to enforce complete birth registration throughout the country. Physicians, medical bodies, and statistical bureaus of importance, are beginning to expose the inaccuracy of death returns, and this is bound to bring light into some of the dark corners of the American structure of vital statistics. This, in turn, will have a tonic effect upon the standards of the medical schools and the medical profession as a whole, and materially reduce the present percentage of careless, or incorrect, death returns.

Nearly a year ago Dr. Horst Oertel, then scientific director of the Russell Sage Institute of Pathology, and now pathologist of Guy's Hospital, London, published an article on the "Inaccuracy of Mortality Statistics," in which the large percentage of error in clinical and bedside diagnoses of causes of death as proven by subsequent autopsies—and, incidentally, the pitifully small percentage of autopsies in American hospitals—were emphatically demonstrated. Supplementing, as it did, and following on the lines of Dr. Richard C. Cabot's paper on "Diagnostic Pitfalls Identified During a Study of Three Thousand Autopsies," and the "Report on Post-Mortem Examinations in the United States," presented by the Public Health, Hospital and Budget Committee of the New York Academy of Medicine, Dr. Oertel's article commanded widespread attention. In an article entitled "An Experiment in the Compilation of Mortality Statistics," by Louis I. Dublin and Edwin W. Kopf, of the statistical bureau of the Metropolitan Life Insurance Company, is shown the interesting experience of that company in following up 5,118 more or less vague and unsatisfactory death returns and securing changed assignment of the causes of death in 2,827, or 55.2 per cent. of these cases.

The revelations of Dr. Cabot and Dr. Oertel are backed by actual post-mortem findings, and demonstrate errors in diagnosis. On the other hand, the showings of both the Census Bureau—which has issued a report on mortality statistics for the years 1911 and 1912—and the Metropolitan Life investigations rest solely on the admissions of the physicians who filed the original death certificates, and merely record their self-confessed errors of commission or omission in reporting the causes of death of the patients which they had attended. Presumably, in not a single instance of the corrected or revised death certificates, had the attending physician's statement of the cause of death been subjected to the test of any other physician's diagnosis of the case, let alone revised in the light of post-mortem investigation. So long as the greater includes the less, it follows that the percentage of error as checked up by these three different tests is materially larger than if only determined by second thought, and a reconsideration of the case by the one who made out the original certificate.

It would seem that inasmuch as the very foundations of a nation's vital statistics must be necessarily laid by the members of the medical profession, the medical institutions and societies which set the pace for the profession and determine its standards, might be expected to instill in the candidates for, and newcomers in, that profession some sort of realization of their responsibilities on these lines. Even did a post mortem follow every death, perfection in recording death certificates would be an impossibility, and not to be expected. But autopsies never have been and never will be popular with the community at large. However, a great improvement in existing conditions might be made by the mere exercise of a little more thoughtfulness and precision on the part of physicians who are called upon to fill out and file death certificates—that is to say, to the general cultivation of at least an approximate sense of medical responsibility in this detail of the reputable physician's work.

In order to bring about this desirable change, the wider the accurate exposure of the present inaccurate conditions the sooner the desirable change will come. The great business of life insurance has a peculiar interest in accurate statements of causes of death, if it is to intelligently determine which classes of risks it may, or may not, safely accept at standard rates.—*The American Underwriter,* March, 1914.

Insurance, Making Father Beneficiary, Right of Wife.—In a certificate of insurance in a fraternal benefit society, the father of the insured was designated as the beneficiary. Insured afterward married. It was held (Vanasek v. Western Bohemian Fraternal Asso. (49 L.R.A. (N.S.) 141) that the designation of the father as beneficiary was legal at the time it was made, and would be legal if made after the marriage of the insured, and that the marriage did not operate to make the designation void, or to substitute the wife as beneficiary.

Book Reviews.

TRANSACTIONS OF THE NATIONAL ASSOCIATION FOR THE STUDY OF PELLAGRA. Second Triennial Meeting at Columbia, South Carolina, October 3 and 4, 1912. Columbia, S. C.: The R. L. Bryan Company, 1914.

THE contents of these Transactions are divided into seven chapters, each of which, aside from the Introduction, comprises some special aspect of the pellagra problem, viz.: etiology, epidemiology and statistics; local incidence and diagnosis; laboratory developments; clinical features; treatment; and unclassified. The introduction consists of two general papers by Rupert Blue and J. W. Babcock, the latter dealing particularly with the general history of the disease in the United States. The fifty-two other papers practically cover every known aspect of the disease. To mention a few only of the more notable contributors we note the names of Lavinder; Sambon and Sandwith (both British); Gosio, Antoninin and others (representing Italy); Babès, the distinguished Roumanian pathologist; Ravogli the dermatologist, etc. However, the contributions of the native Americans are as a rule of a very high class. We see nothing from the pen of Searcy of Alabama who has studied the disease extensively. It cannot be truthfully said that the problem of pellagra seems anywhere near solution, despite the enormous labor represented by these Transactions.

LEHRBUCH DER MASSAGE von Dr. med. A. MÜLLER in M. Gladbach. Mit 341 zum Teil farbigen Abbildungen nach Originalzeichungen des Verfassers. Price, 18 Marks. Bonn: A. Marcus & E. Webers Verlag, 1915.

THIS work may truthfully be styled an atlas of massage. All of the necessary movements are illustrated by simple diagrammatic sketches which perhaps serve their purpose as well as could photography. Each outline sketch is accompanied by explanatory text which deals with the patient's position, the masseur's position and movements, and the anatomical relations of the parts involved.

The atlas so-called is preceded by over one hundred pages of texts, which deal chiefly with the physiological action of massage and the affections in which it is indicated. The operator is always spoken of as "the physician," not as "the masseur" and indeed in the preface the author insists that massage is but a specialty of medicine (and not a collateral profession, like nursing). The book is admirably suited for self-instruction, and even nurses and laymen with a little knowledge of German could soon learn the movements, although only in an empirical sense in the absence of exact anatomical knowledge.

TROPICAL DISEASES. A Manual of the Diseases of Warm Climates. By Sir PATRICK MANSON, G.C.M.G., M.D., LL.D. (Aberdeen); Fellow of the Royal College of Physicians, London; Fellow of the Royal Society; Hon. D.Sc., Oxon.; Foreign Associate of the Académie de Médecine, France; Honorary Member of the Société de Médecine de Gand; Hon. Associate of the Royal Academy of Medicine, Turin; Consulting Physician to the Seamen's Hospital Society; Lecturer in the London School of Tropical Medicine; late Medical Adviser to the Colonial Office and to the Crown Agents for the Colonies, etc., etc. With 12 color and 4 black-and-white plates and 239 figures in the text. Fifth edition. Revised throughout and enlarged. Price, $5.00 net. New York: William Wood & Company, 1914.

THE fourth edition of this work was published in 1907. The study of tropical medicine has advanced considerably since that time, so that a complete revision of the work has been rendered necessary. Some of the advances in tropical pathology which are described in this volume are the following: Kala-azar, particularly the infantile form, has been frequently observed in the countries bordering the Mediterranean; it is intimately associated in many instances with the dog; and peculiar forms of dermal leishmaniasis are to be found in South America. The transmission of *Trypanosoma gambiense* involves a necessary biological evolution in the *Glossina palpalis*. In Rhodesia there is a peculiarly virulent form of trypanosome transmitted by *Glossina morsitans*. The bite of a phlebotomus introduces into the human system an unknown germ causing a specific form of three-days' fever. Yaws is produced by a spirochete resembling that of syphilis. These represent but a few of the newer discoveries that are discussed in this volume. Among the therapeutic conquests in tropical medicine may be mentioned the prevention and treatment of berberi, the use of salvarsan in the treatment of yaws and relapsing fever; the treatment of trypanosomiasis by antimony, and the use of emetine in the treatment of amebiasis. Tropical medicine touches general medicine at many points, and the student of medicine can ill afford to ignore the diseases of the tropics, which diseases are carried by an expanding commerce into other climes, and which become important problems to health officers and government officials in the administration of colonies. The present volume in its 935 pages presents at most comprehensive survey of its subject-matter. It is written in a clear and scholarly style, and is profusely illustrated. The frontispiece is an excellent reproduction in color of a portrait of a case of pellagra in England. The section on malaria, which comprises 151 pages, is illustrated with many drawings and with two full-page colored plates, showing the life history of the malarial parasite. The work is particularly complete and well arranged.

DIE NEUEREN ARZNEIMITTEL, und die pharmakologischen Grundlagen ihrer Anwendung in der ärtzlichen Praxis. Von Dr. A. SKUTETZKY, k.u.k. Stabsarzt, Vorstand der Abteilung für innere Krankheiten am k.u.k. Garnisonsspitale, Privatdozent für innere Medizin; und Dr. E. STARKENSTEIN, Privatdozent für Pharmakologie u. Pharmakognosie an der deutschen Universität in Prag. Zweite, ganzlich umgearbeitete Auflage. Price, 12 marks. Berlin: Julius Springer, 1914.

THIS volume is a compact one, comprising 475 pages closely printed on thin paper, and is devoted to a description of the newer remedies and of their therapeutic applications. The first part of the book deals with the various diseases and points out the respective drugs indicated in their treatment. Then follow chapters in the artificial nutrient preparation; organotherapy; anesthetics, analgesics, and antipyretics; antiseptics; vaccine, serum, and chemotherapy, and toxicology.

QUAIN'S ELEMENTS OF ANATOMY. Eleventh Edition. Editors, Sir EDWARD ALBERT SCHAFER, LL.D., Sc.D., M.D., F.R.S., Professor of Physiology and Histology in the University of Edinburgh; JOHNSON SYMINGTON, M.D., F.R.S., Professor of Anatomy in the Queen's University of Belfast; THOMAS HASTIE BRYCE, M.A., M.D., Professor of Anatomy in the University of Glasgow. In four volumes. Vol. II, Part 2—Splanchnology. By J. SYMINGTON. With 439 illustrations. Price, $3.25 net. London and New York: Longmans, Green & Co., 1914.

QUAIN'S ANATOMY has been a standard work for some eighty years, and in its eleventh edition it has again been ably brought up to date. The present part contains the descriptive anatomy of the digestive system, respiratory system, urogenital system, ductless glands, and the peritoneum. The volume is of a convenient size which enables it to be handled with ease.

THE TONSILS, FAUCIAL, LINGUAL, AND PHARYNGEAL. With some acrount of the posterior and lateral pharyngeal nodules. By HARRY A. BARNES, M.D., Instructor in Laryngology, Harvard Medical School; Surgeon in the Department for Diseases of the Nose and Throat, Boston Dispensary; Assistant Laryngologist, Massachusetts General Hospital; Member New England Laryngological and Otological Society; Member American Laryngological, Rhinological, and Otological Society. Illustrated. Price, $3. St. Louis: C. V. Mosby Company, 1914.

IN this volume of 168 pages there is presented in most satisfying detail a description of the tonsils. It is based upon much original work on the normal and pathological histology of these organs, and deals with the clinical and surgical problems connected with them. The scope of this work is best indicated by its chapter headings, which are as follows: The general nature of lymphoid tissue; the development of the tonsil; the anatomy and histology of the tonsils; the function of the tonsils; the general pathology and bacteriology of the tonsils—their relation to systemic infections; diseases of the tonsils; diseases of the pharyngeal tonsil (adenoids); neoplasms of the tonsils; surgery of the tonsils; and complications and sequelæ of operations on the tonsils. The entire ground of this subject is well covered in its theoretical and practical aspects. Of particular value are the thirty-nine full-page illustrations including a series which portray the steps of the author's operation for enucleating the tonsils. One cannot but predict a wide sphere of usefulness for this volume.

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held January 25, 1915.

THE PRESIDENT, DR. HOWARD LILIENTHAL, IN THE CHAIR.

Address of the Retiring President.—Dr. T. PASSMORE BERENS in a brief address to the Society said he was glad of the opportunity afforded him to say how deeply he appreciated the efforts of his friends to make his administration a success. The officers of the Society had worked conscientiously and with a spirit of great fairness. What had been accomplished would speak louder than words or praise from him. There was ahead of the Society serious work and their best efforts must be set forth to defeat the attacks of the chiropractics, the Christian Scientists, the neuropaths, and various irregular practitioners who were hammering at their defenses which they had strived for so many years to raise.

Inaugural Address of the President-Elect.—Dr. HOWARD LILIENTHAL made this address, in which he said, in part, that presumably his address was intended to form a record of good intentions. It might be better to wait until the last meeting of the presidential career, making the speech a valedictory instead of an inaugural, and an honest record of performances and failures instead of mere promises. To further the objects of the society, as expressed in the Constitution, "to regulate the practice of medicine and surgery in the County of New York and to aid in the enforcement of laws relating thereto" and also "to assist in the preservation of the public health" the president was dependent upon the efforts of the Board of Censors, the Committee on Legislation, the Committee on Public Health, and the Milk Commission. For the "diffusion of true science, particularly the knowledge of the healing art," the President depended entirely upon the members of the Society. Dr. Lilienthal said his predecessors had given much thought and great effort to carrying out the demands of the Constitution. As the years passed and the circumstances of their lives and civilization changed, new objects for their activities would come up. Questions would arise which could not be easily answered. Interpretations would have to be changed. But of one thing they might rest assured, that they must fight the same old enemies who would threaten in the same old ways and doubtless in many new ways. To keep their profession clean, to blockade any entrance into their territory through any port but that of *education* must be the aim not only of their Committee on Legislation, but of every single member of their Society who should feel it his sacred duty to enlighten and inform those who made their laws. There was no more serious menace to the welfare of medicine than this continual pounding at the door by those who sought the rights and privileges of legalized practice through unfair influence upon the uninformed. If this Society would truly diffuse knowledge concerning the preparation for the practice of the healing art it would do more to discourage quackery in all its forms than could be done in any other way. They might have confidence in the good intentions of their legislators and in the wisdom of their Governor, but information must come from the medical profession. Dr. Lilienthal said he could not let the occasion pass without expressing his deepest gratification for the work that was being carried on by the City Health Department against the patent medicine evil. To be rid once and for all of this monster would be a monument to the men who had achieved the victory. With regard to the Workmen's Compensation Law, we should remember that this was the first time that the medical profession had been considered in matters of this kind. We should not forget that the subject was still in the experimental stage. It seemed to the speaker that we should show ourselves friendly to this law and should be patient in regard to its development not being in haste to express either approval or disapproval of any of its provisions. As to membership, the Society was not an exclusive but an inclusive one. All eligible men in the County should be members. The membership on December 28, 1914, was 2,489, and there were at least 2,000 more who should be enrolled with them. Dr. Lilienthal urged every member to point out to his friends and acquaintances the great advantages of membership in the Society and to endeavor to bring in at least one new member. He pointed out the advantages of membership such as receiving the Medical Directory of New York, New Jersey, and Connecticut; the State Medical Journal, with its scientific papers, medical news, and official announcements; and, in addition, expert legal services in suits for civil malpractice. Membership in the County Society was also a help if one wished to remove from New York to practise in another State or if he wished to affiliate with the national body of the profession, the American Medical Association. In closing, Dr. Lilienthal reminded the members that acting as individuals their influence in the community would be small, but working together and with enthusiasm, the Medical Society of the County of New York must be a mighty force.

Stiff and Painful Shoulder, Its Varieties and Treatment.—Dr. WALTER M. BRICKNER presented this paper in which he outlined the various causes that he had found underlying a very common and much misunderstood condition, or set of conditions, variously regarded as due to rheumatism, brachial neuritis, or traumatism. After describing the most striking signs and symptoms of shoulder disability, the author stated that the various types so overlapped symptomatically that the general description might well be applied to most of them. Even in what seemed to him characteristic cases of one or another kind of shoulder disability he made it a rule to withhold his diagnosis until he saw the *x*-ray picture, after which he sometimes considerably modified his opinion. In the light of his experience he listed the causes of shoulder disability (excluding intraarticular lesions, gross fractures of the humerus, the acromion, the scapula and even the clavicle, dislocation of the humerus, subluxation of the acromion end of the clavicle, and unusual conditions such as cervical rib, etc.) as follows: (1) Subacromial bursitis. (2) Subacromial bursitis with injury to the supraspinatus or, occasionally, the infraspinatus tendon, and calcareous deposit. (3) Spinatus tendon injury with slight or perhaps no associated bursitis. (4) Fracture of the greater tuberosity of the humerus. (5) Subluxation (forward) of the humerus. (6) Spontaneously reduced dislocation; with which could be grouped disability following surgically reduced dislocation. (7) Sprain or tear of the capsule without dislocation. (8) Subcoracoid bursitis. (9) Biceps tendovaginitis. (10) Traumatic periostitis. (11) Developing syphilis, tuberculosis, and neoplasms of the head of the humerus. (12) True brachial neuritis. (13) Unclassified cases, most of which probably belonged to one or another of the above groups, but some of which perhaps remained to be accounted for otherwise. The first three of these causes were considered together. In typical cases the pain was greatest at the point of insertion of the deltoid, but was often complained of in the shoulder cap, the anterior aspect of the arm, in the forearm, or neck. In hyperacute cases the pain was severe, fairly continuous, and aggravated by the slightest movement. In chronic cases it was less definitely localized, usually less severe, and more intermittent. In hyperacute cases the patient held the arm rigid, resisting attempted abduction and internal rotation, and there would be found a tender point below the acromion, most often anteriorly. In typical chronic cases there was moderate or marked limitation of abduction and of rotation, especially internal rotation. The condition was by no means typical in its manifestations. As he had elsewhere pointed out there were fallacies in the generally accepted notions concerning subacromial bursitis. These fallacies were: that there was no diagnostic point of tenderness; that there was usually little or no swelling; that the shadow seen radiographically was never due to the thickening of the bursal walls, but always to a calcareous deposit; that this deposit was always beneath the bursa, in or on the supraspinatus or sometimes the intraspinatus tendon; that removal of the bursa was unnecessary and its complete excision was impossible except by mutilating dissection; that the condition did not arise from bacterial or toxic irritation, excluding the tuberculous form and the occasional metastatic suppurative condition. Subacromial bursitis was traumatic, the trauma sometimes being insignificant in nature, and again resulting from sudden or violent abduction of the arm. The author had found calcareous deposits at operation sixteen and seventeen days after trauma, and radiographically, ten, five, and even one day, after the occurrence of the injury. Whether early or chronic the deposit might be dry and gritty or semi-

fluid. In acute cases in which there was loss of function and the *x*-ray showed lime deposit, open operation afforded the promptest relief. In the less severe cases without evidence of tendon injury, abduction, preferably in bed by a simple method, which the author demonstrated, should be given a trial (see MEDICAL RECORD, Jan. 2, 1915). Fractures of the greater tuberosity of the humerus, when of considerable extent might be recognized by the pain, swelling, tenderness, and acchymosis; when slight in extent they presented about the same picture as subacromial bursitis, and could be diagnosed only by the *x*-ray; and here too the bone fragment might resemble a calcareous deposit. In this condition good results would follow fixation of the arm in moderate abduction for two or three weeks, interrupted at intervals for passive abduction, and followed by graduated movements to prevent stiffness. In speaking of subluxation of the shoulder, which had been refused recognition by some, Dr. Brickner said he had had three unmistakable cases, all cured by continuous abduction in bed for two weeks. They had the same type of pain as was observed in subacromial bursitis. There was distinct but slight prominence of the head of the humerus anteriorly and a corresponding depression posteriorly. As the arm was abducted to 90 degrees the deformity disappeared; in two cases with a distinct "snap". Disabilities due to spontaneous or deliberate reduction of dislocation and sprains and lesser tears of the capsule were best treated by abduction, passive movements and massage. Subcoracoid bursitis was not common. The most characteristic pain was in drawing the arm forward. Iodine, aspirin, and resting the arm in a sling effected a cure. Biceps tendovaginitis was manifested by tenderness in the bicepital groove, pain on strongly flexing the supinated forearm, and when the arm was swung back and forth. Treatment was by rest and anodynes. Traumatic periostitis could be recognized in the radiograph. Developing syphilis, tuberculosis, and new growths also presented characteristic radiographic pictures. Brachial neuritis was rare and was to be differentiated by tenderness of the nerves in the neck, the coracoid region and the arm; if of long standing there were also objective sensory, trophic, and motor disturbances. Shoulder disability of other types was frequently mistaken for neuritis especially when there was atrophy of the deltoid and spinati and radiation of the pain towards or into the hand. In various shoulder disabilities there was an associated circumscribed neuritis, or an extensive brachial neuralgia. Many of the unclassified cases responded well to the abduction treatment and probably belonged to the groups above described. Dr. Brickner illustrated his paper by lantern slides.

Dr. FRED H. ALBEE said that Dr. Brickner's paper was a very timely one. Many of these cases of deltoid bursitis were caused by our modern method of traveling especially where the passengers had to hang on to straps as they had to so often in the subway trains. Deltoid bursitis at the shoulder was not sufficiently recognized. A few years ago Dr. Albee looked over the text-books on joint diseases and found that practically nothing was said upon this subject, not even was the subject indexed. In only one chapter upon inflammation of the bursæ did he find subdeltoid bursitis mentioned. Subdeltoid bursitis had interested him very much since 1903, when he had an opportunity to study several operated cases with Dr. Codman of Boston, who was the first to point out the importance of subdeltoid bursitis and to give its pathology. Dr. Albee was particularly interested in the case of gumma which Dr. Brickner mentioned, and he had the opportunity to observe a case years ago with a beginning subdeltoid bursitis with syphilis as an etiological factor. This case puzzled many as it progressed to a full fledged gumma. It had been diagnosed as sarcoma by the *x*-ray; later as tuberculosis; later, after a pathological specimen had been taken, as osteitis fibrosa, but up to the time Dr. Albee first saw the patient the real diagnosis of gumma had not been made. The use of the *x*-ray was very important in making a diagnosis of these conditions about the shoulder as it was of other joints.

Dr. WILLIAM BENHAM SNOW said that he wished to relate his personal experience in cases of disability of the arm. Those that had been presented and beautifully illustrated upon the screen by Dr. Brickner represented a very small percentage and were found only in the advanced stages of bursitis. He was surprised that so many cases had come under the observation of one surgeon. Dr. Snow had found but few cases among upwards of three hundred cases that had come under his observation during the past fifteen years, in which the bursæ had become ossified. The majority of cases of arm disability were undoubtedly due to brachial neuritis and generally curable; but rarely so by rest or so called anti-rheumatic treatment. He had been able to cure nearly all of the cases that had come under his observation with the static current, which relieved the local congestion and cured the early cases in a few days, but often required persistent treatment for two or three months to cure the chronic cases. By placing a metal electrode over the scapula and extending it over the shoulder to the margin of the clavicle in front it was possible with the static wave current to exactly locate the place where the lesion was by the local pain produced; thus determining where the treatment should be applied. Dr. Snow stated that the failure to cure brachial neuritis and bursitis was oftentimes due to the fact that the location of the lesion was not definitely diagnosed by the attendant.

Dr. BRICKNER, closing the discussion, said he did not want his hearers to have the impression that subacromial bursitis, of all the varieties of shoulder disability which he had described, was the only one demanding attention. It was, however, a very common condition, much more common than some of the speakers seemed to appreciate. Dr. Brickner said he had exhibited but a few of his many lantern slides showing the calcareous deposit beneath the bursa.

The Inlay Bone Graft Versus Lane Plates in the Treatment of Fractures.—Dr. FRED H. ALBEE presented this communication in which he described his method of employing inlay grafts as a substitute for Lane plates in ununited and fresh fractures, especially comminuted fractures. He did not wish to be understood as recommending the inlay graft in all cases any more than the Lane plate. Open operation should be avoided whenever possible. Dr. Albee first presented the electro-motor tools which he had been using for this work. This equipment consisted of a small universal motor which could be used with any electrical current without adjustment. He had employed the outfit in 275 operations and it had never failed him. The automatic catch for holding the special attachments, such as lathe, twin saw, drill, etc., was similar to the catch used by dentists and was very easy of adjustment. Every part of the outfit which came near the operative field was capable of perfect sterilization. There was a small saw for deep cavities, such as laminectomies, the latest model of the author's twin saw, and a device by which the distance between the saws could be adjusted. This outfit was not absolutely necessary but was of great advantage as a large percentage of the work could be done more exactly and quickly, and with better results, especially in fractures. Dr. Albee showed a skiagraph in which two grafts were inserted to restore two-thirds of the tibial shaft which had been removed for sarcoma and demonstrated conclusively that the graft acted as a true graft in certain instances. In all bone grafts which were properly inserted, a certain varying number of the peripheral and central cells lived and proliferated and a varying part of the central portion of the graft acted as an osteo-conductive scaffold. In favorable subjects the entire graft might retain its viability, especially where the graft was inserted by the inlay method, which brought into close apposition each of the four elements or layers of the graft (periosteum, compact bone, endosteum, and marrow substance) to their corresponding elements in the recipient bone. The speaker emphasized the action of Wolff's law in its application to bone grafts. In a comparative way the bone graft was still more efficacious in gunshot or other fractures where there was comminution or loss of bone substance from infection, and consequent sequestration. In such cases the graft spanned the hiatus and its proliferation filled in the space, thus restoring the length and strength of the fractured bone. Wolff's law was operable in fragments as well as complete skeletal bones, and had an important bearing upon the plan of treatment and the progress of convalescence in a very large proportion of bone and joint work. In the 350 bone graft operations upon which this paper was based, in over 300 the graft was removed from the patient's own tibia and in none of these cases had there been any trouble with the tibia from which the bone was removed. The surgical problem which presented itself was not the securing of better fixation and a more close approximation of the fragment ends by bone removal and freshening, but the furnishing of an efficient internal splint and at the same time a bone-growing endosteo-conduc-

tive element which spanned these sclerosed areas and was at the same time closely and favorably contacted with the healthy vascular osteogenetic bone in each fragment beyond the eburnated area and distal to the point of fracture. The inlay bone graft fulfilled all these requirements and even more in that it acted as a strong stimulus to osteogenesis on the part of the host fragments themselves. The author's inlay technique varied somewhat according to the individual cases and their requirements. In small bones, such as those of the forearm, the inlay was best held in place by kangaroo tendon either placed in drill holes to the side of the groove or wrapped completely about the bone. In fresh fractures of the large bones where marrow cavity had not yet become filled with new formed bone and there was nothing to prevent the inlay from slipping into the marrow cavity, the graft and gutter beds were made wider at their periphery than at the marrow sides. With the fractured fragments held in proper alignment, the graft to be employed was usually removed from the fractured bone, generally the proximal fragment, and then slid distally into a groove one-half its length which had been prepared for it in the distal fragment. In the femor the sliding inlay should be five or six inches long. The author described his method of using the twin saws to cut the bone graft and also the technique of making the bone nails or spikes. In fractures of the long bones in which the difficulty of fixation was great, the inlay was held in place by the bone graft pegs or heavy kangaroo tendon, or both as seemed best. In severe comminuted fractures from gunshot wounds or other causes, where there was a space to be spanned and the length of the limb maintained by the inlay, it was best to tongue and groove the end of the graft and bone cortex of the gutter ends. The groove should be in the end of the graft, and the tongue in the gutter ends. The value of the graft in this type of cases could not be overestimated. An important point in the technique of bone grafting in its application to all types of fractures was the sufficient length of the transplant. In the case of the intramedullary graft this might afford a great deal of difficulty but with the inlay method it was accomplished with ease. A graft six inches in length could be inlaid as easily as one two inches. The intramedullary technique did not afford an ideal histological contact of host fragments, even when well executed, and this might explain some of the unsuccessful operations of this type. The two important advantages of the inlay method were: first, the ease with which sufficient contact with osteogenetic bone beyond the sclerosed area could be secured; and, second, the readiness with which this contact could be varied in accordance with the difficulties encountered. The more desperate the case and the more frequently it had been unsuccessfully operated upon, the longer must be the inlay transplant. A strong argument for the inlay technique was its universal applicability to all types of fractures of long bones, however near the joints they might be. An important mechanical feature of the inlay was that if it was inserted in proper relationship to the forces which were causing displacement, it became by its own inherent mechanics a most efficient fixation agent, irrespective of the means used to keep it in place. The author had repeatedly used the bone graft for spanning through tuberculous foci in Pott's disease of the spine and tuberculosis of the ankle and knee joints. The cortical bone graft would always withstand pure tuberculous infection, provided it had a satisfactory contact with healthy bone on each side of the infected foci; it would also resist attenuated pyogenic infection under similar conditions. This made it especially applicable to compound fractures in which infection was feared, or where mild infection had already occurred.

Dr. William Henry Luckett said that he agreed with all that Dr. Albee had said. His first bone graft case was one of the first performed in the city. It was for an ununited fracture of both the radius and ulna of one arm. Two unsuccessful operations had been performed, one for wiring and one for plating when the case came into his hands. He grafted a piece of bone from the tibia by attempting an inlay as a joiner mortises a piece. They obtained a fair result but the patient left the hospital too early, fell down, and refractured the arm and also broke the leg from which the graft had been removed. This and further experiences with ununited fractures had convinced him that every means known to medicine and surgery should be utilized before an open bone graft was contemplated. As an illustration, two years ago he tried an inlay along the lines laid down by Dr. Albee. The operation was completely successful as evidenced by clean primary union of the soft parts, and the *x*-ray showed the graft inlay in position with perfect apposition, but three months after there was absolutely no bony union. Thyroid extract, calcium lactate, Bier bandage, massage, etc., were all tried with negative result. A mechanical brace was made for the arm, but after wearing this for a month it caused an irritation and abrasion in the axilla which became the original point of infection for a violent general erysipelas that covered the patient's entire body and confined her to bed for nearly a month. When she got up she had firm bony union in the arm which had resisted all methods for nearly a year. In the opinion of the speaker the infection had caused some biochemical change or readjustment of the internal secretions that resulted in stimulation of an otherwise negative ostegenetic process. There had recently come into his hands a child with an ununited fracture of the tibia of two years standing. Two operations had been performed by well known and capable operators but there was absolutely no union; in fact, some disappearance of bone tissue at the site of the fracture had been noted. At one of these operations the tibia was also fractured and it evidently promptly united. It was a common occurrence where there were more than one fracture in the body to have one unite promptly and the other not, even though there was no interposition of soft part. In this case no reason could be found for the non-union. Some commotion was caused, however, in the laboratory by the request for a determination of the thyroid and calcium content of the child's blood. Last week, following the suggestion of Dr. Kauffer, the dental surgeon at the Harlem Hospital injected between the ends of the fractured bone a bone paste consisting of finely ground dehydrated bone and vaseline. This was thoroughly sterilized and injected with the aid of an old paraffin syringe. A report on the results would be made later. The speaker laid stress on the statement that in ununited fractures, not due to the interposition of muscle, fascia, etc., but to lack or absence of the osteogenetic process, wiring or plating was positively contraindicated. He did not believe that the final word had been reached in ununited fracturers, but up to the present Dr. Albee's method seemed to be the best.

Dr. Walter M. Brickner said he wished to discuss the physiological rather than the technical aspects of the presentation. He believed Albee's to be the most important contribution that had been made to the operative treatment of fractures. He was glad to note that the early enthusiasm over the Lane plate was dying out. Animal tissues were intolerant of foreign bodies. This was the general rule, and the fact that metal plates, applied to the bone, had sometimes remained *in situ* for several years, indicated only the exceptions to this rule. In many, if not most cases, the results were not so fortunate. But the fact that they might have to be removed was not only the only objection to the application to the bones of metal plates by metal screws. A year ago Brickner published an observation of two cases demonstrating clearly that metal plates and screws of themselves, independent of all other factors, could be a cause of non-union. These were two cases of fractured femur —one recent, plated by Dr. Lilienthal; the other an old, mal-united fracture plated by Dr. Brickner. In both cases there was primary union of all the soft parts but, in spite of every adjuvant treatment, no union of the bone. At subsequent operation in both cases the screws were found in place, but there was almost no evidence of new bone formation. Brickner removed the plates and screws and applied over the line of fracture an osteoperiosteal graft from the tibia. The graft was not inlayed; it was held in place merely by suturing the thigh muscles over it. In other words, it was applied purely as an osteogenetic, not as a splinting graft. Solid union proceeded promptly, and Roentgen-ray pictures taken at intervals showed no absorption of the graft but, on the contrary, its progressive fusion with the femur—an argument against the hypothesis that large bone grafts were merely osteoconductive. Since this experience Dr. Brickner had repeated this use of a non-splinting, osteogenetic bone graft for the cure of non-union, with entirely satisfactory result, and he commended its simplicity, as compared with inlaying, in those cases in which splinting by the graft was not needed. Concerning the importance of fitting like bone structure against like, referred to by Dr. Albee, Dr. Brickner thought that this might not be essential. In his cases of non-splinting grafting the medullary aspect

of the graft was laid on the outer (dense cortical) surface of the fractured bone, but osteogenesis proceeded from the entire length of the graft, as the Roentgen *x*-ray pictures showed.

Dr. WILLIAM WESLEY CARTER said that his experience with the transplantation of bone had been confined to the correction of nasal deformities where there was a deficiency in the bony framework of the nose. He used a section of the patient's own rib, which was split in its transverse diameter. The thin transplants thus formed were easily nourished, and besides the rib was unusually rich in minute nutrient foramina. He had used bone both with and without periosteum, and anchored the upper end under the periosteum over the nasofrontal process while the lower end was practically free in the soft tissues of the nose. Dr. Carter said that he had devised and used this method of transplanting bone five years ago and that his first results were published four years ago; his series of cases therefore was the oldest and the condition of the bone grafts in these patients as shown by the *x*-rays should indicate very clearly what happened to bone when it had been transplanted. Dr. Carter had found that when bone was asceptically transplanted it continued to live, grow, and take part in the local processes of repair. The graft became firmly united to the frontal bone and supported the nose, even in those cases where the nasal bones had been completely destroyed. Dr. Carter had found those transplants more vigorous where the periosteum had been preserved; he did not regard this membrane, however, as necessary to the life of the graft.

Dr. WILLIAM DARRACH said he wished to defend the use of the steel plate. He agreed with Dr. Albee that where union of the bone was delayed beyond a period of eight months, transplantation of bone was the preferable method. In such cases it was better to take the graft from some other bone. With regard to the use of inlaid bone in fresh fractures the field was small compared to the cases where the metal plates could be used because of the larger exposure required in doing the inlay work. The metal plate if inserted with good technique would stay in place. Personally he had used some 48 metal plates in a series of 210 operations for fractures. Of the 48 plates, 37 he knew to be *in situ* at the present time, after a period of at least six months. Two plates were removed because of infection. Three were removed because the fracture was a compound one. One case failed because of faulty technique. In two cases he cut down expecting to find infection, but none was found. Three cases had been lost track of, and twenty were uncertain. Eight plates removed out of 48 inserted and only two because of infection, should not condemn the use of metal plates.

General Faradisation (Bergonie) in the Treatment of Obesity and Other Pathological Conditions.—Dr. HEINRICH F. WOLF said that general faradization had been used extensively in the treatment of obesity. He corroborated the statement of Durig and Jebesny who claimed that they had been able to reduce some patients without change of diet, though the physiological experiments did not explain this fact; but in most cases a result could be obtained only when the diet was restricted. Greater than in the treatment of obesity was the general faradization in management of cases in which there were general debility, weakness of the heart, anemia, in short, such cases where strong muscular exercises were advisable, but could not be given on account of special conditions. It was of great value in the treatment of flabbiness of the abdominal wall, certain forms of constipation, and dysmenorrhea. It was obvious that in some of these conditions the general faradization acted by strengthening the muscles, but in others the improvement was due to the increase of the circulation, as was noted after muscular exercise. As far as the changes of the circulation were concerned it was known from physiological experiments that the artificially produced action of the muscles, had about the same effect as voluntary exercises. In cases of obesity, Bergonie treatment was recommended, in connection with restriction of diet. General faradization had no influence on the blood pressure and as a rule did not increase the pulse rate.

Dr. ALFRED M. HELLMAN said that it was certainly most refreshing to hear a paper read that did not abound in praise for the title. His hearers were indebted to Dr. Wolf for bringing this subject before them in so clear and so concise a manner. The speaker's experience with this treatment was limited to a short visit made to Dr. Nagelschmidt of Berlin last summer and the use of the apparatus in connection with his gynecological work, since his apparatus arrived from abroad over two months ago. He could not agree entirely with the paper that had been read. He feared Dr. Wolf was too pessimistic. His apparatus differed from that of Dr. Wolf's in two essentials. The chair was better made and distributed the current to a larger surface of the body, thereby being less painful and causing more muscles to work. The other difference was more important. To the motor was attached the Nagelschmidt apparatus, consisting of a series of fine copper brushes for interrupting and transforming the current so as to make it a smooth Leduc current. From the gynecologist's point of view the chair was useful in certain forms of amenorrhea, where it acted by improving the circulation, and in some cases by reducing weight. These cases were often complicated with constipation due to laziness of the bowels. Here the results were admirable. In dysmenorrhea due to local congestion and milder grades of retroposition this treatment seemed to work miracles. This was probably due to an improvement in the circulation and muscular tone. Retroversions with lax ligaments too were much helped by increasing the muscle tone by passing this current through the abdomen, pelvis, and back, and it was not unusual to find a uterus that was just resting on the rectum assume a position much more near the normal when this treatment was combined with proper exercises such as those in the knee-chest position. And finally the annoying lax abdomen following pregnancy with the wide diastasis of the recti and its frequent complicating constipation was as a rule promptly relieved and the condition cured. He was not sufficiently informed to speak of the value of the treatment in non-gynecological conditions such as muscular dystrophies, but he had heard it praised for this purpose. It was certainly not a cure-all for gynecological conditions but, used in properly selected cases, it was a great pain reliever and obviated the necessity of many an operation.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held December 21, 1914.

THE PRESIDENT, DR. THOMAS S. SOUTHWORTH, IN THE CHAIR.

The Theory of Workmen's Compensation.—Dr. FREDERIC W. LOUGHRAN, medical adviser of the State Insurance Fund Administered by the New York State Workmen's Compensation Commission, read this paper. He said that workmen's compensation legislation was based on the principle that industrial accidents, however caused, constitute a necessary part of the expenses of industrial production, which should be made a charge upon the industry, not the individual, and, as such, should be assessed in the first instance upon the employer, in the form of a premium for insurance, and by him passed on to the consumer in the form of an advance in price. The principle that the wreckage and wastage of the human factor in production should be made a charge upon the industry as an essential element in the cost of production had long been embodied in European legislation, but it was only within the last four years that it had been enacted into law in this country. The soundness of this principle was generally conceded by economists. These laws provided a method of indemnifying workers injured in the course of their employment which was more certain, speedy, economical, and equitable than the old employers' liability system. The latter was indeed most uncertain as a method of indemnifying the victims of industrial accidents, for it was a fact that on an average only one employee out of eight ever recovered anything in an action for damages brought against an employer. This system had also been very slow in operation, for, owing to legal delays, it often required months, and sometimes years, for an employee to secure his damages. Furthermore, it was most expensive, and on an average approximately only one-third of the amount so paid by employers ever reached the beneficiaries; the other two-thirds being eaten up by the toll taken out in transit for the various expenses involved. Finally, the system had been most unsatisfactory in its general effects upon industrial society, in which it made for strife and conflict by introducing an element of misunderstanding and controversy, ill-will, friction, and discord. The new law of workmen's compensation introduced a plan of

indemnifying injured workers which did away with these evils. Under it it was not necessary for the injured employee to go to court, nor was he required to prove fault on the part of the employer or his superintendent. The burden of proof had been shifted from the employee to the employer. The forty-two designated groups of hazardous employments included practically all occupations except domestic service, farm labor, and mercantile employments, and the act provided compensation according to a fixed scale, which entailed a disability of more than two weeks, except those occasioned by the wilful intention or the intoxication of the employee. This waiting period of two weeks was necessary to prevent a workman claiming a minor injury in order to obtain a vacation with pay. Having mentioned the rates of compensation for various kinds and durations of disability and in the event of death resulting from injuries, the speaker said that employers were not permitted to pay compensation directly to their employees, but were required to insure this liability, and for this purpose three options were offered: insurance in the State Fund, insurance in any stock or mutual company authorized to write workmen's compensation insurance in this State, and self-insurance under conditions provided by the Workmen's Compensation Commission. All claims for compensation had to be presented to the commission, and all payments to employees were made by it. As to the medical aspect of the workmen's compensation law, under the act the employer was obliged to furnish medical attendance as soon as he learned of the injury, and it followed that if the medical service were prompt and efficient, the time of disability was shortened and the danger of infection lessened, with a consequent absence of serious complications liable to result in a permanent disablement. During the time of treatment the attending physician had the opportunity of discovering any existing organic affection, and an effort could thus be made to correct any such condition present. The employer was benefited, since, as the period of disability was shortened, his trained working force was less disturbed. Another advantage to him was that he would learn to appreciate the necessity of having healthy workmen and of endeavoring to keep them so by means of proper hygienic and sanitary surroundings; for the healthy workman was usually efficient, and the efficient workman was less often injured. Furthermore, the community was benefited to the extent that the injured workman or his family would not become a charge upon the public charities. There was still another aspect to be considered. It had been alleged, with substantial proof, that in Europe workmen's compensation acts had been followed by successful attempts at malingering, it having been found more difficult year by year to get injured workmen cured of their disabilities. Physicians were accused of using such acts irregularly as a form of revenue, and workmen of exploiting their accidents. It did not follow, however, that all cases of simulation were wholly fraudulent, because there was nearly always ground for making the original claim. Fraudulent cases were not manifesting themselves in great numbers in this country, but there were already indications that before long they would be of sufficient importance to constitute a problem, and this problem could be solved only by the hearty co-operation of intelligent physicians. The object of this act was to return people to industry, and one of its effects was that people refused to go to work while they were in pain. Before it went into effect the uninsured workman whose muscles had become contracted and partially atrophied as the result of a broken leg was forced to go to work, and did go to work. Every day he found that the pain grew less and less, and it soon disappeared. On the other hand, the injured employee who received half or more of his weekly wage under a compensation act, and who for any reason was not ambitious, might, and sometimes did, refuse to return to work as long as there was any pain in the injured part. The longer such patients stayed away from work, the harder was it for them to go back, and unless prompt and stringent means were taken to force them to return to work, the atrophy present would grow permanent and the individual become a charge on the law up to the full period of total disability, and subsequently on public or private charity. Some workmen who were afraid of pain or were victims of bad advice refused to accept the medical service offered by insurance companies which was necessary to put them back on a working basis. As to the remuneration of the physician, the Industrial Commission of Massachusetts had reported that the average amount received for medical attendance was now from four to five times as much as it had been under the employers' liability insurance. It could not be too strongly emphasized that in the past, in from 50 to 75 per cent. of the cases, taken in the aggregate, no pay had been received for medical services rendered, while most of the cases paid for by the insurance carrier or the employer went to the contract surgeon; an immense amount of free work being done by the family physician and the hospital. In discussing the amount of the fee for medical services the fact should be borne in mind that, according to the law, the charges must be made on an industrial accident basis alone. Both England and Germany exhibited the effect of general contract surgery, as carried out on an enormous scale, and in view of the fact that the cost of medical services had increased out of proportion to the cost of compensation, it was well to consider that such a system might in the future prevail in this country. It was easy to conceive that with the progress of these laws, unless they were properly safeguarded, they might result in the practical enslavement of the medical profession to a bureaucracy created by legislative act. Industrial accident boards had foreseen the possibility of such laws, and this was the reason why such extreme care had been taken that the initial steps in planning procedures should be along lines approved by the profession generally. In criticising the inevitable mistakes of such boards physicians should not therefore forget this, and when things had worked out as planned the profession would be left free from these bureaucratic trammels and retain all the rights of which, in the progress of social laws the physicians in European countries had already been in large measure deprived. Under Section 13 of the New York law the medical profession was receiving more in fees here than in any other State. There was no limit to the amount to be paid for medical services for the first sixty days, and this was a longer period than elsewhere. While the fees for specific surgical operations might appear very inadequate, it was to be remembered that the patients as a rule belonged to a class of patients from whom formerly nothing was received.

Dr. Thomas Darlington, member of the State Workmen's Compensation Commission, said he believed the working out of the present law, although like other laws it involved some hardships, would prove beneficial to the physician. The State Insurance Fund, administered by the State Commission, one of the largest of the insurance concerns having to do with workmen's compensation, had up to the present time received in premiums something like $1,400,000. Of this amount, $400,000 was expected to go to physicians in the State, and this money was largely for services in cases in which, under ordinary circumstances, they probably would not have received anything. It would no doubt be better that there should be a fixed scale of fees, but the Commission had not made any fee bill. It was absolutely necessary, however, for some of the insurance companies to have such. Personally, he had thought that the physician should adjust the price of his services to the position in life of the patient, but the Commission had been disappointed at the attitude of many of the profession. There was one thing to which he would like to call special attention, namely the large percentage of the cases in which there were septic wounds. It seemed to him that such a condition of affairs was at the present day entirely unnecessary. Under its surgeon, Dr. Sherman, the Carnegie Steel Company had worked out a system for the care of the health of its employees. Six years ago not less than 500 out of every 1,000 accident cases, or 50 per cent., had been of septic character, but after three years of betterment work the cases of septicemia had been reduced to one-eighth of one per cent. By proper and prompt attention septic wounds became practically a thing of the past, and such a result showed what could be done in this direction. He did not mean to say that the fees offered under the workmen's compensation law were commensurate with the skill and experience of physicians, but we were confronted with a condition, not a theory. Much could be done through the education of the manufacturer. It should be thoroughly understood that every injury, however slight, must be taken care of by a physician; this was simply economy for the employer, as it saved his money in the end. The Carnegie Steel Company had appreciated this, and had freely paid out its money in building hospitals and maintaining reliable medical and surgical staffs. The reports handed in by physicians, to which reference had been made by Dr.

Loughran, were sometimes almost illegible and often open to criticism as regarded the diagnosis made. Physicians should correct such matters for themselves, and the blanks provided were so conveniently arranged that it was a simple and easy matter to fill them out satisfactorily. Having cited illustrative cases in which the attending physician's claims had and had not been allowed, the speaker said that the Commission had no less than 300 cases a day to dispose of, any one of which might perhaps formerly have occupied a whole day in court. It could not accomplish all this work unless it had the aid of the physicians, and as an encouragement to them it could be stated that the fees allowed in New York were higher than those in any other State. The present law was certainly not without its defects, and it might be that the medical profession would be able to bring about suitable amendments. Physicians should always take their part in public affairs, and should endeavor to educate the communities in which they lived.

Dr. Alexander Lambert said that before the workmen's compensation law had been enacted the question arose in the House of Delegates of the State Medical Society as to what should be done. A resolution was adopted calling for the appointment of a committee to consider what should be the action of the profession in the matter, and later the Council appointed a committee with power. In looking over what had been done in the States of Massachusetts, California, Ohio, and Michigan this committee found that a schedule of prices had been fixed upon which was comparatively satisfactory. We were dealing with persons whose yearly income was for the most part $600 or less, and had to consider what charges were right for such. It was found, in general, that the rate of wages varied very little in the State and country, and the fee bills in the different States to a great extent agreed. Of all accidents met with, three-fourths were small injuries. Under the New York law the physician's pay commenced at the very beginning of the patient's disability, while the workman himself did not begin to receive his compensation for two weeks. In the State outside of the city of New York and two or three other large cities the ordinary charges of physicians were from 50 cents to $1.50 for office visits, and from $1 to $2 for house visits. The charge in the fee bill of $2 for each house visit, and $1 for each office visit, was therefore a very fair and just one for such visits even under the ordinary circumstances of general practice, and much more so under the workmen's compensation law; particularly as three-fourths of all charges made by physicians would come under these items. In general practice, however, it was one thing to charge for professional services, and quite another to collect the money; while under the workmen's compensation law the returns were practically 100 per cent. Dr. Lambert then took up and answered some of the criticisms which had been received from physicians in the State, and in speaking of hospital work stated that in Syracuse Dr. F. H. Flaherty had succeeded in getting one of the wards of St. Joseph's Hospital set apart, so that any physician in the city could treat in it his patients who came under the workmen's compensation law. It could not be denied that the fees allowed for this kind of work, when compared with those generally received by the successful surgeon, were very small; but this was not the case when compared with the fees which could be expected from patients with incomes of $600.

Dr. Warren Coleman said that the subject of workmen's compensation was so broad that it was possible to discuss only a few of its phases. As he understood these laws, they were but part of a general movement of society for the conservation of the health of the workingman; yet they were economic, rather than philanthropic, in their purpose. The ultimate goal of the conservation movement obviously should be the prevention of industrial diseases and injuries, or, if not that, at least their reduction to a minimum. The New York State law, in common with most other such laws, provided for medical examination of workers only after injury had been inflicted or when the patient was suffering from evident disease. Yet many diseases and injuries could be prevented if medical examination were made a condition of employment. For example, an epileptic should not be permitted to become a structural ironworker; a man with a barely compensated heart should not engage in a laborious occupation. Detection of the earliest signs of chronic lead poisoning might be made the means of preventing permanent disability. A dusty trade never caused tuberculosis; it merely brought out a latent process. Early detection of the disease would save the health, if not the life, of the employee and protect the employer against loss. With such facts in mind it seemed incredible that at the recent national convention of the American Federation of Labor in Philadelphia organized labor should go on record as strongly opposed to the physical examination of workers except in trades having extraordinary health hazards, and that the Ohio State Federation of Labor should have recently passed a resolution calling for legislation which would make it a penal offense for an employer to require medical examination of a worker as a condition preceding employment. That medical examination could be made a cloak to cover abuses might be perfectly true, but in the speaker's opinion the abuse and not the demand for examination should be made the offense. He could but express the hope that future laws could be directed as much to the prevention of industrial diseases and injuries as to compensation after the damage had been inflicted.

Dr. Lorne McDonnell Ryan said that one of the great objections to the present law was the period of two weeks during which the workman had to wait for the beginning of his compensation; which he thought was entirely too long. He supposed that the object of this provision was to prevent malingering. It might be that some would take advantage of an earlier time for compensation, but, on the other hand, this two weeks' waiting was a great injustice to the men who really did deserve the money. Most workingmen had wages just sufficient to live upon, and every day, in his practical experience with the law, he saw hardships suffered by men of all nationalities thus deprived of their earnings. Frequently these were obliged to resort to public charity because they were scarcely able to sustain life in themselves and their families during that two weeks. Illustrating another defect in the law was the case of a physician of his acquaintance. This physician had been treating, and successfully, a fracture of the clavicle, but he was told that he would have to turn the patient over to another doctor, who was employed by a certain insurance company; which seemed an unnecessary hardship. Still another defect was that in filling out the slips, as required, it was a difficult matter to determine the time of disability. In one instance in which he had amputated a finger the man had gone to work on the following day; but in another patient an abrasion of the skin might necessitate rest for a fortnight. To a great extent length of disability depended upon the individuality of the patient. Some had less courage than others, and pain affected some more than others.

Dr. Edward Wallace Lee said that in the future contract service by physicians would be coming more and more into vogue, and he believed that this was an excellent thing. He himself had for eighteen years been contract surgeon to a great railroad corporation, and the company had done everything in its power to render the service prompt and thoroughly efficient.

Dr. Darlington said that so far, the accidents had amounted to over six hundred a day, and for the treatment of these the physicians of New York State had received much money which they otherwise could not have collected. There was really much less malingering than might have been expected. Sometimes, however, there was met with a psychological condition which prevented a man from returning to his work. As long as there was no incentive for him to do so, he was likely to remain idle, and it was particularly hard to get Italians and negroes to go back to work. The length of the disability of the patient was indeed a very difficult thing to determine. He, for one, was in favor of the physical examination not only of workmen, but of everybody else.

Dr. Loughran, in closing, referred to the difference between surgical and economic disability, and said that employers were beginning to realize the importance of finding out the exact physical condition of men who had suffered from accidents, and the cases were now generally seen by the surgeon on the day before the patient was to return to work. There could be no doubt that the contract system had come to stay, and it was one which was increasing every day. Preventive medicine was the keynote of the present time.

---

1. Prophylactic Use of Sensitized Vaccines in Puerperal Sepsis.—S. T. Champtaloup believes it would be well to use a stock sensitized polyvalent streptococcal vaccine as a prophylactic in the face of an epidemic of puerperal infection. Doses of 100,000,000 to 500,000,000 of this vaccine should be given at forty-eight hour intervals, ten to fourteen days before the expected confinement.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Urinary Analysis and Diagnosis. By Dr. Louis Heitzmann. Third Edition. Cloth; illustrated; 345 pages; $3.00 net. Published by William Wood & Co.

Nervous and Mental Diseases. By Dr. Chas. L. Mix. Vol. X. Cloth; 230 pages; $1.35 net. Published by The Year Book Publishers.

Therapeutics — Preventive Medicine — Climatology. By Dr. Chas. L. Mix. Vol. VIII. Cloth; $1.50 net. Published by The Year Book Publishers.

Obstetrics. By Dr. J. B. De Lee. Vol. VII. Cloth; illustrated; 233 pages; $1.35 net. Published by The Year Book Publishers.

Œdema and Nephritis. By Dr. Martin H. Fischer. Second Edition. Cloth; illustrated; 695 pages. Published by John Wiley & Sons, Inc.

Lehrbuch der spezifischen Diagnostik und Therapie der Tuberkulose. By Drs. Bandelier and Roepke. Paper; published by Curt Kabitzsch; 8th edition; 392 pages; M. 8.80.

The Difficulties and Emergencies of Obstetric Practice. By Drs. Berkeley and Bonney. Cloth; illustrated; 2nd edition; published by P. Blakiston's Son & Co.; 807 pages. Price, $7.50 net.

Diseases of the Skin. By Dr. James H. Sequeira. Cloth; illustrated; 2nd edition; published by P. Blakiston's Son & Co.; $8.00 net; 650 pages.

The Origin and Nature of the Emotions. By Dr. George W. Crile. Cloth; illustrated; published by W. B. Saunders Co.; $3.00 net; 240 pages.

The Clinics of Dr. John B. Murphy, February, 1915. Vol. IV. No. 1. Paper; published by W. B. Saunders Co.; illustrated. Price, $10.00 per year; paper; 185 pages.

Book of Prescriptions. By Dr. E. W. Lucas. Cloth; published by P. Blakiston's Son & Co.; 10th edition; 375 pages; price, $2.50.

A Book of Pharmacopœias. By Drs. Lucas and Stevens. Cloth; published by P. Blakiston's Son & Co. Price, $3.00 net; 524 pages.

Cyanogen Compounds. By Dr. H. E. Williams. Cloth; published by P. Blakiston's Son & Co. Price, $3.50 net; 423 pages.

Nebenwirkungen der modernen Arzneimittel. By Dr. Otto Seifert. Paper; published by Verlag Curt Kabitzsch. M. 10; 281 pages.

The New Standard Formulary. By Drs. A. E. Hiss and Albert E. Ebert. Cloth; published by G. P. Engelhard & Co.; 1256 pages.

La Cure de Soleil. By Dr. A. Rollier. Cloth; illustrated; published by Balliere & Fills. Price, $1 50 net; 217 pages.

Philadelphia General Hospital Reports. Cloth; illustrated; published by Dunlap Printing Co., Vol. 9, 1913; 211 pages.

The Newer Physiology in Surgical and General Practice. By Dr. A. Rendle Short. Cloth; 3rd edition. Published by William Wood & Company. Price, $2.25 net; 256 pages.

Transactions of the Life Assurance Medical Officers' Association. 1912 and 1913. Cloth; published by C. E. Gray; 266 pages.

The Nervous and the Insane. By Dr. Chas. K. Mills. Cloth; 3rd edition; published by J. B. Lippincott Co. Price, $1.25 net; 142 pages.

Physiological Principles in Treatment. By Dr. W. Langdon Brown. Cloth; illustrated; published by William Wood & Company. Price, $2.25 net; 3rd edition; 408 pages.

Practical Sanitary Science. By Dr. David Somerville. Cloth; 2nd edition; published by William Wood & Company. Price, $3.50 net; 328 pages.

The Commoner Diseases, Their Causes and Effects. By Dr. Leonhard Jores. Cloth; illustrated. Price, $4.00 net; 424 pages; published by J. B. Lippincott Co.

The Operative Treatment of Fractures. Cloth; illustrated; 2nd edition; published by Chicago Medical Book Co. Price, $4.00 net; 184 pages.

Therapeutic Hints.

For Trigeminal Neuralgia.—Lemoine and Gérard accredit Plicque with the following prescription:

℞ Tincture of aconite.
Tincture of colchicum.
Tincture of belladonna, āā, 3 grams.
M. Sig.: Twelve drops every 6 hours.

—"Formulaire Consultations Médicales et Chirurgicales."

Treatment of Insomnia Caused by Pain.—Huchard and Fiessinger recommend the following:

℞ Pyramidon.
Acetphenetidine, āā, 0.2 gram.
Quinine hydrobromate, 0.1 gram.

This is to be given in a cachet two or three times a day.

Treatment of Flatulence.—P. Cohnheim recommends, in addition to the use of dietetic and hygienic measures, the administration of the following:

℞ Menthol, 0.1 gram.
Extract of belladonna leaves, 0.01 gram.
M. ft. pil. Sig.: One pill, t.i.d.

In mild cases the following carminative mixture is sufficient:

℞ Valerian,
Peppermint,
Fennel,
Caraway, āā 25 grams.
M. Sig.: One tablespoonful to a cup of hot water, morning and evening.

Eight or ten drops of the tincture of belladonna may be taken with the above.

—"Diseases of the Digestive Canal."

The Treatment of Verminous Appendicitis.—Hager is said to recommend the use of the following emulsion in the treatment of appendicular colic in patients known to harbor intestinal worms:

℞ Thymol, 2 grams.
Olive oil, 4 grams.
Gum arabic, 2 grams.
Distilled water, 60 grams.

This is to be administered in three doses of one tablespoonful each at hourly intervals in the morning, on a fasting stomach. In the evening a brisk purge is given. The treatment is continued for three days.—*Journal de Médecine et de Chirurgie.*

A Modification of Baccelli's Method in Tetanus.—M. Le Fur has treated at one of the military hospitals in France since the outbreak of the present war 250 wounded among whom there were 7 cases of tetanus. The first four were treated according to the ordinary method with chloral, bromide of potassium, and morphine in large doses, and all died. The last three patients were treated according to Baccelli's method with injections of phenol, to which the author added camphor, likewise in large doses, and all three patients recovered. The method used was the injection once or twice daily for six to eight days of the following solution:

℞ Camphor, 0.4 gram.
Phenol, 0.4 gram.
Sterile olive oil, 10 grams.

—*Bulletins et Mémoires de la Société de Médecine de Paris.*

A Spray for Acute Pharyngitis.—D. Braden Kyle finds that the following usually gives relief:

℞ Camphor, gr. ij.
Menthol (crystal), gr. ij.
Sandalwood oil, gtt. iv.
Liquid paraffin, ℥ j.

—"Diseases of the Nose and Throat."

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 13.
Whole No. 2316.

NEW YORK, MARCH 27, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE CLINICAL SIGNIFICANCE OF AURICULAR FIBRILLATION.*

BY HUBERT SCHOONMAKER, M.D.

CLIFTON SPRINGS, N. Y.

IN the last edition of Mackenzie on diseases of the heart, is this statement: "The term 'fibrillation' is applied to a curious condition of the muscle fibers of the heart, where the individual fibers in place of contracting in an orderly and simultaneous manner during systole, contract rapidly and independently of one another. The auricle when in a state of fibrillation presents an entirely different aspect from what it does during its normal action." Mackenzie then quotes Lewis as follows: "The walls of the auricle stand in the diastolic position; systole, either complete or partial, is never accomplished; the wall as a whole is stationary, but careful examination of the muscle reveals an extremely active condition; it appears to be alive with movement; rapid, minute, and constant twitchings or undulatory movements are observed in a multitude of small areas upon its surface."

The stimulus which excites the normal heart beat originates at a fixed point in the walls of the auricles near the mouth of the great veins, a point suggestively called the "pace maker." Unmolested, the pace maker originates ryhthmical contractions of the auricles, which in turn transmit stimuli to the ventricles through the bundle of His.

Now under certain pathological conditions involving in particular changes in the auricular walls, changes which are not yet well understood, the stimuli instead of originating ryhthmically from the pace maker, originates arrhythmically and independently from a multitude of hypersensitive points causing a multitude of minor contractions which pass in as many directions, each antagonizing all the rest and thus preventing harmonious contraction of the auricular muscle. The muscle fibers being dissociated, fibrillation only is possible.

In normal rhythm the "bundle" receives and transmits to the ventricle one stimulus to each heart cycle. In auricular fibrillation, however, the bundle is being constantly bombarded by multiple stimuli. Now and then one passes over and is followed by contraction of the ventricle. In the very nature of things, this state of the auricle must cause an arrhythmia in which there is no sequence whatever. Observe this in the radial tracings of the accompanying polygrams; observe too that the tracings cannot be spaced and that the top lines are wholly inharmonious, and that in the venus curve the "a" wave is lacking.

Tachycardia is an essential clinical feature of auricular fibrillation unless associated with heart block. Uncontrolled tachycardia leads inevitably to myocardial weakness and dilatation. Digitalis, in full doses, slows the heart by inducing partial heart block. In auricular fibrillation, in order that myocardial energy be not wasted, partial heart block is desired. Therefore, digitalis is of peculiar value in auricular fibrillation. Not so in the other arrhythmias. In paroxysmal tachycardia, there is no dissociation of auricle and ventricle. They contract in harmony either at the same rate or at a fixed rate, as two to one. Then, too, the paroxysms are of short duration; too short as a rule to permit of digitalis effect.

The tachycardia of Graves' disease, with acute symptoms, is due to a toxemia, and if dilatation has not taken place, is uncontrollable by digitalis. A dosage sufficient to slow the heart to anywhere near the normal would certainly do harm by adding another toxic element. Digitalis, however, is of use in Graves' disease when the myocardium begins to decompensate.

Arrhythmia with or without tachycardia and due to extra ventricular systoles or extra auricular systoles (premature contractions) is seldom controlled by digitalis except as tonic doses associated with exercise of the voluntary muscles do so by improving the myocardial tone. Extra systoles are best treated by physical and dietetic methods and seldom call for digitalis.

If what has been said concerning the effect of digitalis in the arrhythmias be true, it follows that differentiation is important. Especially is it important that we recognize auricular fibrillation.

The cardiac arrhythmias, according to the recent classification of Lewis, are seven in number, namely—sinus arrhythmia (the youthful type associated in particular with respiration), paroxysmal tachycardia, auricular flutter, extra ventricular systoles, extra auricular systoles, heart block, and auricular fibrillation.

If one understands certain basic principles, an electrocardiogram or polygram in a given case makes differentiation easy, but the instruments essential to these tracings are not commonly available. Touch, sight, and hearing, however, are always available and are sufficient to diagnose auricular fibrillation in 90 per cent. of all cases.

An arrhythmia in which there is no regularity, no sequence, with the heart rate above one hundred, being uninfluenced by treatment, together with the positive or ventricular venous pulse, as seen in the neck, is almost surely due to auricular fibrillation. This, I say, can be determined without the aid of graphic methods if one is careful to discern physical signs.

The prognosis in auricular fibrillation depends

*Read at the quarterly meeting of the Ontario Co. Medical Society, Canandaigua, N. Y., Jan. 12, 1915.

on the degree of myocardial efficiency. If the ventricular rate can be kept sufficiently low so that cardiac over-fatigue and dilatation is avoided, the functions of tonicity and contractility being active, the prognosis as to life and comfort is good.

a course of carbonated saline baths and massage.

In Mackenzie's clinic at the London Hospital the routine method of administering digitalis in auricular fibrillation is to give one dram of the tincture, divided into three or four doses every

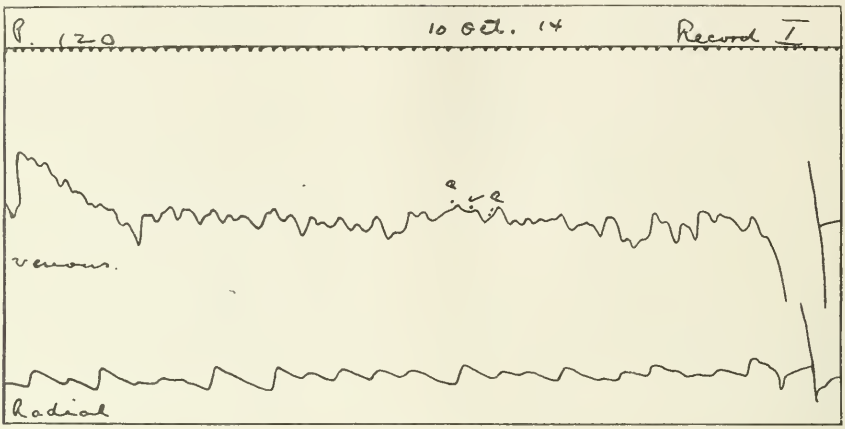


Chart I.

In auricular fibrillation in the senile heart of the sclerotic type, this is especially true. It is quite surprising what a degree of comfort and efficiency can be maintained in elderly persons with persistent irregular arrhythmia. In mitral stenosis, however, the prognosis is not good. When auricular fibrillation complicates mitral stenosis it does so because of late secondary changes in the auricular muscle and endocardium. The left ventricle already insufficient and, because of the stenosis, probably small, meets the burden of a new rhythm and the burden of tachycardia badly.

In the treatment, the essential point is how best to conserve myocardial energy. The chances are that any amount of treatment will have no effect on the rhythm but with slowing of the rate under digitalis, the number of forceful systoles should become greater and conversely the number of small and weak systoles less. This again

twenty-four hours. This dose is continued until nausea is induced. The drug is then omitted for one or two days and then resumed in sufficient doses to keep the heart rate below 80. Obviously the object of this method is to induce early the physiological effect of digitalis. In most cases of the rheumatic type, this is effective and safe, but in the arteriosclerotic group with or without kidney disease, the method is not without danger. Recently I had under daily observation for a period of six weeks, a man, aged 68. He was a case of cardiosclerosis with the usual changes in the arteries and kidneys. Upon admission there was auricular fibrillation, heart rate counted at the apex being 160. There was cyanosis and dyspnea both of moderate degree. The heart was dilated and there was stasis at the lung bases. He gave a history of slight infrequent precordial discomfort during the previous year, but at no time

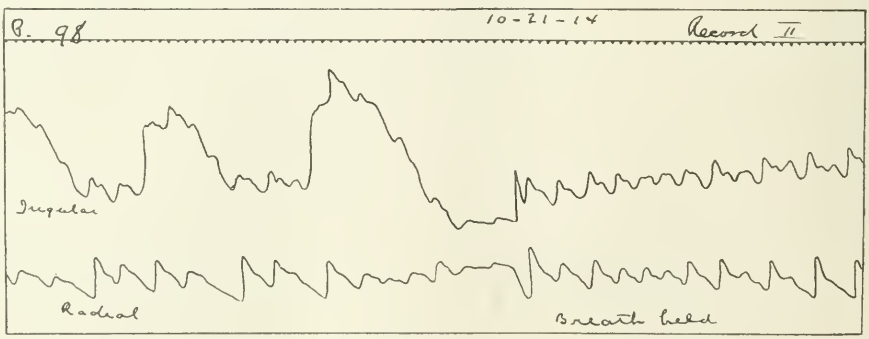


Chart II.

is well illustrated by the accompanying polygrams. Thus, while the rhythm continues irregular, the systolic output becomes sufficient to maintain a relatively normal circulation. In selected cases digitalis may profitably be supplemented by

had there been positive chest pain. The patient was sent to bed and given 10 minims of tincture of digitalis every four hours (40 minims in 24 hours) for two days. The lungs soon cleared and cyanosis disappeared. At the end of 48 hours the

patient complained of chest pain. This lasted six hours and was typical of angina. Recognizing the possibility of a plus digitalis effect and also the need of controlling the heart rate, the drug was omitted for two days and then given in five-drop doses three times a day, gradually increasing to ten drops three times a day, omitting every fourth day. This was continued until the time of patient's discharge—about five weeks. There was no return of pain.

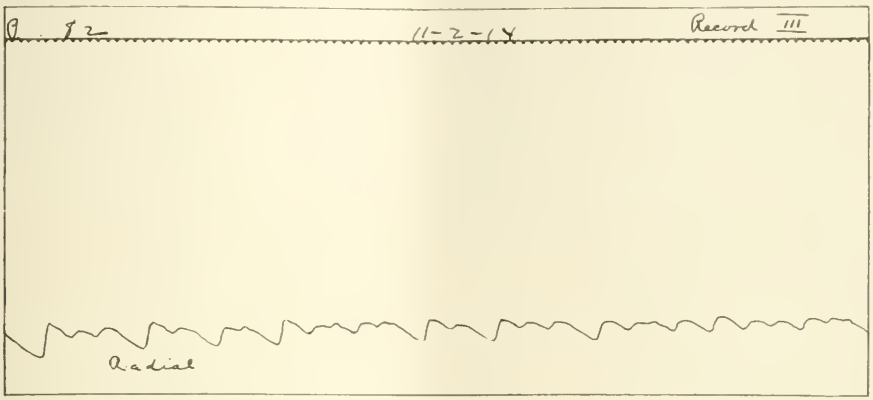


CHART III.

Conclusions.—Auricular fibrillation is the common cause of cardiac arrhythmia, characterized by complete irregularity.

Auricular fibrillation is of frequent occurrence, especially in mitral stenosis and in the senile heart.

Auricular fibrillation should be recognized without the aid of recording instruments.

Digitalis is of almost specific value in controlling the heart rate in auricular fibrillation and is of but little value in tachycardia or arrhythmia from other causes.

Angina pectoris may be induced by digitalis. Therefore in auricular fibrillation, especially in elderly people, it should be given cautiously, yet to effect.

CRITICAL REVIEW OF THE CONCEPTION OF SEXUALITY ASSUMED BY THE FREUDIAN SCHOOL.*

BY MEYER SOLOMON, M.D.,

CHICAGO.

ASSOCIATE IN NEUROLOGY, MAIMONIDES HOSPITAL.

MUCH, if not most, of the discussion centered about the Freudian movement has concerned itself with the conception of sexuality assumed by Freud and of rigorous psychic determinism, his theory of universally acting psychic repression, his theory of the significance of the resistance met with in the course of association of ideas and the significance of amnesia, his theory of the endopsychic censor, his conception of the unconscious, his employment of phantastic and highly complicated symbolism, the loose reasoning by analogy or the proof by *post hoc ergo propter hoc*, his explanation of the somatic symptoms of the psychoneuroses, his exaggeration of the rôle of sexuality in normal and abnormal life, and his many conclusions of a decidedly practical, medical, and therapeutic bearing, let alone the theoretical and purely scientific importance—although, I say, I find serious defects in so much of Freud's theories and conclusions, and have elsewhere[1] attempted to register very briefly certain objections to and criticisms of his psychology, I shall, in this paper, confine myself religiously to the question of sexuality.

My reasons for taking up for separate consideration the conception of sexuality assumed by Freud and his followers may be summarily stated as follows: In the first place, one cannot expect to discuss properly more than one or perhaps two of the many points of dispute in a single short paper. Secondly, the conception of sexuality has been made quite a central theme in Freudism and has been the chief source of opposition to the acceptance and spread of the Freudian theories and conclusions. Thirdly, there is quite a universal misunderstanding or lack of understanding, among the general profession, of the original conception of sexuality

*Perhaps it is necessary to mention in what sense the term "Freudian" is employed in this article. The Freudian movement or school, initiated by Freud himself, stands, in my opinion, for certain definite principles which may be summarized by stating that they consist of the theory of rigorous psychical determinism reaching far back to infancy and early childhood, and the conception of, or rather the general tendency toward the advocacy, at times by implication, of the individual intimacy of these experiences and the cause-to-effect relationship of early to later tendencies; the idea of the intimate significance of resistance to the flow of ideas in the association tests; the conception of psychical repression as underlying all mental processes not clearly conscious; the special sexual (incestuous, bisexual, Narcissistic, and polymorphous perverse sexual) theories with their extensive application (dreams, psychoneuroses, myths, therapeutic suggestions, etc., etc.), and the employment of highly complicated symbolism, besides the dynamic viewpoint and certain mental mechanisms which have been elaborated. Although there has recently been a deflection of a certain group of adherents, led by Jung, I believe that, for the purposes of this article, I am justified in including them among the Freudians, although Jung has substituted his theory of regression for Freud's theory of repression and has modified the Freudian concepts in some other ways, including the concept of sexuality, as described in this paper.

as outlined by Freud in his "Three Contributions to the Sexual Theory." Furthermore, the conception of sexuality as originally conceived by Freud and which, as such, was disseminated broadcast by his early followers, has undergone certain extensions and modifications at the hands of Freud, Putnam, and Jung in particular. Many of the followers of Freud are themselves not fully, if at all, aware of the modifications of the original conception of sexuality, the new standpoints assumed, and the significance of these newer ideas. Even as thus modified, I find that there are certain serious and important criticisms which must be leveled at the more modern conception of sexuality adopted by certain members of the Freudian school. It seems to me that it will be well worth while to review briefly the original and the more recent conceptions of sexuality and to endeavor to determine wherein Freud and his coworkers are correct and wherein they are in error in their theories.

I shall not deal in particular with the rôle assigned to sexuality in the genesis and evolution of dreams, the psychoneuroses, the psychoses, and the many fields of normal and abnormal human conduct. Nor shall I consider this question from the standpoint of its relation to the theory of psychic repression, the endopsychic censor, the unconscious, and the many other aspects of the Freudian psychology and the Freudian psychoanalysis.

I shall confine myself to a discussion of the conception of the sexual impulse or the sexual instinct —not its significance or rôle, but its definition, its delimitation, its origin, its composition, its evolution, and its goal.

I find, after several years' reading of Freudian literature that Freud, the foremost Freudians, the leaders of the movement both here and abroad, have not, in spite of their fearlessness in taking up the subject of sexuality and in boldly dissecting the sexual impulse, given us as complete and definite a conception or definition of that which they were discussing—the sexual impulse—as we would expect and demand from the positiveness and dogmatism of their conclusions. In fact, sexuality, or, rather, the sexual impulse, like the endopsychic censor and many other terms used by the Freudian school, has never been accurately defined by the members of the Freudian school. The leading Freudians have frequently found themselves in a position where it was difficult, in fact impossible, for them to tell us just what they meant by the sexual instinct or the sexual impulse. In their efforts at defense and in their attempts at explanations and elaborations of their conception, they have been compelled to indulge in hazy, mysterious expressions, in vague explanations, in ambiguous implications and mystical innuendoes, in certain general but indefinite statements which did not satisfy and did not really tell us just what they would classify as sexual. It was frequently only by hints and suggestive evasions, by innuendoes and implications, that one could obtain a fair idea of what the sexual impulse meant to the Freudian school.

More recently more definite standpoints have been taken. And it is for this reason that I feel that I can intelligently discuss the problem of sexuality in this paper, since I now have a better idea of what Freud and his adherents mean.

The writer here wishes to make note of the fact that in this paper he is not concerning himself with the views of Krafft-Ebing, Havelock Ellis, or the other investigators in the field of sexology, but he wishes it to be distinctly understood that he is confining his remarks to the conception of sexuality adopted by Freud and his followers.

Freud's Views in His "Three Contributions to the Sexual Theory."—With this end in view, let us, to begin with, very briefly review Freud's theory of sexuality as laid down in his "Three Contributions to the Sexual Theory."

Freud has laid special stress upon infantile sexuality—sexuality in the suckling and in the child. His conception of sexuality in the suckling may be stated as follows: The infant brings with it into the world the germ of sexuality. This sexuality is in the nature of autoerotism and has to do with what Freud has called the erogenous zones. The erogenous zones include the mucous membrane of the mouth, lips, and tongue, the anal zone, the neck of the bladder, and the genital zone. During the act of taking nourishment the infant derives a certain amount of enjoyment, pleasure, or gratification, which Freud classes as sexual pleasure, and which, subsequently, it endeavors to obtain by sucking, quite independent of the taking of food; thus, by the excitation of the mucous membrane of the mouth, lips, and tongue, acting as erogenous zones, there is obtained a certain sexual pleasure. The anal zone may afford sexually pleasurable sensations by the purposive withholding of feces and in other ways. The neck of the bladder may serve as an erogenous zone, as, for instance, by the production of enuresis, which, in the infant and child, when not due to epilepsy, means or is the substitute for pollution. In the genital zone activity in the form of masturbatory attempts may produce pleasurable feelings of a sexual nature. Various skin areas and sense organs may functionate as erogenous zones.

We thus see that, following Freud, in infancy sexuality is expressed by autoerotism and the dominance of the erogenous zones.

Let us now consider sexuality in childhood. The activity of these zones soon undergoes progressive suppression or a period of latency from the end of the second year to about the third to fifth year, about which time sexual activity reappears, frequently induced prematurely by seduction. Arising from autoerotic gratification, the sexual activity now takes on an object, accompanied by affects of an erotic nature, this activity being directed at first toward the parents and nurses, and then toward the sisters and brothers, without any special regard to the sex, but rather, in the beginning, with a preference for the same sex (homosexuality). We thus see that the child has incestuous, bisexual, better referred to as ambisexual (homosexuality and heterosexuality), and polymorphous perverse sexual tendencies. All of these are but the partial or component instincts or proximate elements, themselves not primary, which originally existed independently and functionated as such, were suppressed, and later go to form the sexual impulse or instinct. These components comprise the functioning of the erogenous zones, such as the skin, mucosa, and sense organ, excitation of which leads to what Freud believes to be sexual pleasure; exhibitionism, the peeping tendency, sadism and masochism, and others. Furthermore, the sexual goal is really present in double form—active and passive. Thus these tendencies, instincts, components, or elements, appear in contrasting pairs, one or the other (as, for instance, sadism, or masochism) predominating.

Sadism, according to Freud, is but the aggressive component of the sexual instinct acting independently and in exaggerated degree. Masochism is believed by Freud to be dependent, at least partially, upon sexual overvaluation and the painful irritation of the skin of the buttocks in spanking. Rhythmical mechanical movements of the body, such as occur in swinging, being tossed, rocking, etc., cause pleasurable sensations of a sexual nature. Muscular activity resulting from wrestling, conditions of fear and anxiety, and intellectual overwork may lead to sexual excitation.

We thus see that according to Freud the infant and the child have polymorphous perverse sexual tendencies or predispositions, and can be seduced or spontaneously direct themselves to all possible transgressions of the sexual impulse. Thus the sexual instinct is not a unit. It is a composite tendency or impulse made up of many different instincts, tendencies, components, trends, or elements, which we find set free again in the sexual perversions which Freud explains as being but fixations at or regressions to former tendencies or predispositions. These sexually perverse tendencies include the following conditions: Inversion (homosexuality), incestuous tendencies, and such perversions as fellatio, cunnilingus, pederasty, fetichism, the peeping tendency or voyeurism, exhibitionism, sadism, masochism, and others.

During the so-called sexual latency period (as Freud calls it), from the age of two to about three or five, there is partial or complete repression of the activity of the erogenous zones, with the erection of certain psychic dams or inhibitory mental forces, such as the feelings of shame and disgust, esthetic and moral standards, and, coincidentally, there occurs the splitting off from the sexual energies of a portion of the energy for other than sexual aims—the cultural and social aspirations or aims, this being of the greatest importance for the progress of our later and highest cultural developments. This latter process is termed by Freud "sublimation," or the socialization of the sexuality. This combined process continues more or less up to puberty.

We next come to the changes which take place at puberty. At this time there is a unification of the separate components of the sexual impulse with the subordination of the erogenous zones to the primacy of the genital zone. For this purpose the genital organs become developed and seminal secretion is formed. The sexual aim is now the end-pleasure, which, in the male, is obtained by ejaculation. With the finding of the genital zone there is the finding of an object, this consisting especially of the original infantile inclination toward the parents, nurses, sisters, and brothers, as described above. Furthermore, up to puberty the autoerotic activity of both sexes has been the same. The chief erogenous zone in the female child has been the clitoris, which is the homologue of the glans penis in the male. At puberty, in girls, there is a transference of the excitation of the clitoris to the vaginal entrance, which now becomes the sexually excitable zone.

The child's psychosexuality thus consists first of the autoerotic acts of the predominant sexual components, then the traces of love of an object, and the formation of the incestuous complex [especially that which is called by the Freudian school the root, or nuclear complex, named the mother, or (Edipus complex (in the case of the male), and the father, or Electra complex (in the case of the female)], with the affectionate and hostile emotions (love and hate) for the parents, brothers, and sisters, and other guardians or close companions. At first there is bisexuality, but finally homosexual tendencies disappear and heterosexuality alone remains.

But this is not all. What has been called by Freud "Narcissism" is said to be a necessary stage of development in the transition from autoerotism to the later love object. Narcissism is defined by the Freudians as love for one's own body or person. This Narcissism, or self-love, which to Freud and his followers is sexual, is the road to homosexuality in homosexuals and in all of us, since homosexuality differs from Narcissism only in the fact that in the former condition another individual or person with the same genitals as the developing individual has is substituted for himself as the means of getting away from himself. Thus the road to homosexuality is said always to pass over to Narcissism, or love for one's self, or mirror love.

Freud's Theory of the Sexual Development of Man.—According to Freud the sexual life of the individual may follow three possible courses of development: (1) The normal course consists of the union of the autoerotic trends present in the erogenous zones into the mature alloerotic instinct with reproduction as its goal—as previously outlined. (2) There may be an abnormal development of the sexual object or aim, with the persistence of the sexual activity of the erogenous zones, with the fixation at and the development of one or the other of the components or stages of the sexual impulse with the production of certain variations and perversions of the sexual impulse. (3) There develops a psychoneurosis, which is the negative of a sexual perversion, the symptoms of the psychoneuroses being but the expression of the sexuality of the patient and representing the incestuous, bisexual, and polymorphous perverse sexual trends of infancy and early childhood which have become repressed and unconscious in the course of development.

Fixation at or regression to one or the other of these stages in the sexual development (which, apparently, seems to comprise the entire development, if we would follow the Freudian school) of the child, is used to explain all normal and abnormal, physical and mental, conscious or unconscious conditions or tendencies or potentialities in mankind at any and every stage of his development.

The relationship of these ideas to the Freudian theories of psychical repression, the unconscious, amnesia, psychical determinism, the endopsychic censor, symbolism, and the various mental mechanisms, particularly transference, which have been made the groundwork of their psychology, and the application of these ideas to the sexual aberrations, and to the neurotic, psychoneurotic, and psychotic disorders, and to the host of other normal and abnormal tendencies and reactions of a physical and psychical nature, or both combined, I shall not discuss here.

The Meaning of Sexual as Given by Freud.—It is, however, plainly seen that Freud does not confine the term sexual to those processes which serve the function of reproduction, but that he would also include acts and tendencies whose main function is to give pleasure. We note that the infantile and childhood manifestations of sexuality are both mental and physical. The mental manifestations include attraction toward the opposite sex, curiosity

regarding sex topics, various phantasies and desires. The physical manifestations consist of the experiencing of and search for pleasurable sensations, the latter being at first very vaguely and diffusely distributed over the body, certain areas, called erogenous zones, being especially sensitive and active in this respect, with the changes and progress above mentioned.

In brief, it may be said that in his "Three Contributions to the Sexual Theory" Freud includes under sexuality incestuous, ambisexual, and polymorphous perverse sexual tendencies, and in addition certain, if not all, pleasurable bodily sensations. But in this work Freud had not shaped his theory as fully and clearly as could be desired. Naturally, as the theory was more elaborately evolved and became clearer and assumed a more definite form in Freud's mind, it was gradually extended and made more clean-cut and specific in its outlines. From indefinite, vague, mystical standpoints, or explanations, more and more definite standpoints were gradually assumed. Yet, in spite of Freud's many writings, he (and his school) has always found it most difficult to explain his conception of the sexual impulse. As a matter of fact, it is surprising that Freud's followers and others have not insisted upon a more definite elucidation of Freud's conception of sexuality than can be found even in the work above mentioned.

In the above lines we have thus very briefly reviewed the normal development of the sexual impulse in its various phases in human beings as conceived by Freud. This is explained more particularly in his conception of paranoia, of homosexuality, dreams, and the psychoneuroses.

Different Interpretations of Freud's Original Conception of Sexuality.—That Freud's outline of the evolution of the sexual impulse and of his conception of the sexual instinct was not as clear as it might have been, can be proved by citing the views of some of Freud's staunchest adherents. Maeder,[3] for example, uses sexual in the sense of love, as used in the declaration, "Hunger and love lead the world." This is certainly a vague enough statement. To me it is not an explanation at all.

Putnam[4] contends that sexual must be taken in the broadest possible sense, and that it must be conceived of as including all the affectionate and uplifting sentiments, since, as a matter of fact, it is his belief that our entire civilization consists of the transference and sublimation of the sex instinct.

There has been considerable discussion as to whether or not Freud includes all pleasurable feelings within the confines of sexuality, and if he does, whether he is justified in this attitude. Jones[5] agrees that pleasurable feelings should not be called sexual, and adds: "Certainly Freud, in his article on the two mental principles, categorically denied that the pleasure principle and sex were inherently connected, although he gave reasons to show how in the course of development the two usually become associated." I find, however, that most Freudians, including Freud himself, include all pleasurable activities under sexuality. Let us quote Freud[2] in this connection: "The analyses of neurotic disturbances of walking and of agoraphobia remove all doubt as to the sexual nature of the pleasure of motion. As everybody knows, modern cultural education utilizes sports to a great extent in order to turn away the youth from sexual activity; it would be more proper to say that it replaces sexual pleasure by motion pleasure, and forces the sexual activity back upon one of its autoerotic components." It is thus plainly seen that all motion and play are, according to Freud, fundamentally of a sexual significance, or nature. This could be extended by many examples taken from his writings and those of his followers. A few will suffice. Freud's conception of the pleasure in the acts of sucking, falling, swinging, floating, and the like, as being fundamentally of sexual origin and of a sexual nature, chimes in with the declaration just made. Brill[6] calls all dancing and motion pleasure sexual. Clark,[7] following Freud, groups tics as being of sexual significance. And one could extend the list by many more illustrations. An extension of this idea would naturally lead us to the conclusion to which the Freudian school finds itself forced, as will be shown later on in this paper.

It is worthy of mention that Putnam[4] finds himself compelled to class as sexual all pleasurable bodily sensations, all sense-cravings, all surgings, all massive feelings, all tumultuous heaving, all emotional yearning, all affection—in fact, all feeling, all affectivity, all physical or mental trends. Thus all conscious or unconscious, physical or psychical inclinations or activities, hence all motives and instincts, or the vital energy, must be sexual.

In a letter protesting against the general misunderstanding of the term "sexual," as used by Freud and his school, Wholey[9] explains that in the sense in which the sexual impulse is used by the Freudian school "it covers a broad and comprehensive field of experience and activity, whether bodily desires or mental longings. It embraces all desires, instincts, wishes, ambitions—like hunger, sex, acquisition, aspiration, the social sense, love, etc. This is a far cry from the narrow, vulgar conception of the term which seems to be understood by the men opposing the Freudian psychology."

Again Putnam,[10] in giving Freud's last word on his conception of the sexual impulse, quotes Freud, in free translation, as follows: "It is well known that psychoanalysts have been criticised by their medical colleagues for stretching the conception of the 'sexual' far beyond the limits ordinarily assigned to it. It is true that they have done this, but whether they are blameworthy for so doing is quite another question. The psychoanalytic conception of the sexual does transcend the limits of the popular conception in both directions, *i.e.* upward as well as downward; and the reasons for this widening of meaning become clear enough if one studies the sex life of man from the standpoint of its genesis. If, namely, the first stirrings or manifestations of the sexual instinct are taken as the point of departure, it seems justifiable to classify as belonging to and characteristic of the sex life, the entire series of tender emotions (zärtliche Gefühle) which come into being as outgrowths of these early impulses. This mode of classification is applicable even where, in the course of further development, the original goal of these impulses has ceased to exist as such, or has been exchanged for a wholly new one. Having learned to look at the matter in this way, we now like to use the term 'psychosexual' in preference to 'sexual,' in order to emphasize our belief that the higher mental constituents (seelischen Factor) of the sex life should be taken cognizance of and their significance fully recognized. In short, we now use the term 'sexuality' in the same broad sense in which the German word *lieben* is employed."

In another place Freud[11] expresses himself as believing that all such feelings and sentiments as sympathy, friendship, familiarity, and the like, are genetically bound up with sexuality and have been evolved by the softening or attenuation of the sexual goal from purely sexual longings.

This conception of Freud is analogous to that assumed by those followers who use the phrase "hunger and love," without, however, defining what they mean by these terms. Freud, on the other hand, uses the word "love" in a purely sexual sense, but includes under it all emotions and cravings, which also are conceived of as originally sexual, sublimation merely changing the goal or end by transfer of affect, which, also, would thus always be fundamentally of a sexual nature and origin. We thus see that all emotional surgings are of a sensual and sexual nature and origin, and, in the individual's life, had or still have sexuality as the ultimate and original goal.

It is to be noted, in particular, that the individual, with sexuality as his goal, is here being viewed from a purely psychological and individualistic standpoint. Emotional, originally and basically sexual, gratification is the will-o'-the-wisp which draws us on and on through the fascinating and mysterious, labyrinthine, ever-climbing, and ever-unsatisfied life of ours. The truly biological conception, with due regard for the racial or world history, which would include our phylogeny and ontogeny, is not given any real consideration.

To overcome this deficiency a biological and racial standpoint has been forced upon certain others (particularly Putnam) and the purely psychosexual and individualistic, present life history viewpoint is silently acknowledged to be too narrow, unscientific and theoretically and technically incorrect and not based on sound biological foundations. But, even here, it is found that, in spite of this acknowledgment in one place, an entirely opposite standpoint is assumed in another place, and, most important of all, the psychological, individualistic, and present life history standpoint is the one assumed, or rather definitely and practically exclusively carried out in the practical, clinical work and in the application of their psychological and sexual theories.

It is not such a far cry from Freud's conception, as outlined in the previous pages, to the yet more extended conception of his theory of the sexual impulse, whereby the vital energy of the universe is called libido, libido being referred to and used in the usual sexual connotation of the word. In his "Three Contributions to the Sexual Theory" Freud useed the word libido synonymously with the sexual impulse, or seexual instinct: "The sexual expression corresponding to hunger not being found colloquially, science finds the expression libido." Although Freud has never, so far as I know, definitely referred to the vital impulse as sexual, we find Ernest Jones[12] making the following statement: "The strongest opposition to Freud's views undoubtedly centers around the significance he attaches to the sexual instinct. It should be remembered, however, that Freud combats the narrow conception of this that generally prevails, and apprehends the expression in a much wider sense. From this point of view it will be seen that the importance he attaches to the instinct does not greatly differ from that of Schopenhauer's and Nietzsche's 'Wille zur Macht,' Bergson's 'élan vital,' Shaw's 'life force,' and the 'vital impulse' of so many writers, all of which are equivalent to what Freud terms the libido. He replaces these metaphysical or poetical phrases by a scientific and biological one—one that is also in harmony with the sound intention of the people, manifested, among other ways, through language, an example being the etymological unity of the words 'love' and 'life'."

In brief, this statement means that Freud's sexual impulse and libido mean the same thing as "Wille zum Dassein," "Wille zur Macht," "volonté de puissance," "élan vital," "poussée vitale," "life force," "vital energy," "vis a tergo," "universal energy," and similar terms. This is the racial and evolutionary viewpoint, and not the individualistic and psychological one. In this sense, self-preservation must be considered as a part of race-preservation, and cannot be separated from it. It is thus an offshoot of the race-preservative (sex-gratificative) tendency or impulse. Evolutionarily considered, this may or may not be found basically true, as mentioned later on in this paper, since the individual viewpoint or interpretation plays quite a rôle. One could, nevertheless, as stated below, give not a little proof in support of the proposition that race preservation cannot be considered, in and for itself, as the one and only exclusive, predominant, and original, and final goal of all the activities in the universe.

Finally we come to the more recent statement of Jung,[13] who, of all the Freudian school, seems to take the most rational standpoint—although he also is in error in certain important particulars.

Jung's Modification of Freud's Views.—Jung's views seem to require a more extended exposition, since it is evidence of a schism in the Freudian camp, and the adoption of a broader and more rational view of life and of man in particular. Jung's conception of sexuality is a biological one, in which the biological function of race-preservation or reproduction is linked with the ordinary conception of sexuality (as a physical sense and function). He himself shows some of the errors of Freud and his followers—errors which will be glaringly patent to all of us who have followed the exposition of the development of the Freudian theory of the sexual impulse as outlined above. And yet, as will be apparent to those who read the following lines, Jung has still permitted himself to be sidetracked by the Freudian theories and speculation.

Jung is willing to agree that the obtaining of pleasure is by no means identical with sexuality. His own argument is that "if we are to regard the striving for pleasure as something sexual, we might as well say paradoxically that hunger is a sexual striving, for this instinct seeks pleasure by satisfaction." But he adds, "if this were true, we would have to give our opponents permission to apply the terminology of hunger to sexuality." He admits that the emotion or pleasure which accompanies suckling, although not necessary for nutrition or growth (in the physical sense), is a state of tension or gratification which is not a sexual process, although analogous to the mechanism of the sexual act. This emotional mechanism is found both in nutrition and in the sexual function. It can no more be classified as sexual than can the sexual act be classified as a function of nutrition. Both acts or processes are accompanied by a certain feeling. We must differentiate between the process or activity and the content or feeling. Although granting that the infant knows nothing of sexuality,

still, when we come to the habit of sucking the finger and other habits, Jung believes that they are justifiably classed as sexual since the fact of correlation between masturbation and these childish habits producing a physical satisfaction from the child's own body (autoerotism) leads us so to believe.

Jung's method of argument is as follows: Sucking occurs in the function of nutrition, but its rhythmical activity, with the pleasure and satisfaction as a goal in and for itself, apart from obtaining nourishment, has a different significance, and is a characteristic present in other functions which have their final goal in sexuality. The hand (finger) may be used as an accessory organ—as in finger or thumb sucking. This rhythmical activity, with the consequent pleasure and satisfaction, may cease in the oral zone and be obtained in other places—as a rule first in the other openings of the body, then the skin in general and certain places of predilection upon it (rubbing, piercing, tugging, etc., on various parts with a certain rhythm and resulting pleasure); finally the sexual zone is reached with its onanistic attempts. This Jung refers to as the "march" of the libido, from the oral zone to other stations. This march of the libido occurs in what Jung pleases to call the "presexual" stage, and is characterized by gradual movement of the libido away from the sphere of function of nutrition towards the sexual function. Thus these activities of what Jung calls the "presexual" stage are not sexual but gradually give up their nutritional character and acquire sex characters. Furthermore, the polymorphous tendencies and activities of the libido in infancy constitute but a gradual movement of the libido away from the sphere of nutrition towards the sexual function.

Concerning the infantile sexual perversity made so much of by Freud, Jung asserts that the normal child has not perversions of the sexual impulse, but that these activities are the normal stages of normal sexual development. When, however, the early infantile tendencies are not given up when they should be there results an infantile, imperfect developing condition of sexuality, and then only do we have a sexual perversion—which is a disorder of fully developed sexuality and not a precursor of sexuality. In the perversions we have a retardation at or regression to that stage or process from which the libido has freed itself from the manifestations of the presexual stage. Jung thus makes a plea to give up the use of the term perversity in respect to the infantile polymorphous sexuality.

Jung now also takes issue with Freud with respect to the use of the term libido. He confesses that Freud used libido for the sexual impulse, so that the libido sexualis is made the bearer of the energic conception of the psychical life force. The sexual definition of libido must, he affirms, be abandoned, and in its place he would posit a more biological, dynamic, energic, genetic theory of the libido, whereby the sexual components are but energic manifestations of libido, the latter term being used in a new sense, namely, as referring to "that energy which manifests itself by vital processes, which is subjectively perceived as aspiration, longing and striving." In this way libido becomes the primitive motive power which stands for the *vis a tergo*, the vital energy, the life force of which we have spoken heretofore. It is thus seen that the genetic, energic conception of libido has taken the place of the descriptive definition of libido as given by Freud in his "Three Contributions to the Sexual Theory." Furthermore, Jung acknowledges that the earlier idea of the multiplicity of the sexual impulse must be discarded, that the earlier components represent nothing more than possibilities of activities, and that Freud erred in considering the sexual components practically as mental faculties. Jung has gone so far as to give what he considers to be the three phases of life from the standpoint of sexuality: (1) The first or presexual stage, occurring in the first years up to about three to five years of age, concerned almost exclusively with the functions of nutrition and growth; (2) the second or prepubertal stage, comprising the later years of childhood up to puberty, and (3) the third stage or the stage of maturity, which extends from puberty onward.

Freud's latent sexual period, which follows what Freud regards as the infantile sexual period, is for Jung the real beginning of sexuality and corresponds to what Jung is pleased to call the second or prepubertal stage of life, which is preceded by the presexual stage. Jung believes that the observations of Freud were faultless but that his conception was erroneous. We note, however, that the parent, or nuclear, or root complex (called the mother or Œdipus complex in the case of the son and the father or Electra complex in the case of the daughter) is for Jung the central point in the life of the individual. Although he differs from Freud by substituting his theory of regression (which to him is secondary phantastic dramatization) for Freud's theory of fixation and repression, nevertheless, we find that his standpoints are much the same as those of Freud with respect to the rôle of the parent complex. Jung believes that the incest complex is present in all of us, but that it is pathogenic or leads to trouble only when it becomes dynamic, with resulting conflict. "We do not ask any longer if the patient has a father- or a mother-complex, or unconscious incest phantasies which may worry him," says Jung. "To-day we know every one has such things. The belief that only neurotics had these complexes was an error." Furthermore, according to Jung, the incest complex exists even in persons who have never known their own mother or father, but were educated by step-parents, which, he says, is good proof that "the incest complex is much more a purely regressive production of phantasies than a reality."

At an earlier point Jung refers to this incest complex as a tendency which, in Freud's opinion, is a concrete wish, but which is unconscious due to repression by incest-barriers built up by experience and reality, comparable to the incest-taboo among primitive races. Jung's conception differs only in the substitution of his theory of regression with the reanimation and exaggerated activity of reminiscences of infancy and childhood, with the secondary phantastic dramatization. At one point, however, he does say: "Of course, for the child itself the mother has in this early stage no sexual significance of any importance. The term 'Œdipus complex' is in so far not really suitable." It is the protection and food afforded which is really responsible for the pleasure and delight which the child receives and he admits that the desire for food and protection (which means self-preservation) play a rôle. But Jung does not develop this idea, and his subsequent treatment of the terms "Œdipus complex" and "Electra complex" is in the usual Freudian (sexual) sense.

What is a Sexual Tendency, According to the Freudian School?—It may with justice be asked, what then is included within the conception of sexuality, or the sexual impulse, or instinct, when Freud or his followers speak of sexuality? How does Freud, or Jung, or any of the other members of the Freudian school define a sexual tendency?

Jung has defined a sexual tendency as "a standing still, a retardation in that process whereby the libido frees itself from the manifestations of the presexual stage." This definition can not be understood unless we use the term libido in Jung's sense and translate this definition in the light of what has gone before. Even then, however, this definition is for me quite vague and indefinite. It is plainly seen that there is now difference of opinion among the members of the Freudian school as to what should and what should not be included within the scope of the sexual impulse. There are contradictions to be found in reviewing the opinions of the various adherents of the fundamental Freudian theories. And in general it must be said that one hardly knows what a particular Freudian means when he refers to anything as having a sexual meaning.

Some of the meanings which sexual may have are the following: Normal mature heterosexual relationship, masturbation, incomplete coitus, interrupted coitus, ordinary sexual perversion, homosexuality, cravings of a sexual nature, pleasurable gratification or yearning for same, bodily heaving and surging, sense craving, longings and ambitions of whatever nature, the vital energy or vital impulse which is more or less synonymous with Jung's libido, Bergson's poussée vitale or élan vital, Schopenhauer's Wille zum Dassein or will to live, Nietzche's Wille zur Macht or will for power, and what we have been for some time calling the *vis a tergo*. There are other meanings which the sexual tendency may assume according to the writings of the Freudian school, but we have enumerated the most usual or most important ones in the review thus far given in this paper. He who runs may thus see that the sexual impulse or tendency has taken on, at the hands of Freud and his followers, a mystical, ambiguous, vague, indefinite, even metaphorical and metaphysical meaning. One may see, too, that at first a purely psychosexual conception was adopted. A gradual broadening out, necessitated by opposition and difficulties encountered, resulting in the assumption of a more racial and biological viewpoint, with certain definite drawbacks and distorted viewpoints.

General Criticisms of the Biological Conception Forced Upon the Freudian School.—But even the forced biological conception would not account for the energy in inorganic activities and for the organic activities which at present arise and at some time eons and eons of years ago most probably arose in the course of evolution from the inorganic. In inorganic processes reproduction is not the goal, and can be so made only if we assume that life activities, particularly as manifested in the higher forms of organic, especially animal life, are the natural and necessary and biological goal of inorganic activities. This assumption seems to me unwarranted, for a number of different reasons which I need not here enumerate, since I would be compelled to digress very widely from the subject under consideration. In a general way I may say that by holding to such an assumption and standpoint, we would be clinging tenaciously to an argument based upon facts which do not make the issue clearer and which compel the adoption of a onesided and not truly impartial and scientific outlook upon the various activities, in the inorganic and organic world, which surround us on every hand.

We must not forget to remind ourselves, in this connection, that all pleasurable feelings, surgings, etc., can by no manner of means be grouped as sexual from the individual (present life history) or the racial (truly biological—ontogenetic and phylogenetic, evolutionary) standpoint, unless we assume that all the manifestations of energy which come to the surface in our present or past lives are but the offshoots from that reservoir, or stream, or fountain, or what not of energy which has race-preservation or reproduction as its one and only ultimate goal, with sexuality, or the sexual impulse, or instinct, as the driving force which has fought its way up through evolution from the lowest to the present highest rung.

The genetic—evolutionary, ontogenetic and phylogenetic—psychobiological interpretation is the only broad and true rock upon which we can lay our groundwork and build a superstructure. And we name a thing not according to its end, but its beginning. This is the method we have pursued throughout science. For example, men belong to the animal kingdom and may appropriately be referred to as animals, but animals cannot and are not called men. Freud has, as mentioned above, permitted sexual to include all the stirrings of the infant and child before the development and activity of the normal, mature sexual impulse, on the ground that they were the proximate elements which became unified into the later mature instinct, and he has also forced within the confines of sexuality all the stirrings which beset man subsequent to the appearance of the sexual impulse in what he have come to look upon as the normal form or method of activity, on the ground that they are the offspring of this same sexual impulse. If we extend the individualistic and psychological standpoint, assumed by Freud, to a racial and broad, biological one, and view all activities in the same light, one can see that, if we once for all agree that race-preservation or reproduction is the one goal of all earthly activities and processes, of whatever nature, we have here presented to us a very nice and accommodating way of making the sexual impulse the goal as well as the origin of whatever is, was, or will be in the universe. But even here, although granting for the moment, for argument's sake, that this conception is sound and rational in every way, and is technically and theoretically unassailable, we shall find that for practical working purposes we would have to consider things in a different light, paying attention to the present life, purely psychological and individualistic meaning, in addition to the past life, biological and racial meaning. In other words, although admitting that from a racial, biological standpoint such and such a function or activity has such and such a meaning, yet we must understand that from the individualistic, psychological aspect it has such and such a significance. For example, although admitting, for the sake of argument, that all pleasurable feelings have biologically and racially a sexual significance, we can not go further and say that for this same reason all pleasurable feelings have the same psychological meaning to each separate individual and are sought for with this end, more or less consciously, in view. Thus even though all sexual feelings may be pleas-

urable (which they, in fact, are not), not all pleasurable feelings are sexual.

I shall not attempt at this point to circumvent the argument I have just given in support of the Freudian attitude, even biologically stated, but I must say that the primordially older tendency should be the landmark; and, in viewing things in our present or evolutionary life history, names assigned or significances attached to certain activities or processes should be given with this genetic conception in mind. In this connection it may be argued that race preservation or reproduction is but a means of self-preservation or self-expression, the former really being, essentially and fundamentally, but a means of self-preservation projected into the future. But, *per contra*, our opponents may return with the reply that self-preservation is but a means toward reproduction or race-conservation. Both sides would, in fact, be arguing in a circle. Both sides would be right. The real difference would be one of viewpoint, of interpretation. Once general agreement or mutual disagreement had been reached on this first point, subsequent agreement on all other questions could be arrived at. And yet it is this very issue which is at the basis of the whole problem, which has been buried in an avalanche of inconsequential details, of useless discussions, of misunderstandings, of evasions of the real issues and problems. Many have lost sight of the fact that quibbling and splitting of hairs where such quibbling and splitting of hairs are not called for and are as a matter of fact based on wrong premises or one-sided side-tracking, befog issues and delay approach to rational attitudes. Both of the primary or fundamental goals of self-preservation and race-preservation must receive due consideration; neither of them can be eliminated to favor, unnecessarily and unscientifically, the other.

As an illustration of the conclusions to which one may be led by partial viewpoints or dogmatic conceptions, we may mention that if the biological goal of all function is reproduction, and if all pleasure, bodily craving, etc., are but offshoots of the sexual impulse which supplies the motive power to reproduction, self-preservation—that is, the bodily demand or yearning for nutrition and growth, roughly called hunger—would be a portion of race-preservation, or reproduction; or, reducing it to terms of sexuality, of sex-gratification. Jung appreciates the incongruity of such a peculiar and artificial viewpoint of life and all that it stands for, and naturally finds that he must discard such a baseless and stunted scrutiny of all things from a sexual aspect, in a sexual setting, however far fetched the interpretation may be.

We do know that many functions of a nonsexual character (such as sympathy, love, maternality, art, music, mutual attraction and protection of offspring) are originally derived in a certain measure, in our present lives, from the instinct of propagation by the methods of sublimation or transference of energy from the sexual sphere to associated functions. This is true likewise in the history of the race—from the biological and evolutionary standpoint. But although these nonsexual characters may have arisen, in greater or lesser part, phylogenetically from sexuality, the energy being displaced or transferred from the instinct of propagation, nevertheless, from the standpoint of the psychology and the present life of the individual, they are not always sexual. Those tendencies or instincts are now existing in and for themselves, regardless of the phylogenetic origin. They were once upon a time but are not necessarily now, in greater or lesser degree, of sexual (or other primary) significance.

This idea of the sexual significance of love, sympathy, pleasure, and other nonsexual traits, may be compared to the James-Lange theory of the emotions. Both of these are true phylogenetically, considering their origin in the history of the race. But they no longer are absolute laws for the individual. For example, the energy expended in the care and protection of the young is to a great extent biologically and phylogenetically of sexual (race-preservative or reproductive) significance, but for the individual it cannot be said to be sexual. Nor can we say that it exists as such in the unconscious, if "unconscious" is to have a real meaning to us. Pregnancy is, for humans, a *sine qua non* for race preservation. It is a portion of the reproductive act. In this sense only has it a sexual meaning. Yet it cannot be said that for this reason pregnancy is a sexual act in the usual sense in which the word sexual is used (for the physical relation between the sexes, with the generative organs as the means of relationship).

Without attempting to combat the biologically sexual significance of love, sympathy, and other nonsexual traits, I would remind the reader that the self-preservation motive cannot be entirely ignored in favor of the reproduction or race conservation motive. See, for example, the late Christian Herter's "Biological Aspects of Human Problems" and Mercier's "Conduct and Its Disorders, Biologically Considered."

Freud includes all nonsexual functions or tendencies, however remotely allied to sexuality, as sexual, without endeavoring to prove them to be of a sexual nature. Thus all pleasurable feelings are classed as sexual, whether of a bodily or psychical nature, and all emotion and affection, intrafamilial or extrafamilial, is classified in the same way. It is true that Sanford Bell[14] has shown that all the emotions of normal love are very frequently experienced by boys and girls under the age of puberty. But, as Havelock Ellis[15] says, Bell's observations are confined to the psychic side of the children's lives, and consequently do not in any way indicate to what an extent such emotions occurring in childhood are specifically sexual in nature. In fact, we may agree with Ellis that specific physical manifestations in the generative sphere are comparatively uncommon in normal children. Furthermore, even though a very acute sensibility to the emotions of love may occur in childhood, still no consciousness of any specific localized sexual sensations can be proven to be present.

That many Freudians have forgotten the rôles which the play instinct or impulse and the desire for knowledge (curiosity) play in many of the acts of children should be apparent to all who have taken the trouble to learn their views. Many of the acts of children which may seem to the mature adult to be indicative of vicious sexual motives are frequently found, as a matter of fact, to have no sexual motive behind them at all. These activities depending upon the play impulse and the desire for knowledge may be entirely innocent and natural.

Let me hasten to add that the play impulse and the desire for knowledge or investigation cannot be explained biologically and phylogenetically as solely dependent upon the reproductive tendency. They can perhaps just as often be shown to have arisen from the self-conservative impulse. At any rate,

their origin is by no means simple, and several contributing factors can be shown to play a part in the ultimate genesis. Whatever their first beginnings, these activities are now frequently exercised in and for themselves, for one purpose or another.

Were it our object to follow up these remarks and to disprove the Freudian contention and demonstrate its false conception of life and of man in general, we could take up for separate consideration the various instincts, impulses, tendencies, or trends, physical, psychical, or psychophysical, conscious or unconscious, at every stage in evolution and development, in men and animals, and the various rungs in the organic world, and analyze these specific qualities with the ultimate object of arriving at the genesis and evolution. That this is not the place for such analyses seems to me self-evident.

It cannot be expected that each of the points in the conceptions of Freud and Jung, and their respective adherents, should receive extended discussion in this paper. Many of Freud's one-sided concepts are exploded even by Jung himself. In fact, the brief outline of the development and changing views of the Freudian school is alone sufficient to show the glaring misconceptions of the great majority of the members of the Freudian school.

It will, it seems to me, be quite sufficient for me to mention, in running fashion, wherein Freud and his followers have been in error in certain specific portions of their sexual theories.

Criticism of Freud's Conception of Infantile Sexuality.—Consider, in the first place, their concept of infantile sexuality, or sexuality in the infant and the child. None of the Freudians, except Jung, has mentioned anything other than sexuality in the life of the infant and child (and, as a matter of fact, in all of us). According to this idea, therefore, there is nothing but sexuality in infancy, childhood, and the subsequent periods of an individual's life. All activities and processes are but manifestations of this sexuality. But, although more as an argument to counteract criticism and to cloud the real issues, a biological standpoint has now and then been by pure compulsion seized upon for support, the sexuality really spoken of and harped upon and made the be-all and the end-all of existence for man at every stage of his development, is not biological sexuality, but the simon-pure, ordinary, hyperemotional, surging sexuality which is generally accorded by all scientific individuals to the term sexuality. Does not Jung[17] himself specifically state that for Freud the incest complex is a concrete sexual wish? True enough, the infant and child does not know what these feelings are, or does not regard them (if at such an age the individual can with clearness regard anything of real value in life) as sexual. They are, as the Freudians insist, but the adult (Freudian) view of things. But this adult (Freudian) view is the gross sexual, just as we all know it. It may expend its energy in the so-called erogenous zones, in polymorphous perverse sexual practises, in bisexual leanings, in incestuous cravings toward the various members of the family, but toward the parents in particular, in so-called Narcissism or self-love, or in one or another of many different ways. But it is the gross sexual meaning which is referred to in all of these manifestations, and as proof of this statement the reader is referred to the analyses of the cases as they are presented by the Freudian school. It is what we have been accustomed to look upon as the basest and most degrading sort of sexual gratification to which the foremost Freudians both here and abroad have reference. If any Freudian will dispute this claim I must refer him to a book which is supposed to give the gist of Freudism, namely, Hitschmann's "Freud's Theories of the Neuroses."[18] The writing on the wall allows of but one interpretation, and this is the interpretation which the Freudians carry out in their practical work. The resort to the claim that these wishes or desires or tendencies are unconscious, infantile, immature, and the like, does not interest me here. No matter where the wish or desire or tendency may be located, and no matter what its degree of intensity or development, it is the ordinary, usual, mature, gross form of sexuality of one kind or another which is meant by Freud.

What the Freudian school calls the erogenous zones are parts of the body where the infant practises autoerotism, analagous to masturbation, with the object of obtaining a certain measure of pleasure of a sexual nature. The error of Freud patent in this connection may be explained as follows: Zones which may later on in life be used for sexual purposes, in addition to their ordinary and original functions (and, it must be interjected, that there is no portion of the surface of the body which may not thus be employed), have had sexual gratification and sexual activity assigned to them as the primary, original, and natural function. And for this reason they have been called erogenous, when they should really have been referred to as possibly erogenous at some time in the future, if we wished to mention, for some particular reason, such as, for instance, to explain the sexual aberrations, the sexual use to which this or that part of the body could be put. Of course the accompanying affect or feeling, not always of a sexual nature, although frequently so, has, by analogy with the sexual impulse, been made use of to support the sexual significance of acts of the most innocent nature and most necessary for the self-preservation of the race or the individual.

The most reckless and flagrant misconstruction of the child's activities has led to that most necessary and vital function as the sucking of the breast by the new-born babe to obtain the milk wherewith to live being very critically and microscopically viewed from the sexual aspect, with the neglect of all other meanings to the pleasure or emotion accompanying this act. This was the rock upon which was built the theory whereby all rhythmical activities, usually accompanied by a certain degree of pleasure and satisfaction, were also set in a sexual setting and with a sexual halo. Nay, more, sexuality was the real explanation for their *raison d'être*. This generalization, which had its first beginnings in the conception of erogeneous zones, has, to be sure, such a wide applicability that one is forced to the conclusion, if one carries this theory out to its most far-reaching significance, that all human activity and energy, hence all vital, which means the universal, energy is of a sexual nature. And if this idea cannot be supported by a psychological, individualistic conception, one must, as the Freudians found themselves compelled to do, assume, for protection's sake, a biological argument, although still adhering to the first concept in the practical application of their theories. Is it not plain that the erogenous zones of Freud are not at all erogenous zones, but merely parts of the body which may or can be used for sexual purposes at some future date in the course of the individual's life?

Since the erogenous zones are the basis for Freud's belief in the polymorphous perverse sexual predisposition or tendency of the infant, we may at once clear the boards of this conception, since the premises are groundless and false. Instead of insisting upon the polymorphous perverse sexual predisposition or tendency of the infant and child, and hence of the adult, one is more correct in speaking of the polymorphous perverse sexual possibility of man, whether infant, child, or adult. To this no one who gives this matter sufficient consideration would object. But it is a far cry from a possibility, which varies in degree in all individuals, and is dependent upon the instinctive make-up, the training and the life experiences, to a definite and undeniable predisposition or tendency. And in this theory, also, Freud has supported his argument by drawing an analogy between the actions of the infant and child and certain actions which the adult or more mature individual, with the sexual impulse more or less fully developed, may resort to as partial expressions or substitute expressions for or preliminary efforts at sexual gratification of the ordinary physical sort. Here, then, argument by analogy and the enveloping of infantile activities with future possibilities of a transient or temporary nature under special circumstance has led to a far-reaching and seriously distorted misstatement or misinterpretation.

No less significant is this indictment when we come to estimate the Freudian dictum of the bisexual and incestuous tendency of man as represented in the infant and the child. In the first place bisexual should be replaced by the term ambisexual. And tendency or predisposition should be replaced by the word possibility. Furthermore, in the erection of the theory of bisexuality and incestuousness the psychic manifestations of emotions of affection and of attraction and repulsion between the infant or child and those with whom he comes in contact have been classified as sexual. This classification is based on the analogy between all affectivity or feeling and the sexual feeling in particular, and on certain possible sexual relationships which are present to the mature, sexually developed adult.

At this point it may be worth while mentioning that in the concept of the incest or parent complex, called the Œdipus and Electra complex, as previously explained, we have definite proof that it is the usual gross, physical meaning of sexual which is understood by Freud and his followers when they use the term sexual. Of course one could offer pages of evidence from the writings of Freudians to prove this. But here we have definite, incontrovertible evidence. Œdipus, owing to certain peculiar circumstances explained in the footnote,* unknown to himself committed incest by marrying his mother. Electra,† in revenge for the murder of her father by her mother, assisted her brother in slaying their mother. In the case of Œdipus there were definite sexual relationships. In the case of Electra the Freudians insist that it was because of the desire for sexual relationship with her father that Electra was prompted to urge her brother to commit the murder in which she assisted him. Other motives are disregarded. The attending circumstance in each case are relegated to the limbo of the non-essential and the insignificant. And upon this as a foundation Freud and his school have built up their theory of incest complex, which is nothing more nor less than a concrete sexual wish. And it is in this way that so much of the conduct and tendencies of the growing child are explained. Other meanings, other interpretations, other origins are calmly but positively ignored. And, let me hasten to mention, with this beginning it is no wonder that all human relationships, intrafamilial or extrafamilial, intimate or remote, all reactions and attitudes, all attraction and repulsion, are viewed in the same light and given the same sexual significance. That such a theory would lead one to an inevitable *reductio ad absurdum* goes without saying.

The theory of Narcissism‡ or self-love next pre-

*William Smith's "A Smaller Classical Dictionary," pp. 364-365, Everyman's Library, gives the following account of Œdipus: Œdipus, son of Laius, king of Thebes, and of Jocasta, sister of Creon. His father having learnt from an oracle that he was doomed to perish by the hands of his own son, exposed Œdipus on Mt. Cithæron, immediately after his birth, with his feet pierced and tied together. The child was found by a shepherd of King Polybus of Corinth, and was called from his swollen feet Œdipus. Having been carried to the palace, the king reared him as his own child; but when Oedipus had grown up, he was told by the oracle at Delphi, which he had gone to consult, that he was destined to slay his father, and commit incest with his mother. Thinking that Polybus was his father, he resolved not to return to Corinth; but on the road between Delphi and Daulis he met Laius, whom he slew in a scuffle without knowing that he was his father. In the meantime the celebrated Sphinx had appeared in the neighborhood of Thebes. Seated on a rock, she put a riddle to every Theban that passed by, and whoever was unable to solve it was killed by the monster. This calamity induced the Thebans to proclaim that whoever should deliver the country of the Sphinx, should obtain the kingdom and Jocasta as his wife. The riddle ran as follows: "A being with four feet has two feet and three feet, and only one voice; but its feet vary, and when it has most it is weakest." Œdipus solved the riddle by saying that it was man, who in infancy crawls upon all fours, in manhood stands erect upon two feet, and in old age supports his tottering legs with a staff. The Sphinx thereupon threw herself down from the rock. Œdipus now obtained the kingdom of Thebes, and married his mother, by whom he became the father of Eteocles, Polynices, Antigone, and Ismene. In consequence of this incestuous alliance, the country of Thebes was visited by a plague. The oracle, on being consulted, ordered that the murderer of Laius should be expelled; and the sere Tiresias told Œdipus that he was the guilty man. Thereupon Jocasta hung herself, and Œdipus put out his own eyes, and wandered from Thebes, accompanied by his daughter, Antigone. In Attica he at length found a place of refuge; and at Colonus, near Athens, the Eumendes removed him from the earth. The tragic fate of Œdipus and of his children formed the subject of many of the noblest of the Greek tragedies. Among these the first place must be assigned to the splendid trilogy of Sophocles, Œdipus the King, Œdipus at Colonus, and the Antigone.

†William Smith's "A Smaller Classical Dictionary," pp. 204-205, Everyman's Library, gives the following account of Electra: Daughter of Agamemnon and Clytaemnestra, also called Luodice, sister of Iphigenia and Orestes. After the murder of her father by her mother, she saved the life of her young brother Orestes by sending him to King Strophius until he had grown up to manhood. Electra then excited him to avenge the death of Agamemnon, and assisted him in slaying their mother, Clytaemnestra. After the death of the latter, Orestes gave her in marriage to his friend Pylades. Sophocles's "Electra" is based on this story.

‡William Smith's "A Smaller Classical Dictionary," pp. 351-352, Everyman's Library, gives the following version of the story centered about Narcissus: Narcissus, a beautiful youth, son of Cephissus and Liriope, was inaccessible to the feeling of love; and the nymph Echo, who was enamored of him, died of grief. But Nemesis, to punish him, caused him to see his own image reflected in a fountain, whereupon he became so enamored of it that he gradually pined away, until he was metamorphosed into the flower which bears his name.

sents itself. All evidences of love of self, of exaggerated ego, of self-esteem, of self-satisfaction and the like, are believed by Freud to be sexual in meaning. As outlined previously, when we considered Freud's theory of sexual (which to him seems to mean human) development, the road to homosexuality and thence to heterosexuality lies through or is by way of Narcissism, which is the step that succeeds autoerotism. This Narcissism is definitely sexual. And, by virtue of an ingenious theory of reflected self-love, there are a host of tendencies which are said to be derived from the Narcissistic tendency, which, as stated, is sexual. There is so little proof for such an ill-founded assumption and dogmatic conclusion that it almost seems to me that it does not really warrant serious consideration. The amount of evidence in controversion of this idea is voluminous. I need call attention to but one complication to which one would be led if he believed in this theory, and if he would be thorough and carry it out to its final conclusion. All efforts for self-expression and self-preservation may be said to be, in a biological sense, evidences of self-love. In this way self-preservation is but a portion of self-love. If we substitute for this biological and evolutionary viewpoint, the psychological and individualistic one, which is that employed by the Freudian school in all their practical work, then all effort of the individual is but an indication of self-love. And since the latter is of sexual significance, so is the former. And this latter sexual significance is but an evidence of sexuality, as this term is ordinarily employed. The fallacy of this is, I surmise, self-evident.

Jung's efforts to extricate himself from the network which in the course of time has entangled the Freudian school and buried it beneath the superstructure which was built up and which now hangs most heavily upon its tottering and top-heavy foundations, do not, in my opinion, clear the atmosphere or brush away the cobwebs. He discusses certain technical points which still leave the main issues untouched. The vital energy, he is willing to agree, is not sexual. The pleasure accompanying the act of sucking necessary for nutrition in the infant, and hence all pleasure, is not sexual. But practically all subsequent rhythmical activities accompanied by pleasure and satisfaction may be compared to masturbation, and in his presexual stage (see above, under Jung's modification of Freud's views, for his three phases of life, from the sexual standpoint) there is a gradual transition from their nutritional (that is, self-preservation) connotation to their sexual meaning. In fact, they are the means toward definite sexual expressions, and hence had best be called presexual instead of sexual. Furthermore, since this is the normal process with all individuals, these early expressions or precursors of sexuality should not be called perverse, since, in the strict sense, a sexual perversion is a disorder of fully developed, mature sexuality, and, to speak more correctly, the infantile and early childhood activities of which we are now speaking are really only possible perversions. In other words, it would seem, from what I understand, that if, as I have suggested previously in this paper, the word possibility were substituted for predisposition or tendency, the phrase polymorphous perverse sexuality would not be objected to by Jung. Or we were to substitute the phrase infantile polymorphous sexuality or presexuality, thus making no mention of perversity, there would apparently be no objection on the part of Jung. That he still maintains the sexual viewpoint of life's (including the infant's) activities may be seen from the fact that he divides human life into three (sexual) periods, named, as heretofore given, the presexual, prepubertal and mature stages.

Fundamentally, therefore, the life history of the individual is practically entirely sexual for Jung. He is no more justified in classifying the sucking of the mother's breast by the infant in the process of nutrition as non-sexual than he is justified in grouping later, similar activities as presexual or sexual. Reasoning and proof by analogy seem to have and hold their place in Jung's scheme of the child's functioning, so far as I understand him.

Likewise, his substitution of his theory of regression with the reanimation and phantastic and secondary elaboration or dramatization for Freud's theory of fixation and repression in the matter of the incest complex is not *à propos* the vital issues thus far delineated.

Although discussing at some length the biological aspect of the sexual instinct, he practically gives this up in his discussion of infantile sexuality, in its psychological and individualistic bearings.

Neglect of the Evolutionary Standpoint.—Now, there is no more serious defect in Freud's theories than his neglect of the phylogenetic and evolutionary outlook upon life and man. This, in truth, has been the hidden rock upon which Freudism has foundered. So important is this deficiency in Freudism and so much is it responsible for the errors and difficulties of the Freudians, that it will not be out of place to mention a few particular instances of what I mean.

In his discussion of sadism and masochism, Freud says: "The roots of active algolagnia, sadism, can be readily demonstrable in the normal. The sexuality of most men shows a taint of aggression. It is a propensity to subdue, the biological significance of which lies in the necessity of overcoming the resistance of the sexual object by actions other than mere courting. Sadism would then correspond to an aggressive component of the sexual impulse which has become independent and exaggerated and has been brought to the foreground by displacement."[1]

The fact that sadism may have originally arisen in connection with self-preservation, and may later be linked with the sexual impulse, so that this aggressive tendency present in sexuality may be but a special application of the tendency for self-preservation by any means, no matter how primitive, brutal, barbaric or primordial, receives no mention in Freudian literature (so far as I am aware) except by Freud himself, who, although he seems to have for a moment grasped the phylogenetic concept, never mentioned it again, so far as the writer knows. This single reference that I find is as follows: "The aggression which is mixed with the sexual impulse is, according to some authors, a remnant of cannibalistic lust, a participation on the part of the acquisition apparatus (Bemächtigungsapparatus) which serves also for the gratification of the great wants of the other, ontogenetically the older impulse."[2] But even here the Freudians may now argue (and this in spite of the theory that ontogeny recapitulates phylogeny) that even though this may be true ontogenetically, it is not true phylogenetically, since, basically, sexuality is "the string that runs through the pearl of all virtues." Freud's explanation of passive algolagnia or masochism could also be cited here. And in further proof, Freud's explanation for infantile and childhood fear is most

illuminating on this very point: "The fear of children is originally nothing but an expression for the fact that they miss the beloved person. They therefore meet every stranger with fear; they are afraid of the dark because they cannot see the beloved person, and are calmed if they can grasp that person's hand."[2] The disregard of or indifference toward the nature and origin and existence of instincts in the life of the race is noteworthy.

It is not out of place to direct the reader's attention to the truism that what is basically true in the life of the race is likewise fundamentally true in the life of the individual. The main, basic trends are transmitted in some measure. And, vice versa, what is universally and without exception true for all mankind, at every stage of development, is also true, in some measure, for the race, and finds its *raison d'être* in instinctive, inherent, germinal tendencies. I mention this because the Freudian school has found certain principles or tendencies of universal and fundamental significance, and at the root of all activities of man, whether infant or adult, normal or abnormal. These basic truths must be founded upon germinal, instinctive tendencies. Consequently the polymorphous perverse sexual, bisexual, incestuous and Narcissistic predispositions or tendencies of the Freudians must be of a germinal, instinctive derivation. If the Freudians are not in error, these tendencies or possibilities are nothing more nor less than instincts. This is the conclusion to which, I believe, one is led by adopting the Freudian ideas. To discuss this question is not in order at this time.

Although there is much scientific proof for the contention that not only is sex-gratification but a portion and means of self-expression or self-preservation or the gratification of the personal tastes and feelings in the life of the individual, but also that race-preservation or reproduction is but a means of self-preservation in the life of the race, I shall present no further proof for this conception than the two references in the attached footnote.* There are, in addition, many weighty arguments which could be offered to bolster up this assumption. As has been asserted previously, however, there is no need to split hairs in a narrow-minded fashion when in search of truth. It is absolutely immaterial to me what instinct or motive is given the most credit so long as, in each individual case under consideration, an impartial, truly scientific weighing of the facts is pursued and credit given where it is due, regardless of any special theories or dogmata which one or another set of thinkers may have put forth.

Without minimizing the value and full import of the movement set on foot by Freud, Jung, and others, with due appreciation of the analytic, dynamic, energic conception (which surely was nothing new or original with Freud or Jung), with full recognition of their efforts in dissection of the sexual life and the sexual impulse and of their efforts to determine the rôle, the genesis, the evolution and the goal of the sexual instinct, and with approval of the genetic standpoint in psychiatry and physchopathology (which tendency, also, was not unheard of before, as witness the genetic psychologists, and others), we must, nevertheless, without prejudice or animosity, take note of the defects in the Freudian conception of the sexual instinct.

Most to be criticised is the exclusively individualistic and narrow psychological standpoint—the psychosexual viewpoint—of life and all its manifestation, including man, and, in particular, the infant and child. It is this which led to the use of the term "predisposition" and "tendency" instead of "possibility," of erogenous zones, of the bisexuality and incestuousness and polymorphous perverse sexuality and Narcissism of the infant and the child, to the use of the term sexual to include all pleasurable activities, all feelings, tendencies, and instincts, so that, in the end, it was synonymous with the vital energy of the universe, necessitating the efforts at defense and the adoption of such terms as libido, presexual, and the like, which merely complicate the situation without clearing up the basic errors.

The sexogenetic or psychosexogenetic view must be replaced by a broad psychogenetic or psychobiogenetic one, which will include within its scope not only the present life of the individual, but the past life, the world history of man and of life, with the racial (ontogenetic and phylogenetic), biological and evolutionary approach to the problem of energic manifestations.

Self-preservation, ontogenetically, at least, the older impulse, should be given that degree of consideration which it most surely deserves.

In brief, the Freudian school must get away from their conception of pansexuality, which has been carried out so persistently that to the writer it seems that when a Freudian uses such terms as wish, instinct, tendency, trend, meaning, motive, desire, longing, yearning, psychic, unconscious, repression, fixation, regression, sublimation, transference, conversion, substitution, affect, libido, symbolism, content, and the rest, the sexual implication is practically always silently understood or indirectly hinted at—if not openly, then by innuendo or by what has gone before in the same article or in previous articles.

*In his Lowell lectures on "The Ascent of Man," p. 225, published in 1894, Henry Drummond presents the following splendid description, which could be employed to support the thesis that reproduction is a portion of self-preservation: "Watch one of the humblest unicellular organisms at the time of reproduction. The cell, when it grows to be a certain size, divides itself into two, and each part sets up an independent life. The protoplasm inside the cell—the body as it were—needs continually to draw in fresh food. This is secured by a process of imbibition or osmosis through the surrounding wall. But as the cell grows larger, there is not wall enough to pass in all the food the far interior needs, for while the bulk increases as the cube of the diameter, the surface increases only as the square. The bulk of the cell, in short, has outrun the absorbing surface; its hunger has outgrown its satisfaction; and unless the cell can devise some way of gaining more surface it must starve. Hence the splitting into two smaller cells. There is now more absorbing surface than the two had when combined. When the two smaller cells have grown as large as the original parent, income and expenditure will once more balance. As growth continues, the waste begins to exceed the power of repair and the life of the cell is again threatened."

Hence, as Geddes and Thompson, in the "Evolution of Sex," p. 232, say: "Reproduction begins as a rupture. Large cells beginning to die save their lives by sacrifice. Reproduction is literally a life-saving against the approach of death. Whether it be the almost random rupture of one of the more primitive forms such as Schizogenes, or the overflow and separation of multiple buds in Arcella, or the dissolution of a few of the Infusorians, an organism, which is becoming exhausted, saves itself and multiplies in reproducing."

Here, surely, is a splendid argument to show that reproduction is dependent upon and is a part of the process of nutrition and self-preservation, and that the self-sacrifice involved in reproduction is originated from self-preservation. In this way one could build up a beautiful theory by which all self-sacrifice and altruism, all feelings and tendencies derive their ultimate motive powers or springs of energy from the self-preservation or nutritional instinct.

The first step in this direction consists of a proper understanding of man's place in nature and of the instinctive make-up of human beings. Whether or not we agree with William McDougall's classification and explanations, his "An Introduction to Social Psychology" is a good working basis upon which to build. The genetic psychologists are opening up the way to greater fields and pastures new. It gives me great pleasure to mention, in this connection, G. Stanley Hall's illuminating and stimulating series of papers in the *American Journal of Psychology* (beginning April, 1914), entitled "A Synthetic Genetic Study of Fear."

In conclusion the writer wishes to assure the reader that the above fragmentary and brief remarks of a superficial and critical nature are offered not with the object of narrow-minded, bigoted criticism, or of depreciation of the actual benefits to psychoanalysis, psychology, psychopathology and psychiatry derived from the Freudian movement, directly or indirectly.[37]

The writer will be pardoned for not giving personal opinions or for not attempting to give his or others' theories concerning such important problems as the origin and nature of instincts, feelings and the general tendencies of mankind, concerning the origin and development of the family and of the other qualities and relationships mentioned here and there in this paper. Such a discussion would be too far-reaching for appearance in a medical journal, and would be too much to ask in a paper of the kind I had in mind when I decided upon the one here offered.

Obviously, since the sexual theories of Freud are so intimately bound up with all the other theories enunciated by Freud, and, in reality, are the stuff whereof the Freudian psychology and the Freudian method of and standpoint in psychoanalysis are made, we are, in this discussion, striking at the very roots of the tree which sends its branches (the other theories) upward in all directions.

The term "psychoanalysis" is used by the writer in the broad, unrestricted sense of the word—as being synonymous with mental analysis, by any method or from any standpoint. No indictment can be made against psychoanalysis in general because the Freudian method and standpoint in psychoanalysis, being based upon the theory of pansexuality, has been sidetracked into sexoanalysis and sexopsychology.

REFERENCES.

1. See *Journal of Abnormal Psychology*, June-September, 1914.
2. "Three Contributions to the Sexual Theory," English translation by A. A. Brill, Nervous and Mental Disease Monograph Series, No. 7.
3. Maeder, A.: "Le Mouvement Psychoanalytique," *Année Psychologique*, 1912.
4. Putnam, J. J.: "Personal Impressions of Sigmund Freud and His Work," *Journal of Abnormal Psychology*, December, 1909-January, 1910, p. 375.
5. Discussion at the fourth annual meeting of the American Psychopathological Association, May 8, 1913. See *Journal of Abnormal Psychology*, VIII, 5, December, 1913-January, 1914, p. 340.
6. "The Psychopathology of the New Dances," *New York Medical Journal*, April 25, 1914, p. 834.
7. Clark, L. Pierce: Series of three papers: "Some Observations Upon the Etiology of Mental Torticollis," MEDICAL RECORD, February 7, 1914; "A Further Study Upon Mental Torticollis as a Psychoneurosis," *ibid*, February 28, 1914; "Remarks Upon Mental Infantilism in the Tic Neurosis," March 28, 1914.
8. "Dream Interpretation and the Theory of Psychoanalysis," *Journal of Abnormal Psychology*, April-May, 1914, IX, 1 36.
9. *Journal of the American Medical Association*, March 28, 1914, p. 1036.
10. See reference number 8, and also Putnam's paper, entitled "The Present Status of Psychoanalysis," *Boston Medical and Surgical Journal*, June 11, 1914, CLXX, 24, p. 897.
11. "Zur Dynamik der Übertragung," *Zentralblatt für Psychoan.*, II, 171.
12. Papers on Psychoanalysis, 1913, Preface, p. 11.
13. Lectures at Fordham University Medical School (September, 1912). No. 19 of Nervous and Mental Disease, Monograph Series.
14. Bell, Sanford: "A Preliminary Study of the Emotion of Love Between the Sexes," *American Journal of Psychology*, 1902.
15. In White and Jelliffe's "Modern Treatment of Nervous and Mental Disorders," Vol. I, p. 104.
16. Nervous and Mental Disease Monograph Series, No. 17.
17. In a general way I have dealt with this question in a paper entitled "A Plea for a Broader Standpoint in Psychoanalysis," in the *Psychoanalytic Review*, January, 1915.

1517 SOUTH KEDZIE AVENUE.

A NEW OPERATION FOR FISTULA IN ANO.

BY S. J. BLUMENTHAL, M.D.,

BROOKLYN, NEW YORK.

ATTENDING PHYSICIAN TO THE EASTERN DISTRICT DISPENSARY AND HOSPITAL MEDICAL CLINIC.

IN advancing a new operation for the complete and blind external varieties of fistula in ano I do not propose to do away with the old operation. Each shall have its own particular field of usefulness as will readily be gleaned by a perusal of the procedure.

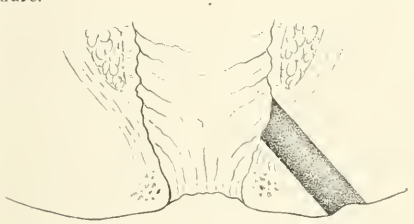


FIG. 1.—Sphincter of rectum dilated, fistula curetted.

The advantages claimed over the old operation are: (1) The sphincter ani is not cut. (2) No large raw surfaces to heal. (3) Healing under clean conditions. (4) Action of sphincter never impaired. (5) Fistula practically sterile before collapse. (6) No scar on surface afterward. (7) Knife not used at all. (8) Bloodless operation. (9) Operation of choice in young fistulæ. In order to obtain good results with my technique special instruments will be required and the technique closely scrutinized. The advantages to be gained warrant the special instruments.

Instruments.—(1) Probe. (2) Thin, straight sound. (3) Sharp curettes. (4) Twenty-day chromic suture, heavy. (5) Rectangular hard-rubber plate to conform in shape with the nates overlying the course of the fistula. Width of fistula plate will vary with the distance the fistula is removed from the surface of the skin. The deeper the fistula the wider the plate, on account of the large sweep of the needle. Plate about one-fourth inch thick and double convex. (6) Large aneurysm needle with handle. (7) Small aluminum tube to fit over the Paquelin cautery so as to allow only about one-half inch of the bar to protrude (Fig. 4). (8) Paquelin or electric cautery. (9) Tincture of iodine. (10) Glass syringe, 10 c.c., for the iodine.

(11) A hard-rubber tube about 3 inches in height. The top, the size of a man's thumb; the base abruptly sloping in width. Two perforations at the base of the tube for a T-bandage. (12) Small calibered, silver tube, one-sixteenth inch wide, about

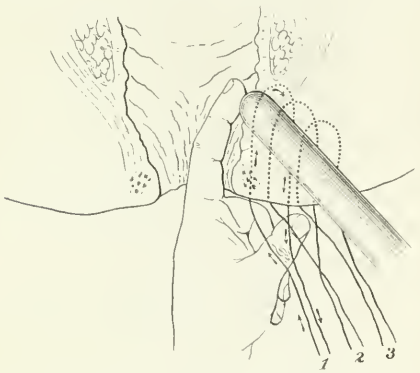


Fig. 2.—Sound acting as a guide for the sutures which surround it. The needle is entered about a half inch from the sound.

three inches long, with many perforations in its wall. One end tapers to a blunt point, while the other is wide enough to fit a suction pump. The tube is used for drainage, for irrigation, and for the production of artificial hyperemia by means of suction pump.

Preparation.—Prior to operation the patient's health should be improved as much as is possible. Suitable tonics given over a course of two or three weeks when feasible, better the outlook for a more speedy recovery. A certain amount of rest should be enjoined upon the patient.

Technique.—The whole of the following procedure can be done in a very short time. The patient receives an enema before being brought to the operating table. The anesthetic should be general. If tuberculosis of the lungs is present

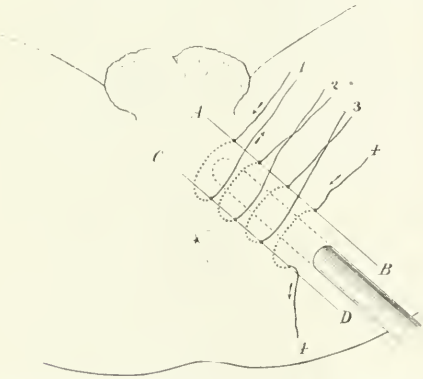


Fig. 3.—The iodine lines AB and CD are guide lines for the entrance and exit of the needle. These lines are drawn after suture No. 1 is put in, and run parallel to the sound, the distance between them being in accordance with the width of the plate selected.

chloroform or local anesthesia should be employed in preference to ether. The patient is placed in the lithotomy position. The fistula is on the left side for the sake of description. The anal orifice is thoroughly dilated manually. A probe is inserted to get the direction of the fistula. Then with a small but sharp curette remove the granulations from the wall of the canal and irrigate with saline solution. (Fig. 1.) Insert the straight sound. If the canal is curved, the sound straightens it out for

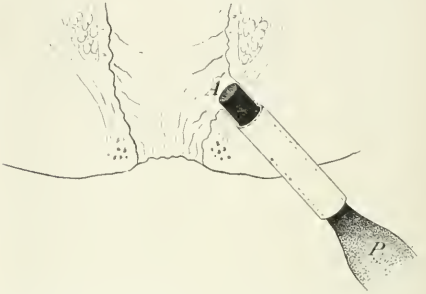


Fig. 4.—Shows the tube in place with cautery bar protruding; by rotating the handle P, the whole wall of the fistula is reached.

suturing. The sound acts as a guide for the course of the needle. If the rectal opening is not far removed the sound may be brought out from the rectal end. Suture No. 1 starts at a point a little higher than the sound. (Fig. 3.) Keep the needle always concentric with the sound and about one-half inch away from same. The point of the needle is brought out at a distance from the entrance to correspond to distance on the plate (Figs. 3 and 5). The eye is threaded with chromic catgut when it appears and is again withdrawn. In placing the first suture, when the sound is not brought out of the rectum, put the left index finger in the rectum and feel the tip of the sound. This maneuver helps to bring the suture as near the rectal membrane as possible, but not through it. Suture No. 1 is the most important suture because it must close off the fistula from the rectum. After the first suture is put in draw two parallel lines, A, B, and C, D, parallel to the sound in the fistula. These

Fig. 5.—Suture tied and cut; the arrows point to the collapsed fistula. The plate acts as a splint, compresses the entire fistulous tract, and prevents the sutures from cutting the skin.

lines are drawn with tincture of iodine. The intervals for sutures are also marked off according to the plate. With a little practice the surgeon can order a plate for each operation and avoid buying too many of them.

Line A, B designates the entrance of needle and line C, D the exit. The needle must never touch the sound in its excursion about it. Figure 3 shows the fistula surrounded by sutures—ends not tied.

Before cauterizing swab the tract with a 20 per

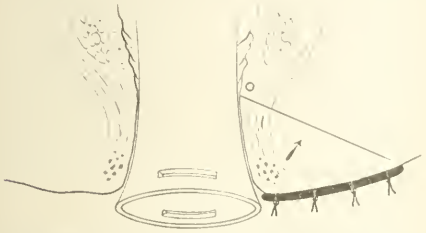


Fig. 6. Shows the plate pressing upon the fistula; the arrow points in the direction of pressure from the tube. The internal opening of the fistula, O, is kept by the tube from being soiled.

cent. solution of cocaine or novocaine in order to lessen the shock incident to cauterization of a large number of nerve endings. Whether we use electric or Paquelin cautery the walls of the fistula should not be left charred. Oozing is highly desirable, as it shows that the vessels of nutrition are not occluded. If this condition exists the curette will easily bring oozing. A piece of metal in the rectum opposite the fistula prevents burning of unnecessary tissues. By employing the tube over the cautery bar a small portion of the fistula is cauterized at a time, and it also permits the cauterizing agent to be very hot until the rectal end of the fistula is reached. This would be impossible without the tube. The tube is held *in situ* during cauterization by means of a convenient clamp. With a circular movement of the handle P about A (Fig. 4) the whole circumference of the fistula is reached. The tube is pulled out by degrees as the cauterization progresses. While the tube is being pulled into place the cautery is removed and again heated before using.

The plate is now threaded onto the ends of the sutures. It is obvious that when the sutures are tied the plate acts as a splint to the whole tract, thereby increasing its chances for primary union. It also prevents the stitches from cutting and giving stitch abscesses. The sutures are not tied until the next step is completed.

The operator closes the orifice of the fistula in the rectum (orifice found with the probe). While the operator holds his left index in this position the assistant forces tincture of iodine into the canal under pressure. The iodine reaches all trabeculæ and the tract is pretty well cleaned up. The iodine remains in for a minute or two, when it is washed out with saline solution. The iodine starts an adhesive inflammation.

Now the operator with his left index still unmoved inserts a probe to meet the finger, and tells his assistant to tie suture No. 1. When the surgeon feels the suture grasping the probe the knot is tied securely. After the knot is tied the probe cannot meet the rectal finger any longer. The rectal finger is now removed and the other sutures are tied in like manner. When the stitch starts cutting from the inside it mechanically stops as the suture is loosened just enough to prevent cutting further.

Due to the pressure of the plate (Fig. 6) the rectal mucous membrane is bulged inward. By using the tube this bulging is exerted up against the fistula. This tube also helps to keep the entrance to the fistula (O, Fig. 6) clear of fecal irritation. This tube is removed in three or four days, when healing commences. The tube should be held *in situ* by a T-bandage. In blind external fistulæ this tube is not required.

When the sutures are tied, insert the narrow drainage tube up to the second suture. Now this tube acts as a drain and permits the fistula to heal from within outward. The blood supply to the tract is poor. To get more blood to it suction a few times a day, commencing after a lapse of a few days, may be employed, thus producing an artificial hyperemia. This suction also cleans up the detritus. Irrigations with warm saline are in order every morning. The tube is daily pulled out a little more and tincture of iodine and water, equal parts, allowed to flow in to stimulate healing. No force should be employed in the injection, as the bridge of new tissue would be broken down.

The technique employed will of course vary with every case. In the blind external variety curetage, tincture of iodine, and plate with sutures may be all that will be required.

The principle of the operation is to remove the granulation tissue and to get primary union by collapsing the fistula at rest without mutilating the skin or sphincter in comparatively young fistulæ.

Patients will submit to early operations when we can assure them that no knife will be used nor a cut in the skin made. Thus early operation will stay the progress.

If the case is an old one, with its concomitant sinuses and thick resistant walls, the old operation had better be done, as my procedure would not open up the large sinuses.

The new ideas involved in this operation are the plate, peculiar method of applying the cautery, use of a sound for guiding the sutures in a fistula operation, doing away with the cutting of the sphincter in cases operable by this routine, producing hyperemia in a fistulous tract in order to get more nutrition to the part, and doing away with the knife in a major operation.

270 Rutledge Street.

ANOSOGNOSIA AND ANOSODIAPHORIA.*

By E. Murray Auer, M.D.,

Philadelphia.

From the Department of Neuropathology, University of Pennsylvania.

The observance of a non-existing factor, like the non-observance of an existing factor, may be due to either an organic or functional nervous or mental disorder. It has long been known that irritative lesions of different parts of the nervous mechanism of the special senses occasion the production of pathological functional phenomena, just as a destructive lesion may cause a loss of the normal function of the sense affected. However in such an involvement the individual is invariably aware of either a hyper- or hypoactivity.

Recently Babinski[1] observed in two cases of organic cerebral hemiplegia that the patients ignored or appeared to ignore the existence of the paralysis with which they were affected. To this condition he gave the name anosognosia. In both of his patients the paralysis was of right sided origin, the

*Read before the Philadelphia Neurological Society December 18, 1914.

intelligence was unaffected, there was no notable uneasiness, no mental confusion or hallucinations.

In his first case, that of a woman with an almost complete hemiplegia of several years duration, the patient ignored entirely any request to move the paralyzed side and never spoke of her affection as such. In the paralyzed side tactile and pain sense were affected. Later grave mental disorders appeared and the patient died after being in a demented state for some time.

In his second case, also that of a woman, he described the patient as being continually a little excited and at that time holding conversations which seemed strange. When asked to move the paralyzed side she either ignored the question or replied, "There, it is done," without making any attempt to move it.

Souques in his discussion mentioned the case of a physician with a left hemiplegia and hemianesthesia who ignored entirely his paralysis.

Miege stated that while one frequently sees asphasic patients who lament bitterly their speech defect, one rarely finds a hemiplegic who complains of the loss of use of the affected members. He asks, "Is this resignation, desire to conceal from themselves or others an inferiority with which they are affected? It may be in certain cases, but in others one is dealing with a true psychopathic disturbance." His observations have lead him to admit the existence of a functional motor amnesia in hemiplegics.

Babinski further observed that some hemiplegics, without ignoring the existence of their paralysis, seemed not to attach any importance to it, as though affected with an insignificant disease. This he terms anosodiaphoria.

In an examination of seventy-six cases of hemiplegia by myself, there were several, more especially among the male patients, who, without attaching any great importance to their condition, conducted themselves in a fairly normal and contented manner in so far as their physical disability would permit. I found none who absolutely ignored or denied their conditon. Of the cases examined there were seven right hemiplegic with asphasia. None of these evinced an ignorance of either of their afflictions. There were five left hemiplegics that showed marked memory defects; but none had forgotten their paralysis. There was one right hemiplegic with no asphasia who showed mental deterioration but was aware of the paralysis.

Case I. H. W. Right hemiplegia. Patient states that when he is lying down he does not think his paralyzed side affected.

Case II. P. McK. Left hemiplegia. Patient states that his side never troubles him and that most of the time he wouldn't know it was there.

Case III. F. M. Right hemiplegia. Patient is only partially oriented and shows a memory disturbance. On questioning he states he is feeling fine and has nothing to complain of. Move your right arm. "I can't." "What is the trouble with it?" "Scraped it with an oil can." Further questioning does not bring out that he was paralyzed until asked point blank if he were not paralyzed, he replies "Oh yes, three years ago."

Case IV. E. S. Female with a left hemiplegia. Has complete loss of sensation of touch, motion, and position and stereognosis, but does not ignore or deny her paralysis.

Case V. M. H. Female with a left hemiplegia. Patient has lost sensation of touch, motion, and position. She freely converses of her diseased side.

Case VI. E. H. Female with left hemiplegia. When spoken to tells of attacks of vertigo and various ailments but makes no mention of her paralysis until asked to move the paralyzed arm whereupon she states, "It is paralyzed."

Barat[2] reported the case of a bedridden woman aged seventy-two with a left hemiplegia and totally blind. She believed she had nothing to complain of in regard to her vision or to the use of her limbs. She exhibited a mental defect and a tendency to substitute images of sensation and memory.

Noteworthy in my own examination is the observation that two left hemiplegics with pronounced sensory disturbances in the affected side evinced neither anosognosia or anosodiophoria; further, that those ignoring or denying their affliction showed mental deterioration and that those attaching little importance to their diseased side suffered little subjective sensory disturbance and had accustomed themselves to the loss of function of the affected parts, as is frequently observed in many individuals with chronic disease.

If the condition anosognosia were to be explained as a sensory disturbance why was it not present with complete loss of sensation? The fact that in right-handed individuals the left cerebral lobe is more highly specialized than the right would lead us to assume that if we were dealing here with a disturbance of association we would be more apt to find the condition in lesions of the left lobe.

In "vision nulle" we have a visual disturbance of which the patent is as manifestly ignorant as were these patients of their paralysis, and stress has been laid upon this as a symptomatic differentiation between a cortical and a subcortical lesion, as also have the hallucinatory disturbances occurring in lateral homonymous hemianopsia.

Claude and Rose[3] reported two cases of tumor of the occipital lobe in which there were no visual hallucinations. They assumed that visual hallucinations are due to irritation of the calcarine cortex and were absent in those cases because the tumors were in the white matter of the occipital lobe. Dr. W. G. Spiller[4] has reported a case of well pronounced visual hallucinatory disturbance in which autopsy examination showed a tumor in the lower part of the right occipital lobe.

According to Swanzy the chief diagnostic symptom of a cortical lesion is "vision nulle"; the patient, though he may be aware of the loss of half his visual field, is as unconscious of any scotoma as a healthy person is of his blind spot.

W. Harris[5] reported a case of hemianopsia where the patient was aware of no defect of vision whatever, but in which the lesion was in the posterior limb of the internal capsule.

In that some individuals are either vain or extremely sensitive as to their personal appearance we may find a solution, but it seems hardly probable that they could maintain the complete and constant ignorance shown by Babinski's cases. The occurrence of psychical phenomena such as emotionalism, changes of personality, hysteria, and functional motor amnesia with hemiplegia need hardly be mentioned.

Anosognosia has as yet not been observed in men but only in women of whom the mental complex is essentially different from that of men and among whom functional disturbances are most common; however, this does not preclude the possibility of an occurrence in men.

It appears that in anosognosia we are dealing with the condition described by Janet as a dissociation of personality, or if I may be pardoned for quoting, it is that state "in which the actor has learned his part and possibly to the suppression of his own personality."

I wish to express my thanks to Drs. Mills, Lloyd, Spiller, and Burr for material used in the preparation of this paper, and to Dr. Spiller for many kind suggestions.

BIBLIOGRAPHY.

1. Babinski: Societe de Neurologie, 11 Juin, 1914.
2. Barat: *Journal de Psychologie*, pp. 163-170, Mars-Avr., 1912.
3. Claude and Rose: First Internat. Cong. of Psychist. Neurol., etc. Amsterdam 2-7, 1907.
4. Spiller, W. G.: Section on Nervous and Mental Diseases of the Am. Med. Association, Atlantic Citl, June, 1909.
5. Harris, W.: *Brain*, 1897.

3103 WALNUT STREET

THE X-RAY AS AN IDEAL LOCAL REMEDY FOR ECZEMA.

BY I. WILLIS BALLARD, M.D.,

OPELIKA, ALA.

THE application of the *x*-ray in the local treatment of eczema is an exhibition of sound judgment in applying to the relief of a definite pathological condition a means that directly combats the pathology present.

The *x*-ray is a form of motion similar to light but with many millions more vibrations per second than light. It is itself invisible and does not produce heat, light, or sound, and its presence is shown only by the fluorescence it induces in certain chemical substances.

Practically a tissue is opaque to the *x*-ray as its specific gravity is high, and the greater the atomic weight of a tissue the greater its resistance to the passage of the *x*-ray. As far as our present knowledge goes, these rays travel in perfectly straight lines and upon striking a solid substance through which they cannot pass, they become absorbed. The specific effect of the *x*-ray is exerted at that point at which it is absorbed.

A difference in their capacity for absorption is shown by the different tissues of the body. The degree of penetration of the *x*-ray, that is, the point at which its absorption takes place, depends upon the atomic weight of the tissue, the vacuum of the tube employed, the nearness of the tube to the surface exposed, and the voltage output of the exciting medium. The effects of an individual treatment are dependent upon these factors plus the length of time of the exposure.

Microorganisms present in tissues at that point at which the rays are absorbed are destroyed. The exposure of seed to its influence prevents their germination. Eggs exposed to the *x*-ray will not hatch. Frequent exposure of the ovaries or testes will produce temporary sterility. Upon the surface of the living body, repeated mild exposures at short intervals will produce an erythema followed by a branny desquamation. If the exposures are continued for several weeks there will occur a bronzing of the skin similar to the ordinary tanning from sunburn.

The explanation of the entire range of *x*-ray therapy is summed up in a few words: Repeated exposures to the *x*-ray impair the vitality of all cells situated at that point at which the rays are absorbed. Rapidly growing cells are many times more susceptible to the rays than are normal tissue cells.

The substance of a soft tissue standing prominently above the surrounding surface is perceptibly contracted by exposure to the *x*-ray. Following a series of exposures it has been observed by all having experience with the rays that the skin becomes atrophied, the hair follicles and sweat glands inactive. Pain is relieved to a remarkable extent in inflammatory and malignant conditions, conditions which emphasize the presence of rapidly growing and immature cells.

These facts point strongly to one effect in particular of the *x*-ray, that is, the contraction of cell protoplasm. Such contraction of cell protoplasm can have but one result, viz., local anemia, the sequence of the contraction of vascular tissue. The *x*-ray burn, the most difficult of all burns to heal, is the result of a profound anemia of the involved tissues. The effects of the *x*-ray are inhibition, inhibition of the circulatory and consequently of the nutritive processes.

In eczema is found one of the richest of its several fields of therapeutic employment. Not alone is it here an ideal treatment in that it is cleanly, painless, certain, and reasonably rapid, but it is an example of one of the most sane instances of the application of a remedial measure with a certain definite non-varying action to the relief of a certain definite pathological condition.

Eczema is distinctly a protean disease, protean not alone in its clinical manifestations but also in its causes. Yet all eczemas have certain characteristics in common. Thus all are inflammation of skin, acute, subacute, or chronic. All involve the epidermis, retemucosa or corium, and all appear as an erythema, macules, papules, vesicles, pustules, or fissures.

Its pathology is always a curcumscribed or diffuse hyperemia with dilatation of blood-vessels, congestion, and edema, together with cell infiltration and proliferation. It is exactly such pathology that requires a form of local treatment that will inhibit the congestion and dilatation of blood-vessels, slow down the rapid cell metamorphosis, and soothe by long exposure to a soft tube or stimulate by short exposure to a hard tube. The technique is not difficult. The satisfaction is very great.

FARMERS NATIONAL BANK BUILDING.

RESULTS OF WASSERMANN AND LUETIN TESTS AT THE NAVAL PRISON, PORTSMOUTH, N. H.

BY G. E. THOMAS,

PAST ASSISTANT SURGEON, U. S. NAVY.

DURING the past year a Wassermann test has been made on every prisoner admitted to this prison. Of the 280 tested, 59 gave a history of a primary lesion and in these cases in addition to the Wassermann, a luetin test was done. The results are tabulated as follows:

TABLE I—RESULTS OF BLOOD TESTS IN ALL CASES ADMITTED TO PRISON.

	Cases	WASSERMANN	
		Negative	Positive
Negative history of sore	221	221	0
Positive history of sore	59	49	10
Total	280	270	10

It is interesting to note in Table I that not one of the 221 cases denying the primary lesion gave a positive Wassermann, evidence complimentary to the frankness of the naval prisoner and the specific value of the Wassermann.

Table II—Cases Giving History of Venereal Sore

	Cases	Wassermann		Luetin	
		Neg.	Pos.	Neg.	Pos.
Positive syphilitic history, received treatment	20	15	5	15	5
Negative syphilitic history, received no treatment	39	32	7	36	3

Table III—Comparative Table of 14 Cases Giving a Positive Wassermann or Luetin

Case	Syp. Hist.	Wassermann	Luetin	Primary Lesion	
1	Positive	Plus	Plus		1911
2	Positive	Plus	Plus		1911
3	Positive	Plus-minus	Plus		1906
4	Positive	Minus	Plus		1906
5	Positive	Minus	Plus		1909
6	Positive	Plus	Minus		1912
7	Positive	Plus	Minus		1912
8	Negative	Plus	Minus	June	1913
9	Negative	Plus	Minus	April	1914
10	Negative	Plus	Minus	January	1914
11	Negative	Plus	Plus	January	1913
12	Negative	Plus	Plus		1908
13	Negative	Plus	Plus	February	1913
14	Negative	Plus	Minus	August	1913

Of the 59 cases giving a history of a primary sore twenty received specific treatment and most of this treatment was given while serving in the Navy. Thirty-five per cent. of this number gave a positive reaction to the specific tests.

In Table III it will be seen that of the eight positive luetins all but two gave a positive Wassermann, both of them being late cases. To draw positive conclusions from such a small number as above reported is impossible, but from our little experience, it appears that the luetin test, when positive is strong evidence of the specific nature of the condition. In late cases it is little if any more constant than the Wassermann.

United States Naval Prison,
Portsmouth, N. H.

THE SIGNIFICANCE OF ACIDS AND ALKALIES IN THE ORGANIC WORLD.

By D. S. Kanstoroom, M.D.,
Washington, D. C.

Innumerable acids are found in the structure of all vegetable matter. They are ever present as constituents of the cellular and intercellular elements of the vegetable organisms. We find them in the blade of the lowly grass of the meadow and in the leaf of the mighty oak. We find them in the berries growing on the bushes and in the fruit growing on trees. The golden orange is composed of myriads of tiny sacs laden with an acid fluid. The grape is a receptacle containing an acid juice. Acids are omnipresent in every cell of the vegetable world. What is the significance of this wide distribution of acids?

The animal organism on the other hand is characterized by a persistent alkalinity of its cells and cell media. The normal animal cell must have an alkaline cell medium. The blood, the lymph, and internal secretions must all be alkaline in reaction. Why is alkalinity obligatory to the animal cell?

In order to answer the above pertinent questions, I have envolved a theory, which explains the functions of the acids and alkalies in the organic world.

In the scheme of life the animal, vegetable, and inorganic worlds are inseparably linked together in one solid chain, forged by the process of evolution. In the cycle of life the vegetable organism absorbs elements from the inorganic world and builds up compounds necessary for its existence. The animal organism living off the vegetable world uses these compounds for its sustenance. The difference between the animal and the vegetable cell is mainly due to their difference in the scale of evolution. The animal cell standing at the pinacle of organic evolution is endowed with functions lacking in the vegetable cell. While the animal and vegetable cells possess in common the main functions characteristic of life, the animal cell possess one function lacking in the vegetable cell, which really forms the line of demarcation between the animal and vegetable world. That function is the power to initiate, conduct, and store nervous impulses. The animal organism is endowed with a specialized system, composed of cells and fibers, which has the power to initiate, conduct and store nervous energy or the energy of life. The vegetable organism is not possessed of such a specialized system and hence is dependent on the outside for its life energy. It must derive its energy of life from the soil, sun, and atmosphere.

The energy of life of the vegetable world, the nervous energy of the animal world, light, heat, electricity, radiant energy, are all forms of Cosmic Energy. Organic electricity or the energy manifested in the process of life may be rightly compared with inorganic electricity, as both spring from the same fount. The nerve cell, nerve ganglia, and nerve fiber of the animal organism may be rightly compared to an electric battery and electric wire. Only the living electric battery has the power to replenish its energy automatically by proper nourishment.

The vegetable organism, not having a specialized nervous system and depending on the outside for its life energy, must have a medium, which will easily permit outside forms of energy to influence its life. This medium must take the place of the fibers of the nervous system of the animal organism and must be a good conductor electricity. Such a medium the vegetable organism does possess and it is the omnipresent acid in the vegetable structure, which plays the role of the conductor of electricity of life to the vegetable organism. The acids play the role of fluid nerve fibers, or fluid electric wires.

The inorganic electric battery and wires in order to work properly must be properly insulated. The same is true of the living electric batteries and wires of the animal organism. Perfect nerve insulation is the keystone to normal animal cell action and which is attained only through perfect alkalinity of the animal cell media. The function of perfect animal cell alkalinity is to bring about perfect nerve insulation.

Alkalinity of its cell medium is an imperative necessity to the animal organism. How does it obtain and maintain that alkalinity? Physiology teaches us that acids stimulate alkalinity in the animal cell, and as the food of the animal organism is rich in acids, we see the important double role the organic acids play in the scheme of life.

Résumé.—1. By means of the acid the solar and terestial electricity influences the life and growth of the vegetable organism.

2. Vegetable matter being the natural food of the animal organism through the acid contained in it, promotes the alkalinity of the animal cell and cell medium.

3. Alkalinity of the animal cell medium is important on account of the insulation it affords the nervous system.

1847 Fourteenth Street N. W.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, March 27, 1915.

THE ABDERHALDEN REACTION.

WHEN Abderhalden published his work on the defensive ferments his ideas there elaborated were held to be the most important contribution to the subject of immunity since the appearance of Ehrlich's side chain theory. His work supplied a long-felt want to the medical profession, that is, an easily understood and generally applicable theory whereby many of the mysteries of the infectious diseases might readily be explained. Moreover, the theory had a very practical bearing in diagnosis. The theory was strengthened when, a little later, Vaughan published his work on protein split products. However, as the use of the method became more general, inconsistencies appeared in the reports. These were first explained as due to errors in technique, but persisted even after the workers had acquired expertness. Later many reliable investigators expressed themselves as being very doubtful of the specificity of the reaction and one, after over two years' work, came to the conclusion that every individual at some time in his or her existence, produces in the blood serum a ferment which is capable of digesting placental albumin.

Bronfenbrenner, however, got such excellent results in his tests that he was convinced of the specificity of the reaction and so set about to investigate its nature in an endeavor to reconcile some of the conflicting evidence which had collected. He has not yet completed his work, but has made several observations (*Jour. Exper. Med.* 1915, XXI, 221) which are of the highest importance. Several attempts to show that immune sera contained specific ferments capable of digesting the substrate were without result although, of course, the methods applied were exceedingly crude when compared with the ninhydrin test following dialysis. It then became apparent that the dialysable substances were derived from the serum itself. If the Abderhalden reaction is carried out in the ice-box the result is always negative, that is, digestion does not occur. He, therefore, allowed pregnant serum to stand over placenta in the ice-box. The placental tissue was then removed by centrifugation, and the test carried out on the serum alone at 37° gave a positive result. It became evident that the reaction may be divided into two phases. The first, consisting of a reaction between the immune serum and the substrate, took place at 0°. The second phase, the physical expression of the result of the first phase, *i. e.* digestion, or better autodigestion of the serum, proceeded only at incubator temperature. In this respect the reaction is analogous to other immunity reactions, agglutination, precipitation, etc. Moreover, this digestion occurred in serum which had been treated with kaolin, barium sulphate and starch. These substances are all recognized absorbing agents, and the conclusion was reached that the placental tissue removed by absorption from the immune serum the substance which exercises an antitryptic action. Following the removal of this inhibition, autodigestion takes place due to the presence of a normal ferment. That blood serum may contain a non-specific protease has been definitely proven, and in this connection especially by Jobling, Eggstein, and Petersen (*loc. cit.*, p. 239).

In view of the above findings it becomes necessary to find an explanation of the apparent specificity which the reaction shows, at least occasionally. Bronfenbrenner found that when placental tissue is exposed to pregnant serum it undergoes definite changes, aside from the increased resistance to digestion due to the absorption of antiferment; it becomes "sensitized" so to speak. This "sensitized" placental albumin, when freed from pregnant serum by washing, is later able to bring about a positive Abderhalden reaction in normal serum or even a succession of normal sera. Heated serum retains the property of sensitizing placenta. Bronfenbrenner is still convinced of the specificity of the reaction though it must be admitted that the question is as yet undecided. The fundamental points of Abderhalden's theory therefore seem not to be substantiated. Specific ferments are not developed in the process of immunization and the reaction is quite analogous to other immunity reactions. The practical value of the test, however, may not be seriously affected. It will be remembered that the Wassermann reaction was proven not to be truly specific and yet it retains its great value in diagnosis. So the Abderhalden test, if properly controlled in the light of these observations, may still be of value along certain lines. One of the first things that is necessary is a determination of the conditions in which a protease appears in the human blood. The part that the complement plays in the reaction is another question concerning which there is marked difference of opinion. The results of further researches in this field will be awaited with much interest.

INBREEDING AND CROSSBREEDING.

IT is almost universally agreed that consanguineous marriages are undesirable. Between immediate ancestor and offspring, or between immediate collaterals—brothers and sisters—marriages do violence to all notions of society and are forbidden in civilized communities. When, however, the degree of relationship is more removed than these, the question of the undesirability of union is a much mooted one. Some States forbid the marriage of cousins, of uncle and niece, or of aunt and nephew. Marriage between cousins is especially hazardous when the objectionable familial defect is dominant in both the

contracting parties. A union between them will but emphasize the familial defect—by pure mathematical multiplication. If, however, the familial defect is recessive, latent, or hidden in both of them, union will yet have a tendency to make them the dominant characteristics in their offspring. Indeed, there are often unexpected outcroppings of these defects in generations removed from the immediate contracting ancestors, probably the result of some novel conditions. Inbreeding results in a homogeneity of offspring in which there rises to the surfaces all recessive qualities.

Inbreeding manifests recessive qualities, but never creates them. In a lesser degree the inbreeding for generations within the race or tribe is objectionable, because it is productive of a homogeneity of race in which there rises to the surface all the racial defects. The best results are obtained from mixtures between the tribes and between the families, but not *in* them. On the other hand a stock or family which, in spite of inbreeding, produces a very high quality of offspring must be a stock of great vigor and with defects. In such case marriage of near relations, as cousins, can only emphasize dominant characteristics. Intermarriage is then a question purely of racial and familial integrity—the integrity of the stock. Where the stock is particularly of high quality it is not unlikely that consanguineous marriages are desirable. The difficulty, however, of determining the dominant character of a stock and its freedom from positive defect is at once apparent. If such marriages must be entered into the stock history should be as carefully gone into for evidence of defect as the personal history and physical condition of those contemplating marriage. In districts where consanguineous marriages are common a rather large percentage of defects, such as deafmutism, mental deficiencies, sterility, etc., have been found. There is no one uniformly bad trait, however, for the trait is dependent upon the specific recessive character of the germ plasm of the common ancester.

The usual breeding, crossbreeding, is desirable because there is a tendency in such unions to hide inherent defects under the more dominant characters of the contracting parties, and to have them ultimately destroyed by the reaction, so to say, of the crossing. Unfortunately the tendency is not to exterminate them immediately, and very often these latent recessive characteristics become patent under unfavorable, but yet unknown conditions. On the other hand, to be desirable the crossbreeding must not be between too widely separated races. It should, of course, be within the species—within the race. It is best between the tribes or subraces; and if it must be within the tribe it should be between as widely separated branches as possible. Breeding between widely differing races, however, is productive of mongrel and undesirable types.

ANTISEPTIC PASTES IN THE TREATMENT OF WOUNDS.

A NEW form of strategy in the treatment or rather the preventing of the septic dangers associated with the wounds of war, is suggested by Sir W. Watson Cheyne in his recent Hunterian Oration (*Lancet*, February 27, 1915). The plan of campaign is not simply the application of antiseptics to the wound, according to the Listerian method, as soon after the infliction of the wound as possible, but is an effort to apply the antiseptic agent in such manner that it will have a continuous action on the bacterial invaders, and by its diffusion will follow these into the surrounding tissues and destroy them or inhibit their growth. Ordinary syringing of the wound is not sufficient to disinfect it; the antiseptic must be introduced into the wound and left there to diffuse into the tissues. Watson Cheyne and his associates devised a method of estimating the diffusibility of antiseptics in blood clot and their action on the bacteria contained in it. The antiseptics were incorporated in a base consisting of six parts of lanoline to one part of white wax. The antiseptic base to be tested was placed on the bottom of a Petri dish underneath a slab of nutrient agar, the upper surface of which was painted with an emulsion of bacteria. The diffusibility and activity of the bacteria were judged by observing the growth or absence of growth of the bacteria planted.

The above method of investigation revealed a number of interesting and a few surprising facts. Thus, with a paste containing 6 per cent. iodine no diffusion of this substance occurred, for the bacterial growth was not inhibited on the agar directly over the iodine paste. This finding apparently contradicts the current conception of iodine as an efficient antiseptic and particularly valuable for its penetrating power. Similarly, alcohol had but slight diffusibility. A 10 per cent. paste of the double cyanide of mercury and zinc had no action; oil of turpentine did not inhibit the growth of bacteria; colloidal mercury, selenium, copper, and silver were also devoid of inhibitory effects. In contrast to the above a 20 per cent. paste of carbolic acid or of tricresol diffused rapidly into the nutrient medium and checked the growth of bacteria before they had formed colonies visible under the low power of the microscope.

Similar results were obtained in a series of experiments in which blood clot was used instead of agar. The findings were also confirmed in animal experiments. The method has produced happy results in the few instances in which it was tried in human beings. The present war provides an unusual opportuity of testing this method of antisepsis on a large scale. It is suggested that tricresol or carbolic acid pastes should be tried first in the strength of 20 per cent. The important object is to find some means of averting sepsis in a wound for some hours, or at most a day or two, until thorough disinfection can be carried out.

THE WIDAL TEST AND ANTITYPHOID INOCULATION.

IN civil practice the Widal reaction is very largely employed in the diagnosis of typhoid fever, yet it is not an infallible indication. When it is negative, the presence of the disease is not excluded, and the reaction may eventually become positive. It is sometimes positive in bacilli carriers, and has appeared

paradoxically in other infections, the subjects of which may have been carriers. The behavior of the reaction in inoculated soldiers and nurses is therefore a matter of great interest. The dead cultures produce, or are believed to produce, antibodies identical with those which form in the disease; so that a Widal positive ought to occur. As a matter of fact, this is what occurs in practically all who have been inoculated. In the *Berliner klinische Wochenschrift* for January 18, Dünner reports a series of over 100 Widal tests in inoculated troops. In the few exceptions in which the Widal was negative it is extremely probable that the soldiers had been inoculated against cholera. Seven inoculated soldiers developed clinical or bacteriological typhoid fever, this number naturally including the carriers; while in one or two of the seven soldiers there was some uncertainty as to whether the inoculation had not been against cholera. Of 97 other inoculated soldiers with the same exposure, not one developed tphoid.

A New Bacterial Disease of Rodents.

Three years ago Dr. G. W. McCoy met with a disease of California ground squirrels which somewhat closely simulated plague, and reported it in Public Health Bulletin No. 48, 1911. Later Drs. McCoy and Chas. W. Chapin published further observations in the *Journal of Infectious Diseases*, 1912, p. 61, and described the *Bacterium tularense*, which they isolated and proved to be the cause of this disease. Dr. William B. Wherry and Dr. B. H. Lamb subsequently discovered two cases of human infection with *B. tularense* in Cincinnati. The first of the cases was reporated in detail in the *Journal of Infectious Diseases*, 1914, p. 331. Another case not yet reported has come under the care of Dr. Robert Sattler. Dr. Wherry, writing in the U. S. Public Health Reports of Dec. 18, 1914, says that the source of infection was found to be wild rabbits from Indiana and Kentucky, and he and Dr. Lamb are inclined to conclude that this rodent disease is widely distributed and that extensive epizootics among wild rabbits occur frequently. It should be said that both cases of infection of the human subject were in the form of conjunctivitis, but it seems possible that other types of infection in man may occur. It is also suggested that rodent fleas may possibly transmit the disease to man, as McCoy and Chapin, in searching for a natural mode of transmission among ground squirrels, twice successfully transmitted the disease by means of squirrel fleas.

War Psychoses.

Much has been written on this subject since the outbreak of the present war, but after all nothing has been unearthed in this relation which has not always obtained in connection with warfare and other catastrophes, like earthquakes. At a recent (January 2) session of the military medical evenings of the Fifth Army (*Muenchener medizinische Wochenschrift*, February 9), Singer spoke as follows: "Nearly all soldiers who 'become insane' in wartime are already mentally ill when enrolled. Psycopaths, hystericals—even manic-depressives—get into the ranks. Certain elements work on the psyche at a later date—enthusiasm, rumors, spy fear, etc. The hardships of war cause in psychopathic personalities depressions, neurasthenia, amentia, acute hallucinations. The prognosis here is good. With certain predisposition, shell fire will call forth a fright psychosis. Abstinence from alcohol exerts a favorable influence over war psychoses, and conversely small doses of alcohol in warfare act in excess and cause delirium, convulsions, etc." In discussion Weyert emphasized the fact that in warfare neurasthenics suffer especially from homesickness. Contrariwise the effects of war on some of the subjects have been pronounced salutary by the same author. Von Hecker believes that warfare accelerates the course of paresis.

News of the Week.

For Belgian Relief.—Statistics concerning the relief afforded the inhabitants of Belgium up to the end of the month of January give the total of contributions of money and provisions as follows: From the United States, $6,200,000; from Great Britain, $920,000; from New Zealand, $500,000; from Australia, $500,000; from Canada, $800,000, and from Spain and Italy, $20,000 each. Belgian banks and mercantile institutions have contributed $10,000,000, in addition to $3,000,000 to the commission's transportation fund.

In a recent address Mr. Lindon W. Bates, Vice-Chairman of the Commission for Relief in Belgium, said: "The Commission was granted by the German Government not only the sole right to transport food into Belgium but given the active sympathy and aid of the German military authorities. Despite reports to the contrary, not one pound of food sent in has been appropriated. The treasury of the Commission draws from the generous heart of the world. Into this treasury has been put also all that the enveloped Belgian race could gather of the remnants of their shattered fortunes. It registers their struggle for survival. It represents their very all —the all that the better-to-do can give to help themselves and unreservedly to help their fellow beings in the ranks already destitute and starving. This is our main purchasing fund—the greatest and the sacredest of all the donations." The commission has landed sixty shiploads of food, worth $21,592,995, in Belgium. The contributions made by American doctors, through the Committee of American Physicians for the Aid of the Belgian Profession, are placed in the hands of the Commission for distribution among the members of the Belgian profession and their families. Mr. Brand Whitlock, American Minister at Brussels, is credited with saying on March 17, that the food then in Belgium would not last longer than April 1.

The Treasurer of the Committee of American Physicians for the Aid of the Belgium Profession, reports the following contributions received during the week ending March 20, 1915:

Sebastian Co. Medical Society, Fort Smith, Ark.	$15.00
Dr. F. W. Johnson, Boston, Mass.	25.00
Dr. E. P. Quain, Bismarck, N. Dak.	10.00
Dr. N. O. Ramstad, Bismarck, N. Dak.	10.00
Dr. Haven Emerson, New York, N. Y.	15.00
Dr. Edward B. Angell, Rochester, N. Y.	10.00
Dr. T. A. Davis, Chicago, Ill.	25.00
New Bedford Medical Society, New Bedford, Mass.	50.00
Dr. Newton B. Waller, New York, N. Y.	5.00
Dr. Charles G. Eicher, McKees Rocks, Pa.	5.00
Dr. William H. Perry, Sterling, Ill.	5.00
Dr. Frederick A. Stafford, Flandreau, S. Dak.	10.00
Dr. George L. Johnson, Newfolden, Minn.	1.00
Salt Lake Co. Med. Soc., Salt Lake City, Utah.	100.50
Dr. and Mrs. Clem D. McCoy, Kenton, Ohio.	50.00
Dr. E. A. Weiss, Pittsburgh, Pa.	10.00
Dr. Hubert Claytor, Hopkins, S. C.	5.00
Dr. C. E. Goodman, Virginia, Minn.	5.00
Tri-County Medical Society, Copiah-Lincoln-Pike Counties, Miss.	10.00
Dr. Harold W. Dana, Boston, Mass.	25.00
Receipts for the week ending March 20.	$391.50

Previously reported receipts		4,830.00
Total receipts		$5,221.50
Previously reported disbursements.		
1,625 standard boxes of food at $2.20.	$3,575.00	
542 standard boxes of food at $2.30....	1,246.60	
Disbursements for the week ending Mar. 20,		
173 standard boxes of food at $2.30.....	397.90	
Total disbursements		5,219.50
Balance		$2.00

To Fight Serbian Typhus.—The American Red Cross is sending a sanitary commission to Serbia to aid in repressing the epidemics of typhus, typhoid, and cholera which threaten to work greater disaster in that afflicted country than all the armed forces of Austria. At the head of the commission will be Dr. Richard P. Strong of Harvard, and the further personnel is as follows: Chief sanitary inspector, Dr. Thomas W. Jackson of Philadelphia; bacteriologist, Dr. Hans Zinsser, professor of bacteriology, Columbia University; clinical laboratory assistant, Dr. Andrew W. Sellards of Harvard Medical School; clinical assistant, Dr. George C. Shattuck of Harvard Medical School; assistant sanitary inspector, Dr. Francis B. Grinnell of Harvard Medical School. Dr. Nicolle, the French expert on typhus, has been invited to cooperate with the commission, and Dr. George Converse of San Francisco and Messrs. Della Pena and Standifer, assistant sanitary inspectors in the Canal Zone, will also join it.

Red Cross Unit for Russia.—Dr. H. H. Snively of Columbus, Ohio, and ten graduate nurses sailed on the steamship *Bergensfjord* last week en route for Russia to join the American Red Cross workers in the army of that country.

A Harvard Unit for the American Ambulance Hospital.—On March 17 a number of graduates of the Harvard Medical School sailed on the *Canopic* to enter the service of the American Ambulance Hospital at Neuilly, Paris. The head of the unit is Dr. Harvey Cushing, assisted by Dr. Robert B. Greenough, and other members are Drs. Robert B. Osgood, Beth Vincent, Walter M. Boothby, Fred A. Coller, Elliot C. Cutler, Philip D. Wilson, Marius N. Smith-Peterson, Lyman G. Barton, Jr., Orville F. Rogers, Jr., and George Benet.

The Death Rate in New York City during the week ending March 13 was 1 1/3 points lower than during the corresponding week of 1914. Comparison of the figures for the week with those of the corresponding week of 1914 reveals a considerably decreased mortality for nearly all causes of death with the exception of the degenerative diseases, organic heart and kidney diseases, in which the death rate was approximately the same. The death rate so far this year, namely 13.95, is considerably below that of the corresponding period in 1914, there being a decrease in the rate of 1.5 points.

The Passing of the Coroners.—The Senate Cities Committee of the New York Legislature voted last week to report favorably the bill of Senator Cromwell of Richmond abolishing the offices of Coroners of New York county and providing for the appointment by the Mayor of a chief medical examiner to perform their duties. The medical examiner is empowered to name his assistants and such other employees as he desires.

A New Post-Graduate School in Chicago.—Announcement is made of the opening in the near future of a new institution to be known as the Graduate School of Medicine of Chicago. Post-graduate instruction will be free to physicians resident in Cook county, while outside physician students will pay fees in support of the school. Affiliated with the school will be a number of hospitals and laboratories of Chicago.

Penalties for Failure to Report Births.—Some time ago the Health Department of this city undertook a survey to discover how completely physicians and midwives were reporting the births occurring in their practice. The survey showed that nearly all the births were being promptly reported as required by law. This result, however, has been attained only through constant vigilance on the part of the Registrar and not without prompt legal action by the department for the imposition of penalties on those disobeying the law. The following summary of penalties imposed since September 1, 1914, shows what may be expected by those who are delinquent in this important matter: 36 physicians paid $10 each, it being their first offence; 12 midwives paid from $1 to $5 each, it being their first offence; 6 physicians paid from $10 to $100 each, it being their second offence; 1 person paid a penalty of $10 for submitting a false affidavit in connection with a birth certificate.

The Panama Exposition Hospital.—The Exposition Hospital is a working exhibit. It is under the able management of Dr. R. M. Woodward of the United States Public Health Service. On his staff are: Dr. L. O. Weldon, Dr. Walter M. Jones, Dr. H. H. Dignan, Dr. Charles N. Leach. There are nurses, orderlies, motor ambulances, and emergency stations at various parts of the grounds to render immediate first aid service. The Emergency Hospital and equipment reflect great credit on Surgeon-General Blue of the Public Health Service of the United States.—*Pacific Medical Journal.*

Proposed Change in the New York State Hospital Commission.—The Senate Finance Committee of the New York Legislature last week reported out the Sage bill intended to substitute a single-headed hospital department for the present Hospital Commission. The bill would legislate out of office Andrew D. Morgan or Ilion, Dr. James V. May of Binghamton, and Fred H. Parker of Esopus, the present Commissioners.

Dr. Herbert M. Smith of Columbia has been elected sanitary physician for Richland County, S. C., by the executive committee of the State Board of Health.

Dr. John N. Hurty, Indiana State Health Commissioner, was the guest of honor at a dinner in Indianapolis on March 13, to commemorate his twentieth year of consecutive service for the State.

The Society of American Bacteriologists.—The Council of this society has decided to hold a special summer meeting in San Francisco, August 3, 4, and 5, 1915. The chairman of the local committee of arrangements is Dr. Wilfred H. Manwaring, Stanford University, California.

The Texas Surgical Society was organized at Houston on March 6 at a meeting of a number of the prominent surgeons of the State. Dr. James E. Thompson of Galveston was elected president, and Dr. W. Burton Thorning of Houston, secretary. The new society announced as one of the objects of its establishment the abolition of the practice of fee-splitting.

The Rockefeller Sanitary Commission was succeeded on January 1 by the International Health Commission of the Rockefeller Foundation, and on April 1 the headquarters of the Commission will be removed from Washington to 61 Broadway, New York City.

Charitable Bequests.—By the will of the late Elizabeth S. Scattergood of Philadelphia the sum of $5,000 is bequeathed to the Hahnemann Hospital for the endowment of a bed in the children's ward as a memorial to Mary Phipps Scattergood, a daughter, and also the sum of $5,000 to endow two beds in the same institution in the women's medical and men's medical wards respectively. The residue of the estate is bequeathed to the Hospital for Diseases of the Lungs at Chestnut Hill.

Mortality in the German Army Medical Corps.—A report from Copenhagen on March 15 says the German casualty lists show that 119 German surgeons have been killed, 235 wounded, and 95 are missing.

Deaths of Foreign Medical Men.—Sir George Turner died at Colyton, Devon, of leprosy on March 12. He was born in Melbourne in 1851 and contracted the disease which killed him while studying it in South Africa. He was knighted in recognition of this work.

Dr. Theodor Grödel of Bad Nauheim died early in February. He was a medical officer of renown in the German Army.

Dr. Karel Pawlik, the well-known obstetrician and gynecologist of Prague, is dead. He was born in 1849.

Professor Stanislas von Prowazek, who was the successor of Schaudinn at the Institut für Schiffs- und Tropenkrankheiten in Hamburg, died on March 17 of typhus fever.

Medical Society Elections.—The Johnson County (Mo.) Medical Society, at its annual meeting held in Tecumseh on January 21, elected the following officers: *President*, Dr. G. W. Townley; *Vice-President*, Dr. D. M. Judkins; *Secretary-Treasurer*, Dr. T. E. Fairall; *Censor*, Dr. C. W. Davies; *Delegate to State Convention*, Dr. M. Stewart; *Alternate*, Dr. C. D. Barnes.

The Piscataquis (Me.) Medical Association, at its annual meeting, held January 21, elected the following officers: *President*, Dr. C. C. Hall; *Vice-President*, Dr. Edgar T. Flint; *Secretary and Treasurer*, Dr. G. E. Dore, Guilford; *Member Legislative Committee*, Dr. E. D. Merrill; *Delegate to the Maine Medical Association*, Dr. R. H. Marsh, Guilford.

The Fort Madison (Iowa) Medical Society, at its annual meeting on January 25, elected the following officers: *President*, Dr. W. C. Kasten; *Vice-President*, Dr. M. L. Bishoff; *Secretary and Treasurer*, Dr. W. H. Newlon.

The Aberdeen District (S. D.) Medical Society, at a meeting held January 26, elected the following officers: *President*, Dr. H. I. King, Aberdeen; *Vice-President*, Dr. Percy Peabody, Webster; *Secretary*, Dr. Carson Murdy, Aberdeen; *Treasurer*, Dr. J. E. Bruner, Frederick.

The Westerly (R. I.) Physicians' Association, at the annual meeting held February 4, elected the following officers: *President*, Dr. F. I. Payne; *Vice-President*, Dr. Charles P. Crandall; *Secretary*, Dr. W. A. Hillard; *Treasurer*, Dr. John Champlin; *Censor*, Dr. Samuel C. Webster.

The San Francisco County (Cal.) Medical Society has elected the following officers for the year 1915: *President*, Dr. H. C. Moffit; *First Vice-President*, Dr. George E. Ebright; *Second Vice-President*, Dr. Cullen F. Welty; *Secretary-Treasurer*, Dr. Rene Bine; *Librarian*, Dr. Leo Eloesser.

The Philadelphia Medico-Legal Society, at its meeting held January 26, elected the following officers: *President*, Dr. Ernest W. Kelsey; *First Vice-President*, Dr. James H. White; *Second Vice-President*, Dr. John Strobel; *Secretary*, Dr. Charles W. Schauble; *Treasurer*, Dr. G. M. D. Peltz; *Censors*, Drs. G. C. Yeager, John H. Dripps, and Lambert Ott.

The North Idaho District Medical Society, at a meeting held in Lewiston, January 20, elected the following officers: *President*, Dr. E. G. Braddock; *Secretary-Treasurer*, Dr. A. M. Frank. The next meeting will be held in Moscow.

Obituary Notes.—Dr. Waldron Burritt Vanderpoel of New York, a graduate of the College of Physicians and Surgeons, New York, in 1879, and a member of the American Medical Association, the New York State and County Medical Societies, the New York Academy of Medicine, the Association of the Alumni of the College of Physicians and Surgeons, and the Alumni of Bellevue Hospital, died at his home in Summit, N. J., on March 9, aged 60 years.

Dr. Stuart Harry Benton of Brooklyn, N. Y., a graduate of the University of Buffalo, Medical Department, in 1870, and a member of the Associated Physicians of Long Island, died at his home on March 2, aged 69 years.

Dr. Albert Simon Newcomb of Schenectady, N. Y., a graduate of the Albany Medical College in 1860, formerly medical examiner for the New York Post Office, died at his home on March 1, aged 74 years.

Dr. Henry Lambard Nichols of Sacramento, Cal., a graduate of the Medical School of Maine, Portland, in 1845, Secretary of State for California from 1867 to 1871, formerly president of the county board of supervisors and city health officer, and a member of the American Medical Association, the Medical Society of the State of California, and the Sacramento County Medical Society, died at his home, after a brief illness, on February 16, aged 91 years.

Dr. Walter Montgomery James of Philadelphia, a graduate of the Homeopathic Medical College of Pennsylvania, Philadelphia, in 1869, founder and for many years editor of the *Homeopathic Physicians' Journal*, and a member of the Germantown Homeopathic Club, died at his home, after a long illness, on February 24, aged 65 years.

Dr. Henry Cutler Baldwin of Boston, Mass., a graduate of the Harvard University Medical School in 1884, chief of the neurological department of the Massachusetts General Hospital, and a member of the American Medical Association, the Massachusetts Medical Society, the American Neurological Association, the Boston Society of Psychiatry and Neurology, the Alumni Associations of the Harvard Medical School and the Massachusetts General Hospital, and the American Medico-Psychological Association, died at the Massachusetts General Hospital, after a brief illness, on February 25, aged 55 years.

Dr. Gustavus Judson Nelson of China, Me., a graduate of the Medical School of Maine, Portland, in 1877, for fifteen years superintendent of the public schools in China and for thirteen years secretary of the Board of Health, died at his home on February 19, aged 69 years.

Dr. Fred W. A. Brown of Oshkosh, Wis., a graduate of McGill University, Medical Faculty, Montreal, in 1892, and a member of the American Medical Association, the State Medical Society of Wisconsin, and the Winnebago County Medical Society, died suddenly, from neuralgia of the heart, on February 20, aged 52 years.

Dr. Charles A. Scribner of Louisville, Ky., a graduate of the Kentucky University, Medical Department, Louisville, in 1906, died at the home of his brother in Bloomington, Ill., after a lingering illness, on February 19, aged 56 years.

Dr. P. N. Richardson of Jacksonville, Fla., a graduate of the Meharry Medical College, Nashville, Tenn., in 1892, died at his home after a short illness on February 18.

Dr. Frank Dean Bain of Kenton, O., a graduate of the Bellevue Hospital Medical College, New York, in 1872, a surgeon of the Second Regiment, Ohio Volunteer Infantry, during the Spanish-American War, and a member of the American Medical Association, the Ohio State Medical Association, and the Hardin County Medical Society, died at his home, from neuralgia of the heart, on February 22.

Dr. Paul E. Trees of Maxwell, Ind., a graduate of the Medical College of Indiana, Indianapolis, in 1905, and a member of the Indiana State Medical Association and the Hancock County Medical Society, being in his second term as president of the latter, died at his home, following an operation performed a week before, on February 19, aged 35 years.

Dr. James S. Herron of Pensacola, Fla., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1861, a surgeon in the Confederate Army during the Civil War, and acting assistant surgeon in the United States Army during the yellow fever epidemics of 1873 and 1875, died at his home on February 20, aged 79 years.

Dr. A. Judson Collar of Yreka, Cal., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1884, died at the home of his son in Alameda, Cal., on February 21.

Dr. Thomas C. Doolin of Ash Grove, Mo., a graduate of the Washington University Medical School, St. Louis, in 1911, died suddenly on February 20, as the result of an accident.

Dr. E. L. Tillinghast of Mooringsport, La., a graduate of the Tulane University of Louisiana, School of Medicine, New Orleans, in 1861, died at his home after a brief illness on February 23.

Dr. Colbert Hanchett Cannon of Eugene, Ore., a graduate of the National Medical University, Chicago, in 1905, and of the Hering Medical College, Chicago, in 1906, and a member of the Oregon State Medical Association and the Medical Society of Lane County, died at his home after a long illness on February 18, aged 68 years.

Dr. Thomas Byrne of West Hoboken, N. J., a graduate of the New York University Medical College, in 1888, and surgeon to the North Hudson County Hospital, Weehawken, died at his home on March 2.

Dr. Henry Hersch Hart of San Francisco, Cal., a graduate of the Cooper Medical College, San Francisco, in 1879, and a member of the Medical Society of the State of California and the San Francisco Medical Society, died suddenly, while assisting at an operation on March 5, aged 61 years.

Dr. Curtiss Clark Hoyt of Bridgeport, Conn., a graduate of the College of Physicians and Surgeons, New York, in 1887, formerly city physician of Bridgeport and president of the Board of Health, and a member of the Connecticut State and Fairfield County Medical Societies, died suddenly at his home on February 5, aged 62 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

THE HUNTERIAN ORATION—WOUNDS IN WAR—FROST-BITE—UNILATERAL OVARIAN TUMORS—OBITUARY.

London, March 5, 1915.

Sir Watson Cheyne delivered the Hunterian oration this year and remarked that he had not read the sixty-seven others that have been given since the death of John Hunter nearly 122 years ago, but while considering what in his scheme of life and disease might be interesting at the present time, he fell in with the wishes of some colleagues to devote his lecture to the treatment of wounds in war. And many will be glad that he did so for he has treated it in a most interesting way. Speaking of it as a puzzle which is still unsolved though it has "exercised the minds of medical men since the world began" (perhaps he means the medical world), he says Hunter was always trying to solve puzzles and weaving theories to explain them or modifying or adding to them as became necessary. So, too, he said the attempt to solve this one is a matter of common gratitude to those brave men who risk their lives for us.

Hunter had some slight experience of war and wrote an article on gunshot wounds—still interesting. His service for a time in the army seems to have been the foundation of his great museum for he brought home some 200 specimens he had collected.

Though he realizes the difficulties of thoroughly disinfecting wounds in war, he is far from regarding them with the hopelessness of some surgeons. We have no doubts on the matter in civil practice—why then despair about it in war? He formed a small committee with Fleet-Surgeon Bassett-Smith and Mr. Arthur Edmunds to investigate and acknowledges the help they received from the Director-General (Sir A. May) and the staff of the Royal Naval Hospital. They set to work to find out if it were possible to introduce an antiseptic into a wound soon after infliction which would remain there, diffuse in the blood and tissues, and inhibit the growth of the bacteria until such time as the wound could be thoroughly disinfected. To work out this problem they had to estimate the diffusibility of antiseptics in blood-clot and their action on bacteria in or on that clot and they soon found that it varied with the medium conveying them, the antiseptics used, and their strength, with other circumstances. The results differ with the base combined with the antiseptic, and he showed a series of 20 per cent. carbolic pastes in five bases. The greatest diffusion was obtained with pure lanoline—the least with paraffin, this latter being only half that of the former. But the lanoline combination is too diffluent and too pungent. The addition of wax lessens the activity about a quarter and does not irritate the skin, so a little more can be used to get the full effect. Some interesting experiments had been made to imitate the conditions of a wound inflicted in war. Cresol ointment and other pastes were used to test the vitality of bacteria and spores. It was found that a number of substances can penetrate agar or blood-clot to a depth of $\frac{1}{4}$ or $\frac{1}{2}$ inch and still retain sufficient antiseptic power to prevent the growth of organisms and this penetration takes less than three hours. On man a single dressing with such pastes prevented infection for four days. In

another case of a very dirty wound, much tissue bordering on the wound being actually dead, no suppuration, no sign of infection was seen for ten days. From the facts stated it would appear that an advance may be arrested in the treatment of wounds in war, for the danger which arises from the delay in getting the wounded from the front to the base is so far removed. The arrest of sepsis will be the more certain, the sooner the antiseptic can be applied. The problem therefore is to apply it the earliest moment after the infliction of the wound and that must be at the front.

A paper on frost-bite or the condition so-called seems a timeous production just now and the Royal Society of Medicine has been favored with one by Mr. R. H. Jocelyn Swan, based on 100 cases among soldiers returned from the front. Of these eighty have been treated by him in the Herbert Hospital, the common causal condition—and indeed the only one—being standing a long time with wet feet. He found two distinct groups of cases. In one (*a*) there was only slight destruction of tissue, but there were marked subjective symptoms; in the other (*b*) gangrene was present in various degrees, from a superficial skin lesion to one in which there was a destruction of one or more of the toes. In group (*a*) cutaneous anesthesia and analgesia would often be observed—shown in the loss of the joint sense and the sense of vibration; sometimes an opposite condition prevailed—seen in a patchy hyperesthesia with pain on movement or pressure. Mr. Swan did not look upon the state as a neurosis which some considered it to be. He rather regarded it as the consequence of some change in the processes of nutrition, as to the more serious cases gangrene was often worst in the great toe and the majority of cases were examples of dry gangrene. It was usually one foot that was affected though there seemed to be no reason for this—it certainly had no relation to points of pressure. Mr. Swan suggested that the condition might, perhaps, be attributed to the combination of wet feet with want of exercise in the dependent position, rather than to intensity of cold. Canadian officers had told him that true frostbite seemed different. He suggested as a preventive wearing a thin covering of mackintosh over the sock, but inside the puttee; also the free use of vaseline or whale oil to protect against the wet. The boots, too, ought to be large enough to allow free movement of the toes.

Dr. Galloway considered the affection a thrombotic phleboarteritis obliterans. Dr. Fearnsides described three varieties of cases: (1) Those with objective signs and perhaps some sensory loss, but without any subjective symptoms; (2) an intermediate class with slight alteration of sensation—a blunting, not amounting to anesthesia, with a band of hyperesthesia at the upper border of the affected area; (3) those in which sensation was lost over an area of the stocking type, which in ordinary civil practice would be ascribed to neurosis.

He said that in the Balkan war they had agreed that the objective changes were vascular in origin.

In the Section of Gynecology the question came forward of the nature of the unilateral soft, solid, ovarian tumors. Dr. Herbert Spencer read notes of a case which had ruptured in a patient aged 27. It measured $5\frac{3}{4}$ by $3\frac{1}{2}$ inches and there was about a gallon of blood-stained fluid in the peritoneum. Removal was successful, the patient continued well for seven years and had two children. Microscopically the tumor seemed a medullary sarcoma, but notwithstanding Dr. Spencer admitted it might possibly be non-malignant. Dr. Lockyer was not satisfied that it was a carcinoma but perhaps an endothelioma which was much less malignant in the ovary. Dr. Spencer did not agree with Pfannenstiel that in all cases of unilateral cancer and endothelioma of the ovary both ovaries should be removed for he had seen cases remain well for seven years after unilateral ovariotomy. Dr. Henry Briggs had catalogued them for years as solid adenomata awaiting further advance in histology. Dr. Spencer replying to other remarks said he would treat a similar case in the same way; it was difficult to cut satisfactory sections at the time of operation; he had not decided whether the tumor was malignant or not; the other ovary looked normal and was not removed; if it subsequently grew he would remove it but with very little hope that malignant disease of both ovaries would not recur.

Lt.-Col. Malcolm Albert Ker, I.M.S., has died in London at the age of 53. He qualified at Edinburgh in 1884 and joined the Indian (Bengal) Medical Service in 1887. He took part in the Hazara Expedition 1888-91, the Second Maranzai Expedition 1891, the Waziristan 1894-5, the Tirah campaign 1897, and the Waziristan campaign 1901-2.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 11, 1915.

1. Superstition and the Doctor. Owen Wister.
2. Observations Upon Ten Cases of Diverticulum of the Bladder. H. Cabot.
3. Splenic Anemia with Report of a Case. P. E. Truesdale.
4. The Study of Disturbances of the Stomach. H. F. Hewes.
5. A Study of the Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. A Critical Analysis of 134 Microscopically-Proven Cases. T. W. Harmer.

1. Superstition and the Doctor.—Owen Wister shows how from the time of the pyramids to the present the human race has not changed much. Superstition is still rife. In 1911 in the United States $77,000,000 were paid to get-rich-quick fakirs, subsequently convicted of fraudulent use of the mails. The ℞ at the beginning of the doctor's prescription is the crumbled remnant of the symbol of Jupiter: astrology still keeps the tip of her finger in the pie. In the beginning of civilization the physician was combined in the same person with the statesman and the priest; in the course of evolution he separated himself from the priest and became secular. Then, in curious analogy to the archaic specialization of gods presiding over various portions of the human frame, the doctor in his turn has specialized, so that to-day he is divided into many fragments, one for the eyes, another for the ears and throat, and so on; yet, sigularly enough, as civilization grows increasingly complex, the doctor's path is leading him again toward a union or cooperation with the Church and the State. Once more, as of old, his duty to the community tends to come before his duty to the individual, because one is beginning to see the community's health as a unit.

2. Diverticulum of the Bladder.—H. Cabot emphasizes the following important points in the operative treatment of this condition: Free bladder incisions carried down to the orifice of the sac in the more accessible cases, the opening of the ureter and the placing of a guide bougie in all cases in which the diverticulum is in the neighborhood of a ureteral orifice; and finally, the constant drainage of the ureter for some days in those cases in which resection has been necessary or the flap operation of Young has been possible.

3. **Splenic Anemia.**—P. E. Truesdale reports a case of this condition in a woman aged 21 years. There was a close clinical analogy to gastric ulcer. The patient had a persistent disturbance of digestion, hunger between meals, intermittent attacks of hematemesis, and epigastric tenderness. During one attack examination revealed an elevation of temperature and pulse associated with a distention and a marked tenderness over the upper abdomen. These symptoms were explained by the presence in the upper surface of the spleen of a large area that had become necrotic. Later, when an enlargement of the spleen was detected, a blood examination was made and revealed the diagnosis. Splenic anemia occurs in young adults as a rule. It begins insidiously and at first progresses slowly. The first indication may be hematemesis, epistaxis, and a melena, slight or so severe as to be almost fatal. Senator states that the blood examination reveals a fairly uniform condition. There are a diminution in the red blood cells, a low percentage of hemoglobin, and a leucopenia. In the later stages of the disease ascites appears, preceded or not by cirrhosis of the liver. It is this association of enlarged spleen, ascites, and cirrhosis of the liver to which Banti has drawn special attention. He pointed out that in cases of this association the enlargement of the spleen, sometimes at least, was the precursor of the other two conditions and probably was the original focus.

New York Medical Journal.

March 13, 1915.

1. The Treatment of Mental Affections as They Are Met With in General Practice. F. X. Dercum.
2. Syphilis in Its Modern Treatment. Victor C. Pedersen.
3. Diaphragmatic Hernia of Stomach and Omentum. M. S Kakels and S. Basch.
4. *X*-Ray Prevention of Nasal Diseases. S. Tousey.
5. Extensive Creeping Eruption. J. L. Kirby-Smith.
6. How Tetanus May Be Aborted. McW. B. E. Sutton.
7. Passive Congestion of the Liver Simulating Abdominal Tumor. C. R. Robins.
8. A Protective Shield for the Holmes Nasopharyngoscope. Max Lubman.
9. The Nature and Pathogenesis of Epilepsy. L. Pierce Clark.

1. **Treatment of Mental Affections in General Practice.**—F. X. Dercum notes that among the most common mental disturbances met with by the practitioner is the delirium accompanying the ordinary infectious diseases. The treatment follows three indications: First, the elimination of the poison; secondly, the maintenance of the strength, and, thirdly, the allaying of the excitement as far as may be necessary. The means at one's command consist in the free administration of water, the free use of baths, the free administration of nourishment, and the administration, when necessary, of cardiac stimulants and sedatives. Sometimes sponge bathing in bed is applicable; the most efficient form of bath is the prolonged warm immersion bath, at 90 or 95° F. If the delirium is violent and persistent one may give a hypodermic injection of scopolamine, 1/200 grain and morphine 1/16 grain. In alcoholic delirium a full dose of paraldehyde is effective. Stuporous states supervening upon the infectious diseases demand a similar treatment. One should avoid the mistakes of confounding a delirium with a mania. A delirium has a duration of a few hours or a few days, while a mania has a duration of several months. The excitement of mania differs from that of delirium in the absence of confusion and hallucinations, and in the fact that delusions form no feature of the picture. In practice melancholia is the only member of the manic depressive group which can be successfully treated outside of institutions, and this only when the melancholia is mild in degree and under special circumstances. In the extramural treatment of melancholia the best results are secured by full rest methods, such as are carried out in the treatment of neurasthenia. The tendency to suicide must be specially guarded against. Cases of dementia præcox are, as a rule, of such a character as to necessitate asylum commitment, nor are paranoia and paranoid cases generally suitable for extramural treatment. One is rarely justified in committing to the asylum cases of psychasthenia. Many of these patients present evidences of hypothyroidism. The author emphasizes the importance of simple physiological procedures such as rest and full feeding.

4. **X-Ray Prevention of Nasal Diseases.**—S. Tousey states that it often happens that a set of permanent teeth develop in a jaw which is not nearly wide enough to accommodate them. The most obvious result is that the permanent teeth are variously malpositioned and delayed in eruption. But of more vital consequence is the interference with the development of the superior maxillary bones. The hard palate has a narrower base than natural and is pushed up into an unnaturally high arch. This presses up the nasal septum, then in a cartilaginous or formative state, and crumples it into spurs and deviations, which in later life are bony and cause a train of symptoms and operations. The young child has mouth breathing not entirely relieved by surgical treatment of the adenoids and hypertrophied tonsils. *X*-ray examination at the age of five or six years enables one accurately to measure the size of the oncoming permanent teeth and to determine beforehand the curvature of the jaw required for their natural development. With this information it is an easy matter for the dentist to regulate the temporary teeth to such a curve as is required to guide the natural development of the permanent teeth. The calculation of the proper curve is part of the work of the radiographer, but the orthodontist will take into consideration, not only the size that he is told the permanent teeth are to have, but also the type of face in which these teeth are to develop. The *X*-ray measurement will frequently show that nature has provided the proper curve, and this knowledge may save the child from harmful efforts at regulating the temporary teeth when they do not require it.

Journal of the American Medical Association.

March 13, 1915.

1. Past and Present Health Methods in Louisiana. O Dowling.
2. A Study of Reversal of the Circulation in the Lower Extremity. J. Shelton Horsley and R. H. Whitehead
3. The Tools of Our Trade. The Indications Presented by Mental Disease and the Means at Our Command for Meeting Them. F. X. Dercum.
4. The Employment of Boric Acid in Diseases of the Skin. D. W. Montgomery.
5. The Significance of Tubercle Bacilli in the Urine. Lawrason Brown.
6. Familial Syphilitic Infection in General Paresis. R. H. Haskell.
7. A Review of the Principal Methods Used to Standardize Bacterins (Bacterial Vaccines), with Special Reference to the Use of the Hemocytometer. C. P. Pitch
8. Report of Thirty-Four Cases of Artificial Pneumothorax. L. S. Mace.
9. The Reflex Effects of Alcohol on the Circulation. C. C Lieb.
10. The Treatment of Psoriasis with Vaccines. E. D. Holland

2. **Reversal of the Circulation.**—J. Shelton Horsley and R. H. Whitehead have performed on dogs the operation of reversing the circulation in the lower extremity — that is, attaching the cardiac end of the artery to the distal end of the vein, and the distal end of the artery to the cardiac end of the vein, which operation had been reported as possible in dogs by Carrel and Guthrie, but which had been considered as of little actual value by Halsted and Vaughan. The authors conclude that the operation has no legitimate place in clinical surgery except possibly in Raynaud's disease, if one accepts this solely as a spasm of the arterioles. It seems unjustifiable in gangrene due to

organic disease of the artery, in which the operation of ligating the femoral vein seems more suitable.

4. Boric Acid in Skin Diseases.—D. W. Montgomery makes an extensive use of boric acid, as an adjuvant to other remedies, in diseases of the skin. Besides its mild and non-irritant antiseptic property, it is soothing. The diseases in which it is useful are acne, in which soaking with a hot boric acid solution is often of great benefit; pyrogenic infection of the skin; furuncles, especially styes; impetigo contagiosa, in which a boric acid and starch poultice is one of the best applications for the first treatment, the crust being removed with an ointment composed of 15 parts of ammoniated mercurial ointment, and 30 parts of zinc oxide ointment; perleche (streptococcic infection of the corners of the mouth); runarounds; and various discharging diseases of the skin.

5. Tubercle Bacilli in the Urine.—Lawrason Brown concludes that no staining method differentiates absolutely tubercle bacilli from smegma bacilli, but cultural methods may aid greatly. Animal inoculation, with the production of tuberculosis, is an absolute test, but of value only when positive. The same care about the collection of urine should be exercised as about the collection of sputum. Tubercle bacilli can be excreted through apparently normal kidneys. Radiography may aid in the quick detection of caseous foci when the urine contains no tubercle bacilli. Spontaneous healing is often fictitious. The final, and often the best, treatment for renal tuberculosis on diagnosis, is nephrectomy followed by the use of tuberculin. Tubercle bacilli occur in the urine in genital tuberculosis usually late in the disease and are consequently of little aid in the diagnosis of the condition.

8. Artificial Pneumothorax.—L. S. Mace points out that the most favorable cases for lung compression are those in which cavity formation has not occurred but which, under the usual methods of treatment, are progressing toward softening. In some advanced cases with large cavities, much relief of distressing symptoms may be obtained by compressing the more advanced lung. Removal of fluid with temporary compression by nitrogen gas or air is the most rapid and effective method of treating large pleuritic effusions. Hemorrhage is usually promptly and permanently relieved by artificial pneumothorax. Compression of one lung does not induce increased activity of the disease on the opposite side.

9. Alcohol and the Circulation.—C. C. Lieb concludes from his experiments on cats that even though whisky may raise for a few moments the systolic blood pressure, and thus act as an apparent circulatory stimulant, it can not be regarded as a true circulatory stimulant, inasmuch as it decreases cardiac efficiency, raises disproportionately the diastolic pressure, and lowers the pulse pressure.

The Lancet.

February 27, 1915.

1. The Treatment of Wounds in War. Sir W. Watson Cheyne.
2. Colloidal Iodine Associated with Serum Treatment in Tetanus. Dr. Auregan.
3. On Headache Associated with Intranasal Disorders. L. Hemington Pegler, M.D.

1. Treatment of Wounds in War.—By Sir W. Watson Cheyne. (See page 526.)

2. Colloidal Iodine and Serum Treatment in Tetanus.—Dr. Auregan, who has been in charge of a supplementary hospital of 1,100 beds at Lannion, France, has had the opportunity of treating twenty-three cases of tetanus from September to December, 1914. In addition to the serum treatment he has employed local applications of a 20 per cent. oleaginous suspension of electrochemical colloidal iodine, together with intramuscular injections of the latter. Of his patients 68.8 per cent. survived, a proportion apparently higher than is ordinarily obtained.

3. Headache Associated with Intranasal Disorders.—L. Hemington Pegler classifies the nasal causative agents of headache into three groups, as follows: A simple or noninflammatory, a chronic inflammatory, and a group in which inflammation or congestion is present more or less actively. In the first group, headache is due to pressure somewhere within the nasal chambers of one more or less rigid body such as bone or cartilage against another, the richly innervated mucous membrane—often the cushion of the septum—intervening. This agent or force, while the most direct in operation, derives much importance through being often unapparent until a careful search by expert means has been made. A good instance is exemplified by a septal spine projecting against a middle or inferior turbinate far back and concealed by an anterior deflection of the triangular cartilage; such a condition may not be discoverable till after systematic packing of the nasal passages with gauze moistened in suprarenal extract and cocaine solution, or the adoption of some other mode of application of these agents, or even indeed until the anterior obstruction has been resected. The second or chronic inflammatory group includes intranasal changes that imply contact between less resisting surfaces, the morbid effects of any resulting pressure being presumably subsidiary to others of superior energy, some further explanation being desirable to account fully for headache. Simple degeneration of the turbinal or septal mucous membrane entailing softening of bone in more advanced middle turbinal disease, polypi, or polypoid degeneration, and possibly an allied condition affecting the walls or lining of one or more of the accessory sinuses, include the commoner types of pathological changes in this group. The third or inflammatory group embodies those cases in which headache is associated with rhinitis in its various forms, moist and dry, pain always tending to subside as congestion passes off. This group is typified in acute coryza, especially if it implicates the accessory cavities; sometimes also after nasal operations before reaction has subsided. Under obstructive conditions headache accompanies spasmodic rhinorrhea, either perennial or seasonal (hay fever).

British Medical Journal.

February 27, 1915.

1. The Treatment of Malignant Disease of the Skin. J. H. Sequeira.
2. A Report of the Work Carried Out at the Radium Institute, London, in 1914. A. E. Hayward Pinch.
3. Report on the Radium Treatment at the Royal Infirmary, Edinburgh, During the Year 1914. D. Turner.
4. The Phthisical Soldier at the Front. Sir Thomas Oliver.
5. The Treatment of Epidemic Cerebrospinal Meningitis. G. C. Low.

1. Treatment of Malignant Disease of the Skin.—J. H. Sequeira discusses the following measures at one's disposal for the treatment of malignant disease of the skin: excision, radiotherapy, radium-therapy, diathermy, and freezing by carbon-dioxide snow. Excision is the method of choice in squamous-celled cancer. With a view to preventing recurrence after excision it is well to give the patient a series of sittings under *x*-rays. In 1901 the author brought to the notice of the profession the treatment of rodent ulcer by *x*-rays. In order to overcome the difficulty in the treatment of the infiltrated edge of the rodent ulcer the author advocates preliminary curettage of the edge of the growth, followed by a series of *x*-ray exposures. If the case is going to do well by the *x*-ray treatment the improvement is shown at once. Small rodent ulcers, and especially those which are freely movable, react remarkably well

to radium. The use of diathermy requires further experience. In quite superficial cases of malignant disease of the skin good results have been obtained with carbon-dioxide snow. As regards the severe cases of cutaneous cancer great benefit may be derived from *x*-ray treatment, but care must be taken not to overdo this, for it is quite possible to stimulate an indolent process to one of greater activity by excessive *x*-ray treatment. In the treatment of Paget's disease the author advises an early removal of the breast and glands, should these be involved. In mycosis fungoides the *x*-rays act like a charm, but one cannot say that they are curative. In the multiple idiopathic sarcoma of Kaposi the author has seen the complete disappearance of the infiltration and growth under the *x*-rays.

5. **A New Treatment of Epidemic Meningitis.**—G. C. Low calls attention to the good results obtained by Shircore and Ross in the treatment of this disease by soamin in British East Africa. Epidemics of this disease are not uncommon in tropical Africa. Out of a total number of 143 cases observed by Shircore and Ross 127 were treated with the above drug. Excluding thirty-seven cases that died within sixty hours after admission to the hospital, which cases were regarded as malignant and beyond any known line of treatment, in the remaining ninety cases recovery occurred in 62.22 per cent. The serum treatment was found to be disappointing. Soamin is said to be a purer preparation than atoxyl. Intramuscular injections seem to act quite well.

Berliner klinische Wochenschrift

February 9, 1915.

Prophylaxis of Tetanus.—Ritter's article is in the nature of a proposition. He refers to Kreuter's statement that of every seven deaths among the wounded four have been due to tetanus. Otherwise stated 240 Bavarian soldiers have died from this malady since the war began. This number evidently includes only the milder wounded who could be sent home for treatment. The author personally has seen but one case at the western frontier, due to a grazing shot on the leg. The disease set in when the wound had nearly healed, and the patient was going about, and carried him off in two days, death having been due to spasm of the diaphragm. All the most successful remedies had been tested, save amputation, and authorities agree that this no longer has any status. Klapp believes that magnesium sulphate ought to save 80 per cent. of those attacked, but recent figures do not show fulfilment of this claim. The author saw three successive recoveries in tetanus of moderate severity at the eastern frontier as a result of repeated lumbar puncture. Serum he uses to ease his conscience, but, like others, he cannot see undoubted benefit. The recourse to magnesium sulphate seems to be a proof of its untrustworthy character, although an intensive technique seems to show at times that it can save life unaided. The question of prevention now seems to be of much greater importance than that of cure. The author, as well as Czerny, has seen clean-cut cases of death from tetanus after seasonable prophylactic injections, and hence does not feel like depending on it alone. The most important prophylactic treatment is the local management of the wound. In certain suitable cases the wounds should be excised, but it is doubtless an error to suture them. Bier's hyperemia treatment for the production of arterial stasis may be tested in threatening wounds, but we have no knowledge of the relationship of stasis to tetanus infection. Another point remains for consideration—the use of strong antiseptics, as the cautery, boiling oil, etc., as in former centuries. The author believes that balsam of Peru would do as well here as any other antiseptic.

Significance of Cholesterin for the Origin of Giant-Cell Tumors of the Tendons and Joints.—Weil refers at the outset to the relationship of these tumors to the sarcomata. At present the so-called sarcoma of the tendon sheath shows some analogies with granulomata. Each kind of tumor may contain giant cells. A third type of tumor has recently been invoked in this connection, viz., the so-called xanthoma cells, and a so-called sarcoma xanthoids has been described. This xanthoma cell is known to contain cholesterin, and is believed to have phagocytic properties. The author insists that xanthoma cells occur with a fair degree of constancy in the tumors of the tendon sheaths. This fact need not surprise for the same cells have been found exceptionally in various tumors and granulomata and even in old abscesses. The author now points out analogies between his giant cell tumors of tendon sheaths, xanthosarcomata and the ordinary xanthoma tuberosum multiples. In the ordinary manifestations of xanthoma of the skin (simple and tuberous) there is present a cholesterinemia. The author's task was therefore to discover if the normal cholesterin of the blood is increased in the tendon sheath tumors. He selected a case of xanthosarcoma of the ankle, which had been removed without recurrence; and found a large increase of cholesterin in the patient's blood. He concludes that whenever cholesterinemia develops some manifestation of xanthoma is likely to develop.

Münchener medizinische Wochenschrift.

February 8, 1915.

A Surgical Curiosity.—Under this title Sehrt describes the following case: A woman, aged 58, was kicked in the abdomen by a cow. The injury was followed at once by violent pains *in loco* and vomiting. This happened early in the forenoon. In the evening, the symptoms having persisted, operation was proposed and refused. The symptoms slowly increased in severity and on the next morning the vomitus was of the coffee-ground type. The author did not see the patient until 36 hours after injury. The abdomen was greatly swollen and sensitive to pressure. There was percussion dulness in the ileocecal region extending to the navel. No flatus was passing. Laparotomy was now performed by pararectal incision. Upon opening the peritoneal cavity, there spurted forth under high pressure pus tinged with bile and of an insipid odor. The serosa of the intestine was strongly injected and covered with purulent-fibrinous exudate. The right rectus muscle was then divided transversely, the whole intestine brought forward and examined. About 70 cm. above the valve, an intestinal tear was found. It measured 2 cm. and involved the mesentery. The mucosa at the tear was coerted. A marked hemorrhage into the mesentery caused great thickening of the latter. Abscesses had formed at the site of the tear, loops of the intestine constituting the walls. The first act was to suture the wound. The loops of intestine were then cleansed of fibrinous clots. No less than 8 collections of pus found between the coils were evacuated. One of these contained a very large specimen of ascaris lumbricoides. The abdominal cavity was now cleansed dry, the intestinal coils were replaced and the abdominal wound completely closed, but a loop of intestine well above the site of the lesion was sutured to the abdominal wall in case it should be necessary to reopen the wound. The lower angle of the latter was left open just enough to admit the pressure of a strip of gauze from the intestinal wound to the surface. On the next day the patient's condition had improved beyond expectation. However, during the ensuing day

vomiting returned and persisted three days. Then both feces and gas came easy and patient began to recover in earnest. On the 8th-12th postoperative days patient had fever which subsided when blood and pus were evacuated. The author believes that under the use of tamponade the patient would have died.

Injuries from Aviators' Darts.—Grützner calculates the force of impact of these projectiles. The latter must be launched at an altitude of 1,500-2,000 meters. Leaving out of account for the time the question of an initial velocity, by assuming that the darts are merely dropped overboard, mathematical calculations show that the force of impact of a dart upon the earth's surface would on an average be 3.128 kilogram-meters. An infantry bullet weighing 10 gms. dropped under the same conditions would have about one-half of this impact force. If, however, it was shot with a muzzle velocity of 885 m., the impact would be 8.55 kgm. The dart cannot penetrate bone, but has a way of traversing the soft parts in a peculiar fashion. It is able to pierce bloodvessels, penetrate several of the important viscera at once, and set up peritonitis. If the entrance wound is overlooked diagnosis may be very difficult. A case is given of an artillerist who while serving his gun chanced to look upwards for the presence of aeroplanes. At this instant he was struck in the left shoulder, and disabled. Borne at once to the field hospital a small entrance wound was found at the anterior border of the clavicle. An exit wound was found on the inner aspect of the left thigh. Death occurred from collapse within 24 hours. So much mischief was done by this dart that the autopsy report is a long one. There was extravasation of blood in the peritoneal and left pleural cavities; the mesentery was pierced in four places and the small intestine in twelve, and the dart had also passed through the stomach.

Deutsche medizinische Wochenschrift.

January 21, 1915.

War Nutrition and Sick Diet.—Strauss states that one sees no evidence of famine in Germany. The lower classes, ordinarily the first to suffer, are, thanks to the paternalism of the Government, better fed than in peace times. This status, however, is somewhat offset by the ignorance or indifference of the socalled educated classes who pay no attention to the cessation of imports. The German physicians alone can bring the truth home to these people. A separate aspect of the problem is feeding the sick and the invalid. Those who have become more or less incapacitated by corpulence, as far as this is due to overnutrition, now have patriotic motives for correcting their habits, and should at once go upon an antifat regimen. The diabetic on the other hand has a large fat requirement, and fatty foods—butter, cream, oil, eggs, etc.—are expensive. He can get his fat, however, from fatty cheese, nuts, and olive oil. Protein he can obtain economically from smoked or dry salted meat or fish. When a meatless diet is to be carried out white cheese must be a standby. Legumes are now expensive, and the socalled "cutlets" made from them must be prepared instead from grits, etc. Milk, especially skim-milk, yeast, gelatin, may also be used as proteins or protein sparers. Sufferers from gastroenteric disturbances are usually forced to depend on eggs, butter, cream, fine starches, etc. Milk, butter, and eggs, even if sold at high prices, will be available, but cream may be prohibitive in price. To replace it white cheese and even rubbed up Swiss cheese may be used. Sugar is abundant. Wheat flour now contains 30 per cent. rye meal, and the finer grades of flour and starchy foods will perhaps not be available. Flour for baking (zwieback, rolls, etc.) will contain 50 per cent. of potato meal or other admixture. The Germans seem quite unaware of the possibilities of Indian meal, for Strauss mentions it only as a possible substitute for wheat flour. It is of course not well suited for the invalid. An ideal cheap dish for dyspeptics would appear to be potato flour cooked in skimmilk. Rice is getting short as well as cocoa and chocolate which means a hardship for the invalid. The healthy should deny themselves a little so that the invalid may have his proper nourishment. This may mean a more rapid return to complete health.

Treatment of Tetanus.—Wienert, in charge of a division of a reserve hospital gives at the request of his superiors his experience with tetanus from the outbreak of the war up to January 1. Forty-six cases of the disease have been treated in his wards. The first six cases were treated intensively in every way save that magnesium sulphate is not mentioned. All the cases were lost, whereupon additions in treatment were instituted. These included a hot bath of 25 minutes' duration every morning, and magnesium sulphate was used when convulsions were specially violent or otherwise menacing. This appears to have followed an earlier plan of injecting the solution at intervals or in a single initial dose. In the second series of 40 cases the author lost but 16, or in other words the mortality was 40 per cent. Even if we include the series of six consecutive deaths the death rate was but 48 per cent. It is difficult to assign the credit for this relatively good result. In the second series of 40 cases but one subcutaneous injection of serum was given (100 units). Morphine and especially chloral was given freely at night. Unusual pains were taken throughout with wound disinfection. In the first six (fatal) cases the author intimates that the amputations and resections made for prophylaxis may have aggravated the course of the disease, as also perhaps prolonged chloroform narcoses. In the second series he amputated only for cause and used no chloroform.

Deutsche medizinische Wochenschrift.

January 28, 1915.

Experiences with Furuncle Metastases.—Riedel concludes a serial article on this subject as follows: No furuncle, even the most insignificant, can be pronounced free from sequelæ. There are more deaths from furuncle metastases than from purulent thrombophlebitis. The young suffer more from bone metastases than do adults beyond the age of 25 years. Metastases in the soft parts of adults often cause disturbances which are more severe than the bone metastases of adolescents. Soft part metastases occur by preference in the brain, muscles, and especially in the perirenal tissue. At times the kidneys themselves are directly involved. The superficially seated boil can be treated at first conservatively by removing the most externally situated layers and then applying an ointment dressing. If the filtrate now rapidly appears a crucial incision should be made under ether spray, which must render the tissues bloodless or nearly so, deep seated furuncles should at once be incised, carbuncles at once extirpated.

Oxaluria.—Pincussohn believes that oxaluria represents a special anomaly of metabolism even if it sometimes complicates other conditions. Cantani has described the clinical expression of this metabolic disturbance as follows: loss of weight, muscular weakness and psychic depression. Rosenberg adds to this complex the frequent coexistence of intestinal disturbances. Nevertheless the disturbance of katabolism is not such as should damage the organism. The real menace is

calculus formation and this demands the correction of the metabolism. The treatment is two fold, dietetic and solvent. All vegetables which contain the preformed acid must be avoided. In addition any excessive acidity of the stomach should be corrected, and in fact attempts should be made to cause hypoacidity, which checks the absorption of oxalates. To keep the oxalates of the urine in solution one gives magnesia and phosphates. A mineral spring cure may be made to fill this indication. The only shortcoming of this general management is that it does not directly antagonize the endogenous formation of oxalic acid. We can cut off the external supply or diminish its absorption and we can render the combined oxalates soluble. But we have no causal therapy to oppose to the katabolic production of these bodies.

Pseudoappendicitis in a Physician.—Schatz describes a case of this condition which he studied on his own person. He was awakened with colicky pain unrelieved by a stool. Soon tympanites developed with pain and tenderness especially remarked in the appendix region, in which a circumscribed swelling could soon be felt. In a few hours, however, all these symptoms receded, so that in the afternoon the doctor arose and went about his business without further disturbance. Such phenomena were best explained by a temporary obstruction. He then recalled that he had eaten freely of mushrooms the day before. These perhaps had not been digested and had lodged *en masse* in the valves of Bauhini. Unfortunately, however, a study of the stools presented no evidence of any such happening. About two weeks later he went through a similar experience but on this occasion vomited. He called in colleagues who witnessed all the phenomena but had no belief in the existence of appendicitis nor of a stoppage from indigestible food. However, the next stool contained a piece of tendon, accidentally swallowed the evening before. The attack had passed off as before. The condition was somewhat obscure but there has been no recurrence since the author has eaten only digestible food and chewed it well. The author regards pseudoappendicitis or appendicolie as due at least at times to a "Bauhini spasm," which should yield to narcotics and antispasmodics. Adhesions doubtless favor such conditions although the author had never suffered from any inflammatory lesion in the bowels.

Deutsche medizinische Wochenschrift.

February 4, 1915.

German Ménus in War Time.—Schwalbe gives much interesting information and suggestions on food economies which are fairly well summed up in the bills of fare appended. For first and second breakfast he lays most stress on rye bread eaten with fruit jam or soft cheese. Meats can well be omitted at these meals. Sweetened decoctions of oatmeal or barley may be used as beverages and also to replace bread in part. The above is of course a necessity ménu, for the author allows as a rule a certain amount of wheat-and-rye bread, sausage, tea, coffee, and cocoa with milk and sugar, and a little butter. For the hearty midday meal he names a variety of soups, all of which contain potato along with legumes and scraps of meat. Wheat-flour porridge made with skim-milk is also recommended. Potatoes, cabbage, beets, turnips, green beans, etc., may be cooked together with a little fat meat. Sour krout may be cooked with pea-porridge, white beans with prunes, potatoes with dried apples or prunes; noodles eaten with fruit jam, and dumplings are good. All kinds of cereals may be cooked up in skim-milk and highly sweetened. A few of the cheaper fish, like herring, may be eaten. Meat economy is secured by days of abstinence, especially in warm weather. Fruit stews, tomatoes, etc., may be eaten as relishes. For supper rye bread and cheese forms the staple, with a little bacon or sausage after a meat-free dinner. Potatoes may be baked and eaten in the skins, with herring or bacon instead of butter. Generally speaking anything left over from dinner may be eaten for supper. Children must eat largely of cereals cooked in skim-milk. The author feels certain that while the combatants are fighting the enemy at the front the civil population will show equal patriotism and self-denial by fighting their appetites and overcoming their acquired habits of eating.

Hygiene in the Field.—Hesse calls attention to the difficulties of feeding troops at the front, especially in attempts to give them fresh meat, which is at times impossible, owing to local conditions. The use of canned meats is then advisable, and these, along with preserved vegetables, constitute the materials for a tasty meal. When there is beef to slaughter, examination of the meat cannot be vigorously conducted, and thorough cooking must be guaranteed These meats are eaten fresh; in other words, when tough, and make great demands on the teeth and digestive organs. However, the kitchen wagons, by cooking fresh meats at a very high temperature and under pressure, can overcome this drawback to some extent. These vehicles, through which it is possible to carry warm food to the front, are familiarly known as "goulash cannon." The field kitchens are provided with kettles which hold enough food for 200 persons each. In these vessels meat, potatoes, and vegetables are cooked together, while the bread ration is prepared in field bakeries. Feeding troops while on the march is naturally a different and most difficult problem. The bread, perhaps just from the oven, is packed tightly in wagons and readily becomes moldy in addition to being at times half baked. It can only be claimed thus far that the commissariat has been satisfactory. Some trouble during mobilization and rapid shifting of troops is unavoidable and hence expected. Fear of water shortage has been groundless, and although water must come largely from the supply of the conquered no evidence has been brought home that any intentional sophistication has been practised by the enemy. Dangers from water, so commonly expressed in bowel complaints, has been largely averted by drinking the abandoned native wines of the French. Cognac and other spirits have been taken only when well diluted, for fear of confusion with wood alcohol, which is somewhat used for beverage purposes (naturally with due precautions) in Belgium and France. Defecation is provided for in several ways—the regular privies of the conquered peoples (often shockingly primitive) serve for quartered troops; extemporized trenches, etc., are used in the bivouac, the contents covered with layers of earth, and, finally, the same recourse obtains in trench life, which is well adapted for defecation in extemporized latrines, dirt being always available to cover the dejecta. All these receptacles are provided with toilet paper, although as a rule any attempts at cleanliness in trench life are farcical.

Pleurisy Associated with Cholelithiasis. — G. Villa Santa believes that pleural complications of cholelithiasis are much more frequent than is generally realized. In the majority of cases of hepatic colic it is possible to detect pleural changes, chiefly on the right side, sometimes on the left side, and sometimes bilaterally. These changes consist as a rule of a dry pleurisy at the base of the lung. In violent, repeated, or protracted cases of cholelithiasis, complicated with angiocholitis, hepatitis or perihepatitis, there may result a scrofibrinous pleurisy. The cause of the pleural complications seems to be the transmission of inflammatory products by way of the lymphatics.—*Rivista Critica di Clinica Medica.*

Insurance Medicine.

The Relation of the Medical Profession to Accident Insurance.—In this age of high pressure living the protection of incomes against their possible loss or curtailment through illness or accident becomes a necessary part of the system. Dr. W. Edward Magruder, Baltimore, Md., states that the growth of short-term insurance in all of its forms has been the direct result of the needs of the times and its economic aspect cannot fail to be appreciated by anyone who gives the matter consideration.

Personal accident and health insurance, like that of insurance for life, has assumed two general forms —the industrial, which supplies the needs of the wage-earner who pays for it by the month or week, and the commercial or ordinary, which protects the business or professional man, who pays his premiums once, twice, or four times a year. This form of policy is based upon a contract or policy agreed upon by and existing between the company or insurer, on the one part, and the policyholder or insured, on the other. No medical examination is required as a condition precedent to the purchase of accident and health protection, but the statements made by the applicant in his application become part of the contract. The applicant furnishes to the insuring company an application, the statements in which he guarantees to be true, and agrees to pay the required premium provided the application is approved by the company, in return for which he receives a policy contract in which the company agrees to assume the liability as set forth in its several provisions.

The evolution of the accident and health insurance has been characterized by many circumstances which have influenced its development. Fortunately the time has come when the different companies have been forced to construct and sell extremely liberal policies, and the enactment of laws in the several states has thrown around these companies safeguards, which protect not only the public but the legitimately conducted insurance companies as well. The policies issued now are stated in simple language and their meaning is so well defined that litigation is seldom required as a means to their correct interpretation. The companies themselves realize that clean, honest business methods form the only foundation for their continued existence.

This continued improvement in administration has gradually caused an increased demand for the services of the medical profession, in the following ways: 1. Physicians may be medical examiners for accident companies. 2. They may be attending physicians to persons who are insured in accident companies. 3. They may be interested in the valuable statistics which accident companies will ultimately contribute to the field of preventive medicine. 4. Physicians may themselves be policyholders in accident companies.

The frequency with which companies will call upon examiners in future to make medical investigations and report truthfully upon the facts and circumstances relating to the disabilities of policyholders will be greatly increased. Companies are compelled not only to pay their just claims, but to be able to show in the shape of papers in their claim files, that they are fully justified in any final action they may have taken. It will be upon the reports of their medical examiners that definite decisions will be made. The importance to these companies of physicians who are capable examiners and able to correctly estimate the duration of the disability and to report it with equal fairness to the company and the claimant can scarcely be estimated.

As attending physicians of patients insured under accident and health policies, the members of the medical profession are in almost daily contact with the accident insurance business. Each policyholder is compelled to furnish one or more statements from his family physician upon blanks furnished by the insurance company, and when indemnity is demanded, the final action of the company is taken and payment made upon the facts furnished by the attending physician as well as those from the company's agent, the claimant, etc. In these cases, sometimes the role of the attending physician is not a pleasant one. He is in a position where he may have to decide whether he will answer the questions fully and frankly and perhaps incur the displeasure of his patient, who may be endeavoring to press an unjust claim, or give evasive answers and allow the company to guess at the entirely true facts, and perhaps to make a wrong guess.

The influence which can be exerted by the medical profession in educating the public to deal squarely with corporations and to be satisfied with just treatment at their hands is greater than is realized. This, coupled with the reporting of any irregular transaction, of wildcat schemes, and dishonest methods and agents when known, to the proper authorities, will do more than anything else in placing the accident insurance business in a position where justice may be done to all.

From the standpoint of preventive medicine the business of accident and health insurance is going to prove of great interest. Statistics relating to the recurrent diseases, and diseases and injuries in their relation to occupation, locality, and special conditions are being collected by these companies, and will determine with greater accuracy than has been possible previously many facts of interest to the whole field of medicine.—*Southern Medical Journal,* August, 1914.

Probable Cause for Prosecution of Examining Physician.—In 1910, a number of insurance companies doing business in Louisville, Ky., learned that they were being defrauded as the result of a conspiracy of their agents to procure insurance upon the lives of unfit persons by false applications and answers, and by the substitution of healthy persons for examination in lieu of the unfit persons named in the applications. They instituted an inquiry, in the course of which it was found that an insurance company's examining physician had apparently reported favorably on applications for insurance from persons who were not fit subjects for insurance.

The physician was summoned to appear before the grand jury, which returned an indictment against him. He was subsequently acquitted, and brought a suit against the insurance company for damages, charging that the prosecution against him was instituted by it maliciously and without probable cause. It was held that, in the circumstances, there was probable cause for a criminal prosecution against him, though it subsequently appeared that he was imposed upon by the substitution of different persons instead of those who were applying for the insurance.—Schott v. Indina Nat. Life Ins. Co., Kentucky Court of Appeals, 169 S. W., 1023.

Book Reviews.

Œdema and Nephritis. A Critical, Experimental and Clinical Study of the Physiology and Pathology of Water Absorption in the Living Organism. By Martin H. Fischer, Doctor of Medicine. Eichberg Professor of Physiology in the University of Cincinnati; second and enlarged edition. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Limited, 1915.

The first edition of this work was published in the form of two monographs, one of which dealt with edema and the other with nephritis. That on edema was the Nathan Lewis Hatfield prize essay of the College of Physicians of Philadelphia for 1909, and that on nephritis the Cartwright prize essay of the Alumni of the College of Physicians and Surgeons of Columbia University, for 1911.

The attempt is made to prove experimentally and clinically that the cause of edema resides in the tissues, which become edematous, not because water is forced into them, but because they suffer changes which induce them to suck up water. Dr. Fischer is of the opinion that this is proved by the fact that the severest grades of edema may be produced in the entire absence of local circulation, and consequently in the entire absence of any blood pressure. More specifically, edema proceeds from any condition which leads to the production of acid in the tissues. According to Fischer any colloid placed in an acid medium will swell on account of water absorption. The amount or degree of edema, will depend upon the nature of the acid, as well as the degree of concentration. The rôle of other agencies besides an increased acid content in the development of edema is discussed, but the whole gist of the argument lies in the assertion that the cause of edema resides in the tissues and that acid in the tissues is the chief causative factor.

The studies in nephritis are a continuation of the experimental studies in clinical physiology made in edema. Fischer's thesis with regard to that combination of conditions known as nephritis, is that the changes which characterize the disease are colloid chemical in nature and due to a common cause, the abnormal production or accumulation of acid and of substances which in their action upon colloids behave like acid in the cells of the kidney. To the action of these upon the colloid structures that make up the kidney are due the albuminuria, the specific morphological changes noted in the kidneys, the associated production of casts, the quantitative variations in the amount of urine secreted, the quantitative variations in the amount of dissolved substances secreted, as well as the other signs of nephritis which appear in direct connection with the kidney. As a matter of fact, the argument regarding the nature and cause of nephritis is much the same as that given by the author for the nature and cause of edema. From his point of view, nephritis is, to a large extent, an edema of the kidney.

As for treatment, after the avoidance and removal as far as possible of every condition that favors the abnormal production or accumulation of acid in the kidney, Fischer says that "the rule to be followed may be summarized in the words: Give alkali salts and water and give dextrose."

Glaucoma, in accordance with these views, from a pathological standpoint represents one of the local edemas, and from a clinical standpoint all its signs and symptoms are referable to the increased intraocular pressure resulting from the edema. Thus the problem of glaucoma and its treatment is identical with that of nephritis.

The theory of the author that the colloids of the tissues and their state are primarily responsible for the amount of water held by them runs counter to all the theories of water absorption held at the present time. But in accounting for the causes of edema and nephritis Fischer has experimentally and clinically put forward a strong case. He has marshalled the facts ably, and his whole argument, if not without flaws, is at any rate, worthy of sérious consideration.

Public Health Laboratory Work. By Henry R. Kenwood, M.B., F.R.S. Edin., Chadwick Professor of Hygiene and Public Health, University of London, etc. Sixth Edition. Price, $4 net. New York: Paul B. Hoeber, 1914.

This volume is devoted to the chemical examination of water, air sewage, and food and a chapter on the examination of disinfectants. In this edition practically all reference to bacteriological examination has been omitted in order not to enlarge the work unduly. Clearness is obtained by describing but one method for each purpose, the author selecting, in each instance, the one dictated by experience as being the best. Public health chemists will need no introduction to this work, which has become a standard, and it need only be said that this edition has been kept well up to the grade of the former ones.

Modern Medicine. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart.; M.D., F.R.S.; Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in Johns Hopkins University, Baltimore; formerly Professor of Clinical Medicine in University of Pennsylvania, Philadelphia, and of the Institute of Medicine in McGill University, Montreal, Canada; and Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of Royal College of Physicians, London; formerly Associate Professor of Medicine the Johns Hopkins University. Volume IV—Diseases of the Circulatory System—Diseases of the Blood—Diseases of the Lymphatic System—Diseases of the Ductless Glands—Vasomotor and Trophic Disorders; second edition; thoroughly revised. Illustrated. Price, $5.00. Philadelphia and New York: Lea and Febiger, 1915.

This fourth volume maintains the high standard set by the previous volumes. The material contained in the first edition has been carefully revised and the most recent views expressed by American and British authorities of medicine are incorporated in the present volume.

The diseases of the pericardium are ably and exhaustively dealt with by Dr. Alexander McPhedran. Perhaps, the most instructive article in the volume is that by Dr. Thomas Lewis on the rate and mechanism of the heart beat. Dr. Lewis is one of the foremost exponents of the teaching of what may be termed the new school of the theory and practice of heart affections of which James Mackenzie is the pioneer and great apostle. Lewis himself is an originator of mechanical methods of testing and recording the action of the heart, and discusses the subject in a masterly manner. He points out in the course of his remarks that the irritable heart of soldiers is a sequence of any long-drawn-out military campaign. This form of heart disorder is characterized by a persistent tachycardia, and is a symptom often witnesed in young and raw recruits who have been subjected to long and arduous work on the battlefield or in the trenches.

Dr. Robt. H. Babcock discusses the diseases of the myocardium. Sir William Osler hypertrophy of the heart. Dr. Alexander G. Gibson contributes a remarkably clearly written article on insufficiency and dilatation of the heart. Referring to the effect of blood pressure on heart failure, the writer says that the hope that some indication of the state of the heart was to be found in the records of blood pressure has hardly been justified. The diseases of the valves of the heart are discussed by Sir William Osler and Dr. Gibson. The article on functional diseases of the heart is contributed by Dr. Charles F. Hoover.

The longest and certainly one of the best articles in the book, dealing with congenital cardiac diseases, is written by Dr. Maude E. Abbott in which she concludes that the cause of the defect is clearly to be sought in the immediate environment of the developing embryo.

Osler discusses diseases of the arteries and in commenting upon the causes of arteriosclerosis, he is not inclined to attribute to alcohol in itself the predominant rôle in the causation of the condition which is ascribed to it by some authorities. He cordially agrees with Abbott that "one main cause of rising arterial pressure in middle life is excess of feeding, that is to say, of food in excess of work and excretion." As to the causation of aneurysm Osler states that high blood pressure next to destruction of the elastic fibers of the media by a mesaortitis is the most important single factor.

The diseases of the ductless glands are fully considered. The diseases of the adrenal glands, the pituitary body, acromegaly, hypopituitarism, polyglandular syndrome, the pineal body and diseases of the thyroid gland are made the subject of a series of exceptionally excellent articles by Dr. George Dock. Dr. Warthin writes concerning athyreosis, athyroidism, hypothyroidism, cretinism, myxedema, the parathyroid glands and diseases of the thymus.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held January 19, 1915.

DR. T. STUART HART IN THE CHAIR.

Osteitis Fibrosa.—Dr. JESSE G. M. BULLOWA presented this patient and showed lantern slides illustrating the condition found. The interest of this case lay in the rarity of the reports of similar cases, and in the opportunity it offered to study the relationship of this condition to those closely associated, namely, osteitis deformans, osteomalacia, and ordinary rickets. In his posthumous work on "Rickets and Osteomalacia," Friedrich von Recklinghausen, who first described the condition in 1891, classified it as a metaplastic malacia in which fibrous tissue replaced bone marrow in a manner analogous to the parenchyma replacement in such diseases as cirrhosis of the liver or myocarditis. Of the one hundred or more cases which had been reported comparatively few had any hematological or roentgenological data, or were reported from other than the surgical standpoint. The patient, a man 42 years of age, a native of Sicily who had been in this country for ten years, came under Dr. Bullowa's observation eight months ago. At that time he complained of severe pains in the shins which had lasted for seven or eight months; he had been bedridden for three and one-half months. There were flattened ovoid swellings, symmetrically placed on both tibiæ, that on the left being receding. The swelling fluctuated and had hard crater-like margins. There was tenderness but no egg-shell crackling. The swelling on the right tibia was incised in February, 1914; only grumous material was obtained. The lesion was regarded as luetic and salvarsan was given. The patient had complained of severe general joint pains, especially in the sacral region, for twelve years. Four years ago his left femur was fractured by a fall from a horse. He had also complained for five months of pains in the lower ends of the thighs and upper ends of the legs, which was worse toward evening and on damp days. An *x*-ray examination made by Dr. Gottlieb revealed the nature of the condition. The patient's skin was dark, his mucous membranes pale. There was pigmentation over the cysts which appeared on the surface of the tibiæ. The hair on the scalp was abundant and soft; on the face it was scant, neither was it abundant in the axillæ or the pubes. There was marked pyorrhea. The tonsils were enlarged and some of the crypts were filled with detritus. The heart and lungs were negative. The liver was palpable one finger below the free border of the ribs when the patient came under observation; at present it could not be felt. The spleen was not enlarged. There were enlarged axillary nodes in the left axilla, but no enlargement of the epitrochlears. Examination of the osseous system showed enlarged tender bones which were markedly bowed. There was evidence of an old fracture of the lower end of the right femur and also a bony outgrowth at the lesser trochanter. The nervous system showed no change. During his stay of several weeks at Mount Sinai Hospital the patient's temperature rose in the evenings to 100.5° F. Aside from a period of several weeks in July when the pain in the knee joint and tibiæ was very much worse and the crater on the right tibia was surrounded by edematous swelling, the patient had improved steadily. The episode of pain and tenderness yielded to aspirin and methyl salicylate locally applied. The general therapeusis consisted of phosphorus 1/20 of a grain in cod liver oil, and calcium lactate. For several months the patient received pituitrin hypodermically and later citrate of iron and ammonia hypodermically. The blood gave a positive hemolytic streptococcus; hemoglobin was 77 per cent.; red blood corpuscles 4,520,000; white blood corpuscles 8,500. The differential count showed small lymphocytes, 28 per cent.; large lymphocytes, 8¼ per cent.; neutrophiles, ¾; basophiles, ¾; neurophiles, 61 per cent.; basophiles, ¼, and eosinophiles, 1 per cent. The urine when the patient came under observation showed a trace of albumin, but recently was negative aside from a low specific gravity. There was a localized thickening of the right eighth rib; there were no changes at the costa-chondrial junction. The tibiæ showed marked bowing and enlargement of the Haversian canals with cavity formation in various stages. Dr. Gottlieb's report of the *x*-ray findings showed the fifth metacarpal of the right hand bowed but there was no evidence of Haversian canal dilatation. There was a similar bowing of the fifth metacarpal of the left hand. The feet showed no changes. Examination of the skull showed the sella turcica normal, increased density of bone, and a small focus of absorption in the vault near the vertex. The head of the ulna showed dilatation of the Haversian canals more marked on the right side than on the left. The lower end of the humerus showed very early changes with beginning cyst formation. It was important to differentiate this disease from conditions due to syphilis, tuberculosis, and malignant disease with cyst formation. It was quite evident from its symmetrical and widespread distribution that it was a systemic disease characterized by dilatation of the Haversian canals with cyst formation. The involvement was usually in the diaphysis; the epiphyses escaped. This was the only case which the author could find in a search of the literature in which a rib had been involved. Histologically the cases studied showed a rarifying osteitis with fibrous tissue replacement. The close relationship of this disease to Paget's or osteitis deformans, osteomalacia, and rickets was evidenced by the osteoporosis and the hyperostotic process which in this case were both well marked. This case showed the typical Recklinghausen cyst formation side by side with the thickened skull and bowed tibiæ of Paget's syndrome.

Dr. ARTHUR BOOKMAN called attention to the important pathological relationship of osteitis fibrosa and conditions like osteomalacia. Von Recklinghausen had indeed described the early stage of osteitis fibrosa as an osteomalacia. Osteogenesis imperfecta, idiopathic osteopsathyrosis, osteomalacia and perhaps rickets all seemed to have in common certain pathological factors. In all of these conditions there was evidence—as yet not altogether conclusive—that the disturbance in bone formation was due to alterations in the functions of the organs of internal secretion. His own work and that of others had shown that in all the conditions mentioned at some time during the course of the disease there was a loss of calcium by the body. It was of interest that three cases of osteitis fibrosa had recently been described showing changes in the epithelial bodies. In another case administration of calcium lactate had been followed by an increased calcium retention and by clinical improvement. It would be of interest to try the effect of calcium therapy on Dr. Bullowa's patient.

Dr. HENRY CLARKE THACHER said that the end of the tibia appeared to be denser than was usual. The areas of absorption were clear cut and not punched out as in tumors. There was not the gradual transition such as was seen in osteitis deformans.

Dr. BULLOWA said that the patient had had the milk in his dietary increased and had received calcium lactate. There were about 106 cases belonging to this group on record. None of the cases reported had shown Bence-Jones albumose.

Report of a Case of Typhoid Fever Complicated by a Pure Typhoid Pneumonia and Pulmonary Abscess.—Dr. SEYMOUR BASCH presented this report. He stated that the etiological factor in these pneumonias was a very interesting point. It was admitted that a true pneumococcus pneumonia did occur in typhoid fever; still, in a number of cases, as in the one herewith reported, careful bacteriological search, sometimes even at autopsy, failed to demonstrate the presence of any other than the Eberth bacillus. It would, therefore, be logical to conclude that these were true typhoid bacilli pneumonias. This conclusion was the more readily acceptable when one recalled that Jehle, in 1902, demonstrated the presence of typhoid bacilli not only in the sputa, but also in the pulmonary secretions of pneumonias complicating typhoid fever. He even succeeded in demonstrating the bacilli in the sputa of clinically and anatomically uncomplicated bronchitides. Osler had pointed out that in the pneumonias of typhoid fever the pneumococci might have originally been present and the typhoid bacilli might be only secondary invaders. From statistics it seemed that pneumonia in typhoid fever was by no means as frequent as had been supposed; Frankel found it in 1.2 per cent. of 500 cases; Norris 1.2 per cent. of 4,459 cases, and Osler in 1.5 per cent. of 1,500 cases of typhoid fever. The case reported was that of a man, 38 years of age, whose personal history was negative. His present illness began eleven days before admission to the Lebanon Hospital, Nov. 25, 1914, when he felt chilly, feverish, and had a sore

throat for two or three days, but was able to continue at his work. Nine days before admission, he began to have headache, diarrhea, and great weakness, persisting until the time of his admission to the hospital. At that time he was having as many as twenty loose, greenish-yellow stools daily. He had daily chills lasting five or ten minutes. At the onset of his illness his temperature was 104° F. but dropped to 101° the day before his admission. There was no nausea, vomiting, cough, or hemorrhage. At the time of admission his temperature was 105° F.; pulse 102, and respirations 30. There were no focal signs of disease anywhere; the chest examination was entirely negative. The spleen was distinctly enlarged. The blood examination showed 13,000 leucocytes of which 84 per cent. were polymorphonuclears and the remainder mononuclears and lymphocytes. The leucocytes increased the following day to 18,000 and after that fluctuated between 10,000 and 18,000. The erythrocytes averaged about 4,000,000. The initial blood culture proved sterile, but repeated positive after one week. The early stool cultures showed *B. coli*. Except for a temporary trace of albumin and casts after one month, the urine showed no renal involvement. The temperature, after an initial rise to 106.4° F., fluctuated between 103.5° and 105° until the fourth day when it dropped to 100°, and thereafter remained between 102° and 105° for nine days when there was a critical drop to from 104.5° to 97.50° F. The fourth day the patient began to complain of pain on the right side of the chest, and following this he developed the symptoms of acute lobar pneumonia. Cultures of the sputum failed, however, to show any pneumococci, but repeatedly even as late as Dec. 27, over two months after the onset of his illness, showed pure cultures of the typhoid bacillus. Examinations for the tubercle bacilli were negative. On the third and fourth days of his pneumonia there was bronchial singultus which finally apparently yielded to atropine. On each of these two days the patient had a chill lasting fifteen minutes; he had a similar chill on the sixth, tenth, and thirteenth days of the pneumonia. Each rigor was succeeded by a moderate rise in temperature. Following the subnormal drop in the temperature on the ninth day there was a chill and a rise to 105° F. The temperature thereafter rose and fell sharply between 100° and 105° for about a week, since which time it had been fluctuating irregularly but had shown a decided tendency to become lower. The pneumonia symptoms began to clear up while new subjective symptoms began to appear in the anterior portion of the lobe, including numerous coarse bubbling râles, amphoric breathing, dulness, etc. An *x*-ray at this time showed an abscess of the lung at the angle of the scapula and near the base of the lung. An *x*-ray taken a little later showed evidence of clearing up of the focus in the lung. On account of the poor condition of the patient and the tendency of the abscess to improve as shown by the *x*-ray operation was deferred. The patient about a week later complained of localized tenderness and pain in the upper right quadrant of the abdomen, beneath the ribs. Exploratory punctures in this area as well as posteriorly failed to show any pus. Meanwhile, under expectant treatment, the condition of the patient improved. Very recently he had developed physical signs that indicated the presence of a suppurative process in the posterior part of the lungs, but despite this his general condition indicated that he was on the road to recovery.

Dr. T. STUART HART asked Dr. Basch if he had regarded the process in the lung as a local effect of Eberth's bacillus. Dr. Hart had recently had under observation a case of typhoid fever running a very severe course terminating with a lobar pneumonia; the interesting feature in this case was that blood cultures revealed both Eberth's bacillus and the pneumococcus. Might not Dr. Basch's case have been infected with more than one organism?

Dr. BASCH, in answer to Dr. Hart's query, said that he tried to bring out the fact that there were only present pure typhoid bacilli and no pneumococci at all. The sputum was carefully examined and they were never able to find any pneumococci. The typhoid bacilli were found in the blood and in the sputum in pure culture. An interesting point in this case was that ten or eleven days before the patient had had a sore throat, malaise, and headache, the symptoms of tonsillitis. It was rather problematic if this was not an early case of "tonsillo-typhoid," such as had been described by Strümpel and other Germans.

Diagnosis, Symptomatology, and Therapy of Dilatation of the Descending Thoracic Aorta.—Dr. SELIAN NEUHOF read this paper, the object of which was to indicate through illustrative cases the comparative frequency, diagnosis, symptomatology, and therapy of aneurysmal dilatations of the descending thoracic aorta and to present its claim to a clinical entity. Recent reports of aortitis were almost entirely confined to disease of the ascending or transverse aorta with fragmentary or no reference to the descending aorta. The author reported six cases in five of which the Wassermann test was done. It was positive in two of these, negative in three. Three of the cases had slight symptoms when treatment was begun; these were clinically cured. Of the cases with severe heart failure, the one with luetic lesions alone was very much benefited; another who had apparently had a luetic infection engrafted upon an old endocardial lesion was only moderately improved. In three cases the correct diagnosis was made regarding the descending aorta by the presence of an impacted area to the left of the sternum at its middle third, and by the localization of abnormal aortal sounds most prominently over this area. Sharp, continuous, gnawing pains, such as those often associated with sacculated aneurysms were not prominent features of the dilated descending aorta. Substernal pains or those referred to different parts of the chest, neck, jaws, or head were most apt to incur upon exercise. Another group of symptoms was that due to cardiac decompensation. This was not necessarily a marked clinical feature; in fact, in three of the cases reported it consisted only of a slight dyspnea upon exertion. Edema was usually slight and confined to the legs; it was extreme in neglected cases or very late in the disease. Dyspnea was of the usual cardiac type, generally most marked on exertion, though it might be continuous in severe cases of cardiac failure. Left ventricular hypertrophy of various degrees was usually present. The heart was occasionally tremendously hypertrophied before cardiac failure set in; this in itself was highly suggestive of cardiac lues. In dilatation of the descending aorta the abnormal sounds in typical instances were best heard at the left sternal border at its middle third or from the third left intercostal space to the ensiform. This latter area of propagation was somewhat similar to that occasionally found in valvular aortic regurgitation. The sounds over the impact area were the rough first and accentuated or liquid second sound which usually served as differential guides. There was usually a rough systolic murmur over the dilated aortal area; the second sound had a liquid rather than an accentuated tone, and was usually prolonged so as to occupy the entire diastole or was followed by a diastolic murmur of varying intensity. By placing the eye on a level with the patient's chest, a distinct heaving area distinguishable from that at the apex and occupying the lower left sternal intercostal spaces could often be noticed. A sensation of impact was also given to the bell of the stethoscope when, during the usual clinical examination, it was placed over this area. All these signs were made more evident by having the patient hold his breath at the end of expiration. Occasionally difference in the time of thrust between the apical and left intercostal areas might be noticeable by placing one finger over the apex and the other over the left sternal border; since, however, this difference physiologically was 0.07 second, it might be impossible to distinguish it by palpation. Another method was by the use of a differential stethoscope, that was, an ordinary pair of ear tubes arranged with two bells, one over the apex and the other over the dilated aorta. When the murmurs were not too loud, the difference in the time impact might thus be determined. It was important to distinguish the aortic impacts to the left of the sternum from those found in patients with marked left ventricular hypertrophy or in healthy individuals with overacting hearts and thin chest walls, but the auscultatory signs above described were then absent. In four cases electrocardiograms were taken; three showed complexes of left ventricular preponderance, the fourth was normal. To clinch the diagnosis *x*-ray examinations by means of the fluoroscope or roentgenograms were absolutely essential. The physical signs of all the cases were most prominent to the left of the sternum at its middle third, when clinical symptoms were present; the signs became less with the patient's improvement. The disease might run a mild course lasting many years. Intensive anti-luetic treatment—salvarsan, mercury, and iodide of potassium—was indicated in every case.

Dr. WILLIAM C. LUSK said that he had done a num-

ber of autopsies on cases of thoracic aneurysm, and from his observations of autopsy findings and of clinical manifestations he thought the shortness of breath in these cases was due to the narrowing of the respiratory passage from pressure of the aneurysm on the trachea and left bronchus. A thus narrowed trachea accumulated mucus at or below the seat of stenosis which temporarily compromised the respiratory excursion and thereby increased the dyspnea, so that often in the early morning the patient was awakened by the shortness of breath from which he got relief by coughing up the mucous accumulation. His work on the medical treatment of thoracic aneurysm had developed as a result of his original interest in the Moore-Corradi operation of wiring with electrolysis. While in certain cases, particularly where pain was a prominent symptom, the wiring operation would give prompt relief, the ultimate result after wiring, before the beneficent effects on aneurysm of salvarsan in proper combination with the older antispecific remedies had been learned, was always unsatisfactory because of the recurrence of the symptoms in from one to several months. Thus the problem had early presented itself as to how to prolong the lives of these unfortunate cases. In connection with the use of modern antiluetic therapy for aneurysm, he had reached the conclusion that a more or less definite procedure in the administration of the remedies must be followed to attain good results. One patient, wired in March, 1912, who is today living in comparative comfort and enjoying moderate activity, one month after the operation developed attacks of strangulation during which he could hardly get air either in or out of his lungs and his whole body would become a livid blue color. These attacks could be temporarily relieved by a hypodermic of morphine. Finally right after receiving an injection of 1 grain of mercury salicylate, which had been given intramuscularly on the advice of Dr. John A. Fordyce for its quicker effect, together with potassium iodide, the patient experienced a diminution in the severity of the attacks and in a day or two the latter ceased for the time being. Four months later, the patient, having in the meantime taken mixed treatment, following severe exertion had a recurrence of the attacks of strangulation which again ceased soon after one injection of mercury. But the patient now suffered from much pain and shortness of breath. The condition was desperate and then it was that in spite of all the warnings not to give salvarsan in arterial disease, there being in this case nothing else which could possibly hold out any hope, after consultation with Dr. E. L. Keyes, Jr., neosalvarsan was administered intravenously, following which the symptoms promptly ameliorated. Next, Dr. Alexander Lambert gave neosalvarsan to a patient with thoracic aneurysm at Bellevue Hospital, who was suffering such great pain that he was unable to lie down on that account, and relief soon followed. These experiences seemed to speak so strongly for the value of salvarsan in aneurysm, that the importance of the other antispecific remedies was temporarily lost sight of. But after a time it was concluded that salvarsan given in successive doses independently of the other antispecific drugs, was decidedly injurious to these patients. The speaker's attention was first called to this fact through a patient whom Dr. George A. Tuttle had kindly asked him to treat at the Presbyterian Hospital. Two casts of this aneurysm which projected from the front of the chest wall, taken eleven days apart, showed a perceptible increase in size while salvarsan treatment was in course of administration. Three other aneurysms then on salvarsan alone, were also doing badly. With the stopping of salvarsan and the giving of mercury they all got better. Two of them, however, who had had small doses of salvarsan as their chief treatment at intervals over a period of several months and whose symptoms had ultimately become worse, soon died, one from rupture of the aneurysm and one from a bronchorrhea accompanying great pressure on the trachea. Following this it was concluded that mercury should support the salvarsan.

The importance of potassium iodide was impressed very forcibly by a case which was referred by Dr. Van Wagenen, who had shown the case at a previous meeting of the Academy of Medicine, as one of vocal cord paralysis due to aneurysm of the aortic arch. At the time when this case first came under Dr. Lusk's observation he could discover in him no physical signs of thoracic aneurysm. There was no vocal cord paralysis any longer and the comparison of an *x*-ray picture with one taken 16 months previously, both in the same position and at the same focus, showed that the aneurysmal shadow had diminished from 1 to 1¼ inches in its transverse diameter. The contrast was so great that Dr. Van Wagenen was called upon to come down and identify the patient, which he did. The treatment which the patient had had for the 16 months was then carefully investigated and it was found that for 23 weeks of this time potassium iodide had been taken in 5 and 10 grain doses, besides which 9 injections of salicylate of mercury, ½ grain each, had been given. This same patient had also at previous times had considerable potassium iodide in small doses. Finally it was observed, and the observation is believed to be one of the greatest importance, that those patients who derived the most benefit from the salvarsan were the ones who had previously been taking the mixed treatment. Lesser of Berlin states that in treating tertiary syphilis potassium iodide and mercury should always precede the administration of salvarsan.

Dr. Lusk said he believed that a long treatment with potassium iodide, 10 grains, t.i.d. for 4 or 5 months, and during this time the administration of about 15 intramuscular injections of mercury salicylate not over 1 grain each, or less if the patient could not take so much, should be given before administering salvarsan. He believed that the prior control of the gummatous infiltration in the aortic wall by the older remedies gave some added advantage to the germicidal action of the salvarsan in contributing benefit to the patient. Before giving salvarsan he always stopped the potassium iodide, since in his observation potassium iodide in combination with or following salvarsan had, in some cases of aneurysm, caused pain or increased expectoration and cough. With the stopping of the potassium iodide in such cases, these symptoms would ameliorate or disappear. Injections of mercury he believed were important to support the salvarsan, but whether they should be given in combination with a course of salvarsan, taking care not to give the two drugs too near together, or following a course of salvarsan, he was not sure. He was inclined to believe, however, that the combined use of these drugs was productive of the best results. Some German observers did not give mercury in combination with salvarsan on account of the danger of nephritis. He believed that if mercury were given in combination with salvarsan at least a five-day interval should be left between doses, and that two injections of mercury should be given for every one of salvarsan. The urine should be carefully watched. He preferred neosalvarsan to salvarsan because Alwens had demonstrated experimentally that neosalvarsan given in proportionately large doses to rabbits was little liable to produce nephritis while old salvarsan in lesser dosage was very liable to do so. Alwens had quoted Wahle as having twice seen a very severe hemorrhagic nephritis following the intravenous injection of neosalvarsan 0.9 gm. He himself gave neosalvarsan in doses of 0.45 gm. in 100 c.c. of freshly distilled water at intervals of 15 days.

Dr. George Reese Satterlee said that the great difficulty lay in following these cases long enough, on account of the nature of the trouble. It was, therefore, often very difficult to give the results of treatment. The patient he showed before this section in 1911 was a very interesting case having a large double aortic aneurysm with a much distended aorta similar to Dr. Neuhof's case. In this instance he started treatment with a few doses of salicylate of mercury and when the man was in very serious shape. He had marked dyspnea, pain, and paralysis of his left vocal cord, with absence of left radial pulsation. The *x*-ray showed the outlines of the aneurysm. After a few days' treatment with salicylate of mercury there was little if any improvement. He then gave doses of four-tenths of a gram of salvarsan and with remarkable results; in two and a half days he came in very much improved, the dyspnea especially so, and the pulse had returned on the left side. The paralysis of the vocal cord began to clear up and eventually cleared up entirely. He was given two more doses of salvarsan and since then no more salvarsan. He was given salicylate of mercury at regular intervals. He had received since 1911 from 115 to 120 injections, of one grain each; also 90 grains of iodide of potassium per day, up to tolerance. Whether this was necessary or not was a vague point. The pain was intercostal in character and was due probably to the pressure of the aneurysm itself. The periaortitis had a great deal to do with the symptoms. Subsequent radiograms showed no change apparently in the aneurysm but did show a change in the peri-

aortitis. There was ¼ reduction in size, as shown in subsequent radiographs and an evident relief of the pressure on the recurrent laryngeal nerve. Dr. Satterlee thought that the dyspnea in this as well as other similar cases that he had seen was probably due more to a myocarditis than to any actual pressure upon the aneurysm itself, although in some cases, symptoms are due to direct pressures. The patient would probably not become a perfectly well man but he now was able to attend to his duties as chef. The pain had entirely disappeared but the aneurysm was still present.

Dr. Seymour Basch said that the patient who had been reported from his service had been admitted to the hospital with a diagnosis of carcinoma of the esophagus. He had trouble in swallowing which was progressive and finally he was scarcely able to swallow even liquids. The clinical examination gave no evidences of an aneurysmal dilation or aneurysm at all. There was no change in the radial pulsations; there was no murmur and no involvement of the recurrent laryngeal nerve. The diagnosis of aneurysmal dilatation was made by the *x*-ray. In view of the fact that the patient had had an old cardiac condition he refrained from using the bougie, deciding to submit the patient to the *x*-ray first. This was a point of very great importance because the bougie might have done much harm, even to causing perforation of the sac and death. Another very important fact in the history of this patient was that he gave a history of having had syphilis. They were more and more being brought face to face with the fact that cardiac disease arose far more frequently on the basis of syphilis than had been formerly supposed. To recapitulate, he said, that one should not be in a hurry to make a diagnosis of carcinoma simply because the patient happened to be a middle aged man, who had esophageal obstruction and that one should not be in a hurry to bougie in suspected cases of esophageal stricture. He advised that one should first proceed with the milder methods in making his diagnosis and reserving the harsher ones, if these were necessary at all, for later use when he knew it would be safe to employ them.

Dr. S. Neuhof did not think that cases of this sort were amenable to treatment by wiring. They were too deep seated and it was a difficult and dangerous procedure to attempt to introduce wires. Dr. Satterlee had brought out a point which he emphasized in his paper, namely, that many of these patients with aneurysm, sacculated or fusiform, showed a marked improvement under treatment and without any alteration in the size of the aorta. The condition seemed to be controlled by the treatment.

Demonstration of Roethlisberger's Clinical Uricometer.—Dr. William Weinberger demonstrated this apparatus which permitted the estimation of uric acid in as little as one drop of blood serum. He said that the principle of the method consisted in comparing the stain produced by the appearance of silver urate on a strip of filter paper, which was impregnated with a solution of silver nitrate, with the color tints of a colorimetric scale furnished with the apparatus. Strips of silver nitrate paper, two bottles, one containing concentrated ammonia, the other a solution of sodium carbonate, a dozen tiny test tubes for the reception of the ten to fifteen drops of blood needed, a number of capillary pipettes and the colorimetric scale comprised the whole apparatus. This method had to recommend it the following points: (1) The small amount of blood needed, which could easily be obtained from the finger tip, especially if the arm be temporarily constricted by means of a rubber tube or an ordinary gauze bandage—as against from 15 to 25 c.c. of blood needed for the modern method Folin's; (2) The simplicity of the method, which requires no chemical skill at all; (3) The quickness with which results were obtained in that the actual working time does not exceed a few minutes; (4) The relative accuracy, which was sufficient for clinical purposes to allow the recognition of larger amounts of uric acid (above 7 mgm. in 100 c.c. blood). However, the apparatus did not with any degree of accuracy indicate the complete absence of uric acid—on account of the inevitable darkening of the silver nitrate paper—nor could the results obtained in any way be relied upon in cases of moderate uricemia—the tint obtained if less than 7 mgm. of uric acid were present in 100 c.c. of blood, not being sharp enough. Further there might be mentioned the necessity of conducting the manipulations in the dark room—to avoid the spontaneous darkening of the silver paper. In summarizing it might be said that the quick method of estimating the uric acid in small amounts of blood by means of this apparatus, while not accurate enough for exact quantitative estimations in all cases of suspected uricemia, would be found of sufficient accuracy to establish the presence of large amounts of uric acid in the blood (7 or more mgm. in 100 c.c. of blood). The apparatus might be recommended to the clinician for preliminary purposes only; it could not supplant the more accurate scientific methods.

Blindness in an Infant as a Result of Facial Eczema.—Dr. Sidney V. Haas reported this case, which, so far as he could ascertain from a search of the literature, was unique. The patient, an infant five months of age, was admitted to the Lebanon Hospital on March 8, 1914, with characteristic severe facial eczema, involving the face and scalp with scattered small areas on the extremities. Shortly after admission this process involved the eyes. A panophthalmitis followed with complete loss of sight. The child gave a history of having had three previous attacks of facial eczema during the two and one-half months preceding its admission to the hospital. The present attack began two weeks before admission and differed from the others in that the eruption appeared over the entire face at the same time instead of beginning at a point and spreading. Physical examination showed the skin dry, scaly over the entire left side of the face and the greater part of the right side, and also over the scalp. There was a papular erythema upon the external aspects of both elbows and upper portion of the forearms and also over the anterior aspects of both legs. There was a slight eruption over the buttocks. A slight general adenitis was present, most marked in the cervical region and the angle of the jaw. The eyes appeared to be normal, and the physical examination was negative in other respects. On the day of admission the temperature ranged between 99° and 100.6° F. On March 10, two days after admission, the temperature rose to 105.4°, pulse 140, and respirations 48, for which no cause could be assigned except the skin lesion. The temperature throughout the child's stay in the hospital ranged irregularly between 98.6° and 104.4°, presenting no regularity and no type. The pulse ranged from 100 to 160 and the respiration from 26 to 56. Examination of the urine and blood showed nothing of particular interest. After a week's stay in the hospital the eyelids were slightly edematous and covered with eczema. The discharge from the conjunctival sac became profuse, and examination on March 18 showed the presence of *Staphylococcus pyogenes aureus*. Examination of the eyes on March 23 showed deep corneal ulcers with lesion of the cornea. The discharge from the eyes and the edema of the lids increased and examination of the eyes on March 23rd showed deep corneal ulcers with strings of yellowish secretion and infiltrated. The anterior chamber was abolished. At the external canthus of the eyes where the discharge flowed over the skin there was distinct erosion of the integument. A second culture taken from the conjunctival sac showed *Staphylococcus pyogenes aureus* and the pneumococcus. On April 1 the child was taken home by its parents and died twenty-four hours later. The treatment while in the hospital consisted in a reduction of the quantity of milk taken by the mother and in the time and frequency of nursing, the use of atropine 1-1,000 internally, beginning with one drop to be increased one drop every other day, colonic irrigations of bicarbonate of soda solution, olive oil dressings to remove the crusts, followed later in sequence by one per cent. salicylic acid in olive oil, liquor burrowi, and a mixture of zinc oxide 15.00, carbolic acid 4.00, and lime water 500.00. Dr. Jacob Sobel saw the child on the day after its discharge from the hospital. He found a double panophthalmitis, eyeballs grayish yellow, erosion at the canthi, but no other physical signs, though the child was almost moribund. This case of eczema was in no wise different in external appearance from those so frequently seen and gave no hint of the tragedy that was to follow unless the irregular temperature which ranged somewhat higher at times than was usual could be so construed, and for which no other explanation could be found excepting absorption from the large area involved in the pathological process. The eyes became involved and destroyed in a manner which could only be described as fulminant. The microorganisms apparently responsible were the *Staphylococcus pyogenes aureus* and the pneumococcus, death following from asthenia as a result of the sepsis.

Lymphatic Leucemia without Demonstrable Lym-

phatic Enlargement.—Dr. Herman T. Radin made this report. The patient, 26 years of age, married, was admitted to the Lebanon Hospital, October 3, 1914. Her illness began about five months before admission with pain in the upper part of the thigh, mostly at night. This pain would disappear in the morning. The pain occurred first in one thigh, then in the other and sometimes in both. Afterward the pain involved the hip. The patient was treated by several physicians who said she had multiple neuritis. During the past few months she had been getting paler and complained of pains all over the body. There was no interference with motion. The physical examination showed marked pallor of the face and the mucous membranes were anemic. Examination of the chest and abdomen was negative except for a slight enlargement of the spleen, which was palpable about one inch below the costal margin. There was distinct tenderness over both hips, some tenderness over both femurs, and also over both humeri. The lymphatic glands were nowhere pathologically enlarged. The blood examination showed: hemoglobin, 50 per cent.; red blood corpuscles, 2,200,000, white blood corpuscles, 30,000. Differential count: Polymorphonuclears, 16 per cent.; small lymphocytes 69 per cent., large lymphocytes 13 per cent. Two days later the large lymphocytes were 15 per cent.; small lymphocytes 80 per cent.; total lymphocytes 95 per cent. The lymphocyte count remained around 90 per cent. for several weeks, and never went below 75 per cent. The total leucocyte count rose to 50 per cent. After treatment by benzol the leucocytes went down from 50,000 to as low as 13,000. The patient was often entirely free from the pains in the long bones, but these would recur every few days. The patient also complained of pain in the lower jaw, often very severe. Later she developed severe pain in the arms as well as the legs. Dissatisfied with the treatment because the pains recurred, she left the hospital after about eight weeks and sought treatment elsewhere. The patient had since died. During her entire stay in the hospital she developed no pathological enlargement of the lymphatic glands which was almost always found in the lymphoid form of leucemia. The extreme pallor and the pains in the long bones indicated changes in the bone marrow and should have suggested the possibility of leucemia and the desirability of making a blood examination which would have revealed the diagnosis immediately, but no such examination was made until the patient was admitted to the hospital.

Philadelphia Neurological Society.

At a stated meeting held February 26 Dr. Williams B. Cadwalader presented a report of "Three Cases of Pseudosclerosis Occurring in the Same Family." The patients were brothers, while two sisters apparently escaped the disease. The principal symptom was tremor in various parts of the body and of dissimilar distribution in the several cases. In many respects the cases bore a resemblance to those of lenticular degeneration described by Kinnear Wilson and others, and it was pointed out that further observation may show that the two disorders are in reality one and the same.

Dr. Harry B. Wilmer exhibited by invitation "A Case of Thalamus Lesion." The patient was a man, about sixty years old, who without warning became unconscious and later exhibited paralysis of the left upper and lower extremities of transitory character. The weakness in the lower extremity disappeared almost entirely, while that in the upper extremity was inconsiderable. There was some defect of tactile sensibility in the left hand, associated with astereognosis, and pain was developed in the left upper extremity on active exercise of the part. The reflexes were unchanged, and the fundus oculi presented no abnormality.

Dr. Alfred Gordon reported "A Case of Right Hemiplegia with Aphasia Unattended with Intellectual Deficit." The patient understood everything that was said to him and he recognized objects clearly, but he was wholly unable to give verbal expression to ideas. The case was, therefore, one of purely motor aphasia, with preservation of intelligence.

Drs. Theodore H. Weisenburg and Philip Work presented a communication entitled "The Distribution of Tabetic Crises," and they exhibited an illustrative case of an unusual character. The patient was a miner, about twenty-eight years old, with a syphilitic history and positive blood-serum Wassermann reaction and a less actively positive spinal fluid reaction. While under treatment in a hospital he was seized with vomiting, in conjunction with the presence of other symptoms of gastric ulcer, and for the relief of which operation was undertaken, the stomach being found normal and a healthy vermiform appendix being removed. On further examination it was found that, while the knee-jerks were present, station and gait were unsteady, the pupils unequal though reactive to light and in accommodation, while there was an area of hypesthesia on the front and back of the chest corresponding to the distribution of the fourth, fifth and sixth thoracic nerves. Accordingly, the case was looked upon as one of syphilitic posterior spinal sclerosis of circumscribed extent, attended with gastric crises.

Dr. Fred. W. Weidman presented by invitation a specimen of "Ruptured Aneurysm of the Left Vertebral Artery." The patient was a sailor who was suddenly seized with a chill, vomiting and loss of consciousness. After a time consciousness returned, but after a short interval it was again lost and opisthotonic rigidity developed. Death resulted and on post-mortem examination an aneurysm of the left vertebral artery was found which had ruptured into the cerebrospinal sac. Histologically the formation was found to present the characters of a dissecting aneurysm. Atheromatous changes were found in various parts of the vascular system.

Dr. Weidman exhibited also a specimen of traumatic separation of the cord and brain in a babboon. The accident occurred in the local Zoological Garden where the head of the small animal was caught by the paw of a larger and vicious monkey and drawn violently through the bars of the cage. The head of the smaller animal was almost pulled away from the body, the two parts being held together only by the soft tissues.

Dr. Charles W. Burr exhibited "A Brain Showing a Tumor of the Cerebellum." The specimen came from a man who, previously enjoying a fair measure of prosperity in a foreign country, had come to the United States and suffered loss and privation. As a result he had attempted to commit suicide and for this reason he was admitted to the psychopathic ward of the Philadelphia General Hospital. Here he presented few symptoms for awhile, but gradually he developed deafness with loss of vision, and evidences of mental deterioration. Examination of the eyes disclosed the presence of a papilledema, with edema and hemorrhages. With a view to the possible amelioration of the ocular conditions decompressive trephining was undertaken. The brain was forcibly extruded through the opening made, but no relief ensued, and in a short while death resulted. On post-mortem examination a tumor of considerable size was found in the left cerebellopontile angle. It was pointed out that probably there was no relation between the patient's acts and his mental state on the one hand and the presence of the neoplasm on the other hand.

Dr. Isaac H. Jones presented a communication entitled "Ear-Examinations to Aid Intracranial Localization. Report of Eight Operations; one Autopsy. Brain Showed that Ear-tests had Correctly Localized Cerebellar Tumor." By douching the ear with hot or with cold water and by rotating the patient rapidly in a suitable chair certain responses were obtained with respect to the direction in which one or the other hand was pointed, or with respect to the development of nystagmus and its direction, that had been found to be indicative of the preservation or absence of the reflex arc between the labyrinth of the ear and the cerebellum. Such observations carefully made and thoroughly carried out had been found to be of much use in the establishment or confirmation of the existence of cerebellar disease of one sort or another and thus to lead to successful operative intervention.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

June, 1914.

(*Continued from page* 462.)

PATHOLOGY.

1. How would you estimate the number of bacteria present in a given amount of liquid, for instance, in 1 c.c. of milk?

2. Tenia solium. Describe it and give its life history

3. Describe the changes occurring in and following fibrinous or plastic pleurisy.

4. How is typhoid fever transmitted? How in general is it prevented? On what does its specific prevention depend?

5. Describe the precipitin reaction. Of what medico-legal importance is it.

6. What is a thrombus? An embolus?

7. Describe the changes occurring in untreated gonorrheal ophthalmia.

8. Describe an "adenoid." When may adenoid tissue be considered pathological?

9. How are specimens for microscopic examination made by the freezing method.

10. What is an abscess? Describe the processes of its production.

PRACTICE.

1. Define: (*a*) Epistaxis, hemoptysis, hematemesis. (*b*) Anuria, polyuria, hematuria. (*c*) Pellagra. (*d*) Pertussis. (e) Litten's sign. Romberg's sign.

2. Define: (*a*) Koplik's sign. Kernig's sign. (*b*) Anterior poliomyelitis. (*c*) Percussion, auscultation, vocal fremitus, succussion. (*d*) Emphysema. (*e*) Urticaria.

3. Differentiate: Rubeola, scarlatina, and rubella.

4. What diseases are most commonly found in the right iliac region?

5. Name the various types of organic valvular heart disease.

6. Give fully the differential diagnosis between cholelithiasis and nephrolithiasis.

7. Name the various diseases in which dysphagia occurs.

8. Give treatment of scarlet fever and its complications.

9. Give treatment of ulcerative stomatitis.

10. Give treatment of typhoid fever and its principal complications.

ANSWERS.

PATHOLOGY.

1. *To estimate the number of bacteria in milk:* "Make a known dilution of the milk with sterile water; add definite quantities of this diluted milk to tubes of melted agar or gelatin and pour into plates. The diluted milk may also be delivered in the center of the plate and the melted agar or gelatin poured directly on it, mixing thoroughly. Always shake the bottle well before taking sample. Example: Add 1 c.c. of milk to 199 c.c. of sterile water in a large flask (500 to 1,000 c.c.). After shaking thoroughly, take 1 c.c. of this 1:200 dilution and add it to 99 c.c. of sterile water. Shaking thoroughly, we have a dilution of 1:20,000. Of this we added .5 c.c. to a tube of gelatin or agar. After incubation the plate showed 75 colonies. Therefore the milk contained in each c.c. $75 \times 2 \times 20{,}000$ (dilution) $= 3{,}000{,}000$—the number of bacteria in each c.c. of milk."—(Stitt's *Bacteriology.*)

2. TÆNIA SOLIUM. *"General characters.*—The adult worm or strobila measures about two to ten feet in length. It has a small head, long narrow neck, and transversely segmented body. The head is small, rounded, about the size of a pinhead, and consists of a rostellum or beak with twenty-six hooklets, and of a wider part on which are four suckers. Next the head comes a long, narrow, thread-like neck, followed by a series of larger segments—the proglottides. The first segments are broader than they are long, and are immature. The remaining segments are the reverse, longer than broad, and are sexually mature proglottides. These proglottides are hermaphrodite, the genital orifices being placed alternately on each side of the body, and the male and female organs open by this common genital pore. They have a complete water-vascular system. The uterus consists of a central stem, with seven to ten lateral branches on either side, each of which again branches. The testes appear as clear, white, convoluted tubes, with vesicles. The ova are nearly spherical in shape, about 1/750 inch in diameter, and are surrounded by a dense capsule which encloses the partly-developed, six-hooked embryos. In the flesh of the pig these embryos give rise to the scolices, which are known as 'measles,' cysticerci, or bladder-worms.

"Life history.—As above described. Intermediate host—the pig, which gets the embryos from water—the scolices forming the 'measles' of pork. Within these measles or cysts, the hooklets, which do not decompose, are often found after the scolex has perished. They are short, broad, hook-shaped bodies, with a small knob at their base. Host—man; owing to eating imperfectly cooked, measly pork. The parasite infests man, not only as the mature worm, but as cysticerci. The adult worm is found in man only. Habitat.—The immature worm is found in the subcutaneous tissues, muscle, brain, eye, and liver of the pig; the mature form, in the small intestine of man."—(Wheeler and Jack's *Handbook of Medicine.*)

3. *Fibrinous or plastic pleurisy.*—"The lesions may be more or less diffuse, but they are usually circumscribed, especially to the base of the lungs anteriorly and laterally, but often also at the apex (frequently overlooked). The inflamed area becomes hyperemic, swollen, lustreless and finally granular in appearance; and the seat of a more or less abundant thick or thin, usually slightly adherent fibrinous exudation. In reality the exudation is serofibrinous, that is, there is always some fluid exudation, but this is often minimal (dry pleurisy), and the excess of fibrin causes agglutination of the opposed pleural surfaces. Ultimately the exudation undergoes organization with the formation of permanent adhesions and pleural thickening."—(Kelly's *Practice of Medicine.*)

4. Typhoid fever is transmitted by contaminated water, ice, or milk; shellfish; stools and urine of the patient; flies, and "typhoid carriers." Its specific prevention depends on the use of the prophylactic vaccine.

5. "The phenomenon of *protein precipitation* is absolutely analogous to that of bacterial precipitation. If a clear proteid solution (*a*) is mixed with the clear serum (*a'*) of an animal immunized against the above proteid (*a*), turbidity and precipitation will occur; while if a mixture of the serum (*a'*) is made with a non-homologous proteid, say (*b*), or a mixture of the proteid (*a*) with the serum (*b'*) of an animal immunized against (*b*), no precipitation takes plaec. Graphically expressed it looks thus:

$a + a' =$ precipitation.
$b + a' =$ no precipitation.
$a + b' =$ no precipitation.
$b + b' =$ precipitation.

In other words, a precipitating immune serum reacts only with its homologous proteid. The precipitin reaction is specific.

"Medico-legal value.—For example, a bloody shirt is found in the home of a man charged with murder; the prosecution sees in that the proof of crime, while the defendant pleads that the stains belong to the blood of a sheep; the proof as to their source is of the utmost deciding evidence; and while chemical or microscopical examinations are of little or no use, serum diagnosis wins the day. The blood-stained clothing is extracted in water, part of the extract is mixed with *a*, the serum of a rabbit immunized against human serum, and another part is mixed with *b*, the serum of a rabbit immunized against sheep's serum. If the mixture *a* shows a precipitate, it can be definitely stated that the blood stain contained serum derived from a human being; while if mixture *a* is clear and *b* shows the precipitate, it is strongly corroborative of the presence of sheep's serum."—(Citron's *Immunity.*)

6. *Thrombus* is a blood-clot formed within the heart or blood vessels during life.

Embolus is a clot or other substance brought by the blood current, and forming an obstruction where it lodges.

7. *Gonorrheal ophthalmia.*—"The disease, if untreated, declines spontaneously, and the discharge almost ceases in about six weeks, the palbebral conjunctiva being left thick, relaxed, and more or less granular. Cicatricial changes, identical with, but less severe than those resulting from chronic granular lids, and analogous to those which occur in stricture of the urethra, sometimes follow; considerable permanent thickening of the ocular conjunctiva may also occur. There is a great risk to the cornea in this disease, partly from strangulation of the vessels, partly from the local influence of the discharge. If within the first two or three days the cornea becomes hazy and dull, like that of a dead fish, there is great risk that total or extensive sloughing will occur. In many of the milder cases ulcers form a little below the center, and rapidly cause perforation. In other cases clear, deep ulcers form close to the edge of the cornea. There is less risk of ulceration of the cornea in the purulent ophthalmia of infants than in that of adults. Either one or both eyes may be attacked; in adults one eye often escapes; in infants, where the inoculation occurs during birth, both eyes almost always suffer."—(Nettleship's *Diseases of the Eye.*)

8. An adenoid is an overgrown form of lymphatic

and connective tissue, found in the posterior wall of the pharynx. Adenoids may be considered pathological when they interfere with breathing or any other normal function, or cause any abnormal condition such as snoring.

9. "The piece of tissue used should not be more than 4 mm. high and it must be free from all traces of alcohol. The alcohol is removed by placing the specimen in a large amount of water that is of a temperature of about 30 deg. C. The specimen is placed on the metal stand and a spray of ether or of carbonic acid gas is directed against the under side. The tissue is held in place by lightly pressing upon it with some flat piece of wood, as the handle of a small scalpel. Care must be taken not to freeze the tissue too hard or it will be so brittle as to break or show irregular streaks. The cut sections should be placed in 80 per cent. alcohol, as they will unroll better than if put directly into water." —(McConnell's *Pathology.*)

10. An *abscess* is a localized collection of pus in a cavity of new formation. *Formation of an abscess.*—"When pyogenic bacteria are introduced into the tissues there ensues an inflammatory reaction, which is characterized by dilatation of the blood vessels, exudation of serum, migration of large numbers of leucocytes, and proliferation of connective-tissue cells. These wandering cells soon accumulate around the focus of infection, and form a protective barrier which tends to prevent the spread of the organisms and to restrict their field of action. Within the area thus circumscribed the struggle between the bacteria and the phagocytes takes place, and in the process toxins are formed by the organisms, a certain number of the leucocytes succumb, and, becoming disintegrated, set free certain proteolytic enzymes or ferments. The toxins cause coagulation-necrosis of the tissue cells with which they come in contact, the ferments liquefy the exudate and other albuminous substances, and in this way pus is formed. If the bacteria gain the upper hand, this process of liquefaction, which is characteristic of suppuration, extends into the surrounding tissues, the protective barrier of leucocytes is broken down, and the suppurative process spreads. A fresh accession of leucocytes, however, forms a new barrier, and eventually the spread is arrested, and the collection of pus so hemmed in constitutes an abscess."—(Thomson and Miles' *Surgery.*)

PRACTICE.

1. *Epistaxis* is hemorrhage from the nose.

Hemoptysis is spitting of blood, from the respiratory tract.

Hematemesis is vomiting of blood, from the stomach.

Anuria is suppression of urine.

Polyuria is the discharge of an excessive quantity of urine.

Hematuria is the discharge of urine containing blood.

Pellagra is a disease, probably of protozoan origin, and characterized by erythema, gastrointestinal disturbances, and nervous and mental symptoms.

Pertussis is whooping cough; *i.e.* a communicable disease characterized by a catarrhal inflammation of the air passages and paroxysms of coughing which terminate with a peculiar loud whooping inspiration.

Litten's sign is retraction of the side of the thorax at the insertion of the diaphragm; it is absent in pleuritic adhesions, emphysema, etc.

Romberg's sign is the swaying of the body and inability to stand when the eyes are closed and the feet are placed together; observed in locomotor ataxia.

2. *Koplik's sign or spots*, small bluish-white spots surrounded by a reddish areola, seen on the mucous membrane of the mouth in the prodromal stage of measles.

Kering's sign: With the patient lying on his back and the thigh flexed at right angles with the trunk, extension of the leg on the thigh is impossible; observed in meningitis.

Anterior poliomyclitis is inflammation of the anterior cornua of the spinal cord.

Percussion is a means of physical diagnosis; by striking or tapping on a part the condition of the underlying parts is ascertained by the sound produced.

Auscultation is a means of physical diagnosis; it consists in listening to the sounds produced in some internal part of the body.

Vocal fremitus is the thrill conveyed by the hand placed on the chest during speaking.

Succussion is the shaking of a person from side to side with the object of determining the presence of fluid in a cavity or hollow organ.

Emphysema is the presence of a gas in a tissue that is normally free from it; or excess of a gas in a part that normally has some of it.

Urticaria is a condition of the skin characterized by wheals which cause a burning and itching sensation.

3. *Scarlet fever.* Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. The eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent.

Rubeola. Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny. The eruption is darker, less uniform, more shotty; the temperature is lower, pulse slower, the tongue is not of the "strawberry" type; coryza, coughing, and sneezing may be present; Koplik's spots are present.

Rubella. Period of incubation, ten to seventeen days. Stage of invasion one day. Eruption appears on first day, is most intense on second day, consists of red papules. Often fades from face before it is seen on the limbs. The pulse is not much accelerated, all the symptoms are slight. Desquamation is very slight. There may be slight sore throat and swollen cervical glands. Koplik's spots are absent.

4. In the *right iliac region*, there may be found: Appendicitis, psoas abscess, inguinal hernia, fibroid tumor, ovarian abscess or cyst, hematoma, cancer of cecum, intussusception, pyosalpinx.

5. *Organic Valvular Heart Disease.* May be: Aortic regurgitation, aortic stenosis, mitral regurgitation, mitral stenosis, tricuspid regurgitation, tricuspid stenosis, pulmonary regurgitation, pulmonary stenosis, or various combinations of these.

6. In *cholelithiasis*, the attack is sudden; the pain very severe, and generally localized in the right hypochondriac region and often spreading to right scapula and over the abdomen; vomiting, chill, fever, drenching sweats, feeble and rapid pulse are common; liver and gall-bladder are swollen and tender; jaundice may supervene; the urine may show bile pigment and albumin; examination of the feces for a few days after the attack may reveal the calculus.

In *nephrolithiasis*, the pain is also sudden and very severe, begins in the lumbar region and follows the course of the ureter, and is often referred to the testicle and glans penis; nausea, vomiting, chills, fever, and sweat are common; strangury may be present; there is great prostration following the attack; there may be polyuria or suppression of urine; with the aid of a cystoscope or sound, the calculus may be found in the bladder; examination of the feces is negative.

7. *Dysphagia may occur in:* Glossitis, tumor of tongue, stomatitis, tonsillitis, pharyngitis, retro-pharyngeal abscess, diphtheria, paralysis or spasm of the palate or pharynx, laryngitis, cancer or ulcer of the larynx, spasm or inflammation of the esophagus, enlarged thyroid gland, thoracic aneurysm, enlarged bronchial glands, lymphadenoma, mediastinal tumors, and large pericardial or pleural effusions.—(From Butler's *Diagnostics of Internal Medicine.*)

8. *Treatment of scarlet fever and its complications.* The treatment is that of infectious fevers in general, and in addition: "1. *Serum treatment.*—Serum from convalescents, injected in doses up to 20 c.c., has sometimes proved successful. Good results have also been obtained with polyvalent antistreptococcic sera (*i.e.* sera prepared from several different strains of cocci). 2. The danger of spreading the disease is greatest during the desquamative period. Isolation must therefore be kept up for at least six weeks from the onset, or till all desquamation and discharges (nasal, aural, etc.) have ceased. 3. A minimum amount of nitrogenous food, to avoid irritation of the kidneys. This caution does not affect milk, which may be freely used. 4. Daily toilet, tepid sponging, or tepid baths. 5. Inunction of oily antiseptic preparations into the skin, to prevent dissemination of the desquamating scales. 6. Examine the urine daily for signs of nephritis. 7. The condition of the ears must also be very carefully watched.

"*Complications.*—*Arthritis* demands warm and sedative applications. Wrap the joints in cotton wool; alkalies

are better than salicylates, as the latter tend to irritate the kidneys. *Throat.*—Ice to suck; antiseptic sprays; glycerin of carbolic acid; warm applications externally.

"*For the severe types.*—Avoid caustic applications; relieve pain by cocaine solutions; internally, tincture of ferric chloride, with free administration of ammonia; quinine, either alone or with ferric chloride. Stimulants may also be required. Nasal feeding often gives much relief. *Nephritis.*—Milk diet, hydragogue purgatives (avoid mercurials), hot-air baths, hot packs, etc., according to the severity of the dropsy." (Wheeler and Jack's *Handbook of medicine.*)

9. *Treatment of ulcerative stomatitis:* Nourishing food in fluid form; potassium chlorate, gr.x, t.i.d., internally, and also as a mouth wash; nitrate of silver may be applied to the ulcers; the mouth must be kept as clean as possible.

10. *Treatment of typhoid fever with its principal complications:* The patient must be in bed, and no medicine given unless indicated. "Give no solid food, or that which would not readily pass through a fine sieve. Milk, if it agrees, albumin-water made from white of egg, beef tea, and chicken broth are the principal foods. Of late some authorities have advocated a light solid diet throughout, but nothing must be given that would increase the risk of perforation. The stools should be daily inspected. If undigested curd is found, milk is being given too often, or the gastric function is impaired. It may then be given with lime water or barley water. Beef tea should be sparingly used, lest it excite diarrhea. Alcohol is required mainly in the later stages, when the typhoid state has set in, and the heart is weak. Many cases do well without it altogether. Other stimulants are strychnine, ammonia, ether, etc.

"If the *diarrhea* becomes excessive give bismuth and opium, or lead acetate and morphia, or an enema of starch and opium. When the motions are very offensive intestinal antiseptics (calomel in small doses, salol, etc.), may be given. They are also useful in meteorism. If *constipation* be troublesome, give enemata. No purgatives should be given after the first week. *Hemorrhage*—opium, lead acetate, or calcium lactate gr. xv every four hours, hypodermic injection of morphine or ergotin, and the application of an ice-bag to the cecum.

"*Perforation.*—The main chance of recovery lies in early laparotomy and suture of the affected bowel. Every hour lost after the diagnosis is made, and the initial shock has passed off, increases the danger to life. Patients operated on within twenty-four hours may recover; later, recovery is very rare. In anticipation of operation, morphine may be given to relieve pain and diminish peristalsis. *Bed sores*—water-bed, cleanliness, stimulant and antiseptic lotions, dry dressings if the slough is large. *High fever*—quinine and cold baths. The antipyrin group is dangerous to the heart. The stools and urine must be carefully disinfected. During *convalescence* the diet must be increased with the utmost caution, and the possibility of relapse must always be remembered." (Wheeler and Jack's *Handbook of Medicine.*)

(*To be continued.*)

Multiple Exostoses.—P. Turner reports the cases of a boy aged thirteen years who had a painful swelling at the inner end of the right clavicle. This proved to be an exostosis, the pain being probably due to some slight injury. Examination showed the presence of bony outgrowths near the extremities of most of the long bones. Of special interest was a very large growth from the outer surface of the left ilium and a small exostosis apparently growing from the lamina of one of the dorsal vertebræ. The bones of the hands and feet were not affected. The tumors gave rise to no symptoms and caused no disability. The boy's father, a rather small but muscular man, aged about thirty-five years, also had multiple bony tumors which he said had been present since infancy. He also had a large exostosis growing from the outer surface of the left ilium, and two very large masses attached to the lower extremity of the left femur, as well as numerous smaller exostoses growing from other bones. In his case the bones of the hands and feet were normal, and the tumors caused no inconvenience. There was no history of similar tumors in any other members of the family.—*Proceedings of the Royal Society of Medicine.*

Therapeutic Hints.

Treatment of Tabetic Pains.—Müller is said to recommend intramuscular injections of the following solution in the treatment of the pains of tabes:

℞ Thiosinamine, 1 gram.
Glycerin, 1 gram.
Sodium salicylate, 2 grams.
Sterile distilled water, 10 cubic centimeters.

M. Sig.: One cubic centimeter should be injected daily or on alternate days.—*La Riforma Medica.*

A Stomachic for Children.—L. Freyberger cites the following from the formulary of the Great Ormond Street Hospital, London:

℞ Sodium bicarbonate, gr ij.
Spirit of chloroform, ℥ij.
Compound infusion of gentian, ʒj.

M. Sig.: Three time a day.—"Pocket Formulary for the Treatment of Disease in Children."

Treatment of Emphysema and Chronic Bronchitis.—E. Müller recommends the following:

℞ Anisated solution of ammonia.
Tincture of stramonium.
Tincture of opium, āā 5 grams.

M. Sig.: Fifteen to twenty drops in water three times a day.—"Die Therapie des praktischen Arztes."

Management of Chronic Alcoholic Gastritis.—Oettinger prescribes scale pepsin in doses of one-half gram in cachet after meals, together with tablespoonful doses of the following mixture:

℞ Dilute hydrochloric acid, 3 grams.
Syrup of lemon, 100 grams.
Distilled water, 200 grams.

—*Gazzetta degli Ospedali e delle Cliniche.*

Drug Treatment of Pneumonia in Children.—H. W. Dana prescribes the following mixture for an eighteen-months-old baby:

℞ Ammonium chloride, ʒj.
Syrup of ipecac, ʒjss.
Tincture of belladonna, ʒj.
Fluid extract of licorice, ʒvss.

M. Sig.: Give eight drops in a teaspoonful of boiled water every two hours.—*Boston Medical and Surgical Journal.*

The Rapid Sterilization of Water.—R. R. Mendez cites the following method which has been devised by G. Lambert-Forment. The organic matter and the bacteria are destroyed by the addition to each liter of water of the following powder:

℞ Potassium permanganate, 0.05 gram.
Manganese dioxide, 0.05 gram.
Powdered talc, 0.37 gram.
Calcium carbonate, 0.02 gram.

At the end of ten minutes the excess of permanganate is neutralized by the addition of 0.06 gram of hyposulphite of soda and 0.44 gram of powdered talc. The supernatant liquid is then decanted off and filtered.—*Revista Médica de Sevilla.*

Treatment of Comedones.—L. Pron states that Brocq and Simon recommend the following method: Every eight or ten days after a thorough scrubbing of the face, the comedones are expressed by means of a suitable instrument, as a watchkey, and then cologne water is applied to the face, after which the lesions are treated with the following solution:

℞ Salicylic acid, 1 gram.
Green soap, 40 grams.
Tincture of lavender, 10 grams.
Alcohol (90 per cent.), 80 grams.

If the latter is too irritating it may be diluted. —"Formulaire de Thérapeutique Clinique."

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 14.
Whole No. 2317.

New York, April 3, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE RELATION OF HERNIA TO THE WORKMEN'S COMPENSATION LAW.*

By ALEXIS V. MOSCHCOWITZ, M.D.,

NEW YORK.

PROFESSOR OF CLINICAL SURGERY, COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY; ATTENDING SURGEON, MT. SINAI HOSPITAL; VISITING SURGEON, HARMORIAH HOSPITAL.

In 1914 the Legislature of the State of New York passed Chapter 67 of the Consolidated Laws, known as the "Workmen's Compensation Law." By the terms of this law, workingmen, engaged in certain hazardous employments, are entitled to compensation for injuries sustained or death incurred, in the course of their occupation. In most instances the injury is so manifest that there is no question of the validity of the claim, and in consequence the duties of the commission are comparatively easy, consisting merely of a weighing of the evidence, and the decision of the amount to be awarded. In some instances, however, the injury is not so manifest; unjust claims for injuries are sometimes made by dishonest persons; important as these cases are, both from a medical and legal point of view, I cannot enter into their discussion at the present time. I am more interested at present in a third possibility; namely, that a claim is made in perfectly good faith for a "malady," which in the mind of the claimant was the result of an injury, but which, as I shall show, cannot be regarded as the result of a trauma. I refer to perhaps the most common instance of such claims, namely, hernia.

The question of the relationship of an injury to a hernia is not only a very important one, but also a most difficult one, and one which cannot be decided offhand. I have no hesitancy in stating that all laymen, and almost all medical men, would not look upon the question as a very intricate one, and would very promptly decide the relationship between injury and hernia in an affirmative manner. In casting my lot with the minority, it is important that I state at the very outset, that I have no ax to grind, that I have no particular case in mind, that I have no particular theory to prove; that not only am I very anxious not to lead you astray, but I am more than anxious not to lead myself astray; and that, while I am approaching my subject with preconceived notions, I do so in an entirely unbiased manner; and were my conclusions of a contrary nature, I would defend them just as warmly.

In taking this stand, I have deemed it logical first to describe very deliberately the formation of an ordinary hernia, acquired in the routine of everyday life; in which the question of law or the question of Workmen's Compensation does not enter. At a superficial glance this question appears to be very simple; on second thought, however, it will quickly become evident that this simplicity is only an apparent one. Indeed, it is not only difficult, but very complicated. This is amply proven by consulting the very voluminous literature appertaining to the subject, as we find that very long and acrimonious discussions have been waged since time immemorial, not only regarding the causations of hernia, but even more regarding the mechanism, and regarding the number, the quality and quantity of the forces which come into play, and even now are far from being settled or universally accepted.

I believe the principal difficulty arises from the fact that whenever a new theory was proposed an attempt was immediately made to bring under this one theory the entire pathology and pathogenesis of hernia, to the exclusion of all other possibilities. The pathology and pathogenesis of every hernia is made up of so many parts, for instance the anatomy of the hernial apertures, and hernial roadsteads, congenital malformations, the mobility of the surrounding peritoneum, the mobility of the hernial contents, the propelling forces, the resisting forces, etc., that it is hardly fair to expect any working hypothesis to cover all the points possible.

It may not be amiss to review these theories briefly.

1. The oldest theory as to the etiology of hernia was that there occurred a tearing of the peritoneum, and that the abdominal contents prolapsed through the defect in the parietal peritoneum, so created. The colloquial name of a hernia, "rupture," denotes the mechanism which was imagined to take place normally in the formation of a hernia, and is perhaps one of the reasons why claims for damages or compensation are so frequently made. It is very surprising that this theory should have persisted, even though only in the lay mind, despite the fact that Celsus, in his description of hernia, some two thousand years ago, described the most common form, as occurring without a tear in the peritoneum. Like many other truths in medicine this was forgotten, and for many centuries the theory that hernia was the result of a tear of the peritoneum held sway, and was not abandoned completely until late in the seventeenth century, when more opportunity was afforded for anatomical dissections. Since that period the theories upon hernia begin to come thick and fast.

2. This theory assumes that the intraabdominal contents, under pressure from some external source, tend to escape at a point which does not offer sufficient resistance.

3. This theory assumes that hernia is caused by an inadequate fixation of the abdominal viscera. This theory concedes the presence of weak areas in the abdominal wall, but in addition the claim is

*Read at a meeting of the Medical Society of the County of New York, February 23, 1915.

made that normally fixed viscera cannot prolapse through these areas. Certain observations made upon the operating table certainly tend to prove the validity of this theory; almost every surgeon has noted the fact that in operations for large herniæ, after the hernial contents have been reduced, it is always the same loop of intestine, or the same piece of omentum which tends to prolapse. It cannot be denied that nature has so disposed the intraabdominal contents that they have only a very slight mobility, just sufficient, let us say, for the vermicular action of the intestine; at the same time it is also true that a change in posture does influence materially the position of the intra-abdominal contents; thus, for instance, the omentum or small intestines will be much nearer the pelvis in a sitting or squatting position than in the erect. It should also be borne in mind that the very presence of a hernia, or better said the presence of contents in a hernia, tends to drag the intraabdominal fixations of the intestine still more out of place. In other words, we have arrived not at a good working theory, but at a vicious circle.

4. The saccular theory. This theory presumes a peritoneal prolongation in the nature of a hernial sac, into which eventually the intraabdominal contents find their way, without any additional force, and without any deficiency in the supporting or fixating mechanism of the viscera.

5. Roser's theory, that the hernial sac is dragged out by an outward growth of a lobule of properitoneal fat, held sway for some years, but has now been practically abandoned.

6. The congenital theory of hernia is the only one of comparatively recent date. This theory has been proposed by Hamilton Russell, and is certainly very alluring. According to this theory all inguinal herniæ are due to a faulty closure of the processus vaginalis peritonei, *i.e.* that process of the peritoneum which accompanies or even precedes the testis in its descent to the scrotum. No one denies the incidence of a hernia when the vaginal process has never become obliterated; this variety, however, forms only a small percentage of all herniæ. To explain the common and more frequent types of so-called "acquired inguinal hernia," Russell and his followers assume an "imperfect" closure of the processus vaginalis. The assumption is, that the process has become obliterated normally in the lower part, but the upper part persists and forms the starting point of a hernia. Definite proof of this contention is lacking. Were this the case, then we would also find at our operations for inguinal hernia that the sac would be intimately adherent at its distal extremity to the fibrous cord remaining after obliteration of the distal portion of the processus vaginalis. As a matter of fact, we find such an adhesion only in that exceedingly rare form of hernia which has received the name of "hernia into the funicular process." On the contrary, we find that the distal portion of the sac, in most cases, can be readily peeled off bluntly without any sharp dissection. The often quoted autopsy reports in which, particularly in young infants, smaller or larger peritoneal dimples are found, are by no means convincing. Personally I am of the opinion that it would be presumptuous and more than risky to decide offhand whether these dimples are congenital remains of the processus vaginalis or small acquired hernial sacs. Murray submits also many arguments in support of the congenital theory, not only for inguinal, but also for femoral and other types of herniæ. None of these arguments are, in my opinion, absolutely convincing. No one can deny the possibility of congenital saccules in the inguinal and umbilical regions, both regions so intimately connected with the embryological development of the fetus; but to make the broad assertion that all herniæ, even in those regions where no fetal structures ever pass through, are caused by congenital sacs, is, in the light of our present knowledge, unwarranted.

In many respects it is really regrettable that the congenital theory cannot be accepted as valid. It would terminate once and forever all discussions upon the subject; it would materially lighten many worries of workmen's compensation commissions; a claimant would be told that he had his hernia since birth, and therefore, it could not be due to any accident, and in consequence he was not entitled to any award; and last, but not least, it would have saved me considerable trouble in the preparation of this communication, and you considerable time in listening to it. It is a very simple matter to deny a theory, and it is, therefore, very easy for me to deny the validity of all the theories just enumerated. The question may then be asked what have I to offer in their place. I shall allay all misgiving at once by telling you that I have no new theory to offer; first, because there is no necessity for one; and secondly, because the theories I have mentioned have exhausted all the possibilities. Each of these theories contains a modicum of truth and, to my mind, a hernia is really the resultant of the most important factors in these theories.

7. Excepting a very rare form of sliding hernia, my definition of a hernia is the following: A hernia is a protrusion of an intraabdominal viscus into a preformed sac of peritoneum. If this definition is correctly scrutinized it will be found that the only essential part of a hernia is the sac. I am sure it does not require any lengthy argument to prove my contention, but I may be permitted to prove it by a simple example. An individual in the erect position has a hernia, which is composed of two parts, namely, hernial sac plus hernial contents; he now lies down, and the contents are reduced; he of course still has his hernia, although there are no contents within the sac. The same is true of an individual who retains his hernial contents by a truss. The sac being an essential *sine qua non*, it is incumbent upon us to carefully analyze the mechanism of the formation of the sac. If this is done we encounter the following possibilities:

Acquired Hernia.—Before explaining the first, and incidentally the most common, method of formation of a hernial sac, it is necessary for me to again call attention to certain fundamental anatomical principles, which exist, not only in every hernia, but in fact in every abdomen. These are:

1. That the entire abdominal parietes are lined by peritoneum. The only exceptions are a few isolated areas to which the suspensory ligaments of the viscera find attachment. (This parietal peritoneum is pushed outward when a viscus escapes from the abdomen, and, therefore, constitutes the sac of the hernia.)

2. External to the peritoneum, and separated from it only by more or less developed (or in some parts entirely absent) layer of "properitoneal fat," there is a very dense fascia, known as the "intra-abdominal fascia." This fascia has received dif-

ferent names, according to its anatomical location, *e.g.* the diaphragmatic fascia, lining the diaphragm; the iliac fascia, lining the iliac fossa; the pelvic fascia, lining the pelvis; the transversalis fascia, lining the transversalis muscle, etc. It is unfortunate that these various names have become prevalent because the diversity of nomenclature tends to obscure an otherwise simple matter. It must never be forgotten that this fascia forms one continuous layer.

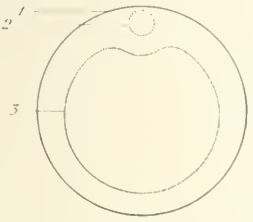


Fig. 1.—Section of the abdomen on a level above the bifurcation of the aorta, showing the relations of the aorta to the peritoneum and transversalis fascia. 1, Transversalis fascia; 2, aorta; 3, peritoneum.

The intraabdominal fascia is very dense and strong, but is stronger in some regions than in others. The strength of the intraabdominal fascia is of the greatest importance to the human economy, because at some areas of the abdomen it is, to all intents and purposes, the sole protective structure, and yet it serves its purpose so excellently that hernia at these points is of rare occurrence.

3. All the great vessels of the posterior abdominal wall lie upon the intraabdominal fascia, and are covered by the peritoneum. This fact is of fundamental importance to the proper understanding of the pathogenesis of every variety of hernia, and unless fully grasped all subsequent explanations are unintelligible.

Fig. 1 represents diagrammatically the relation of the vessels to the intraabdominal fascia and peritoneum, at any point above the bifurcation of the aorta. (For the sake of simplicity only the arteries are represented.)

At the point of exit of the femoral vessels into the thigh the diagram is modified as in Fig. 2.

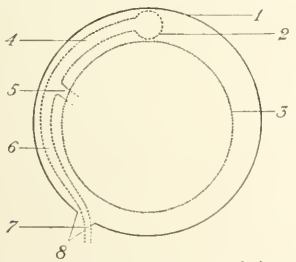


Fig. 2.—Section showing the relations of the aorta, common, external and internal iliac, and femoral arteries to the peritoneum and transversalis fascia. Note the hole in the transversalis fascia, through which the external iliac artery escapes to the thigh. 1, Transversalis fascia; 2, aorta; 3, peritoneum; 4, common iliac artery; 5, internal iliac artery; 6, external iliac artery; 7, femoral artery; 8, hole in the transversalis fascia.

Fig. 3 is a modification of Fig. 2, and represents similarly the exit of the spermatic vessels.

If Fig. 2 and Fig. 3 are examined it becomes evident that at the point where these vessels lose their relationship to the peritoneum there is an opening in the intraabdominal fascia, in order to permit the escape of these vessels from the abdomen. If there were no opening the vessels could obviously never escape to the thigh or testis. Now this opening in the intraabdominal fascia is of the greatest importance to every hernia, for through

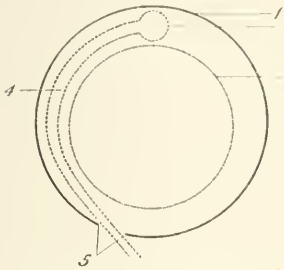


Fig. 3.—Section showing the relations of the aorta and spermatic artery to the peritoneum and transversalis fascia. Note the hole in the transversalis fascia, through which the spermatic artery escapes to the testis. 1, Transversalis fascia; 2, aorta; 3, peritoneum; 4, spermatic artery; 5, hole in the transversalis fascia.

it the hernia first escapes. In oblique inguinal hernia it is called the "internal inguinal ring"; in femoral hernia it is called the "internal femoral ring." Such an internal ring exists in every hernia.

The internal ring has been variously described by different anatomists. Its importance has always been appreciated, but the most important thing to remember about it is this: That it is merely a hiatus or hole in the intraabdominal fascia, and "only" in the intraabdominal fascia. The ring is surrounded by, covered by, and lies in close proximity to other structures, but as a hole it exists only in the intraabdominal fascia. Were this hole not present in the intraabdominal fascia the hernia could not occur at that particular site.

This hole, or internal inguinal ring in the present instance, can best be demonstrated from within the abdomen by raising the parietal peritoneum away from the intraabdominal fascia, thereby exposing the spermatic vessels as they enter the ring. It is slightly more difficult to demonstrate this structure by dissecting from without inward, because it is then necessary to make an artefact. The reason for this is that nature has put a nicer finish to this hole. Careful dissection will show that the intraabdominal fascia is continued downward for a certain distance upon the vessels, gradually be-

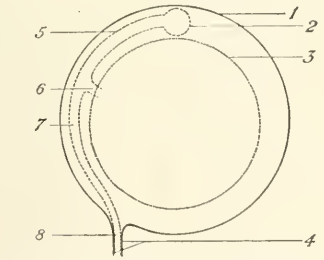


Fig. 4.—Section showing the relations of the aorta, common, external and internal iliac and femoral arteries to the peritoneum and transversalis fascia. Note the outward prolongation of the transversalis fascia upon the femoral artery, forming the so-called "sheath of the femoral vessels." 1, Transversalis fascia; 2, aorta; 3, peritoneum; 4, anterior and posterior prolongations of transversalis fascia, so-called "sheath of femoral vessels"; 5, common iliac artery; 6 internal iliac artery; 7, external iliac artery; 8, femoral artery.

coming thinner and thinner, and finally blending with the wall of the vessel itself. To be exact, therefore, the last two diagrams should be modified as in Figs. 4 and 5.

Now in certain areas these perivascular prolonga-

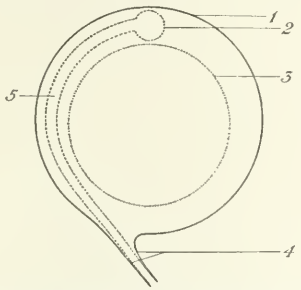


Fig. 5.—Section showing the relations of the aorta and spermatic artery to the peritoneum and transversalis fascia. Note the outward prolongation of the transversalis fascia above the spermatic artery, forming the so-called "infundibuliform fascia." 1, Transversalis fascia; 2, aorta; 3, peritoneum; 4, anterior and posterior prolongations of the transversalis fascia, so-called "infundibuliform fascia"; 5, spermatic artery.

tions of the intraabdominal fascia have been carefully studied, are well marked, and indeed, have received special names. I mention, for instance, the prolongation upon the spermatic vessels, which is called the "infundibuliform fascia"; and the prolongation upon the femoral vessels, which is called the "sheath of the femoral vessels."

A similar anatomical arrangement holds true for every blood vessel that escapes from the abdomen to the periphery; for instance, the obturator, or sciatic arteries, or the umbilical vein and arteries.

It is an established truth that the intraabdominal fascia, as a rule, is strong enough to retain the viscera within the abdomen. However, it is not strong enough to do so within certain definite anatomical areas, and it is at these areas, and at these areas only, that herniæ occur. A little reflection will show that herniæ occur only where blood vessels normally make their exit. It is apparent that these weak anatomical points are the attenuated perivascular projections of the intraabdominal fascia.

To return now to inguinal hernia in particular. It has just been pointed out that there exists naturally in the inguinal region a weak area in the in-

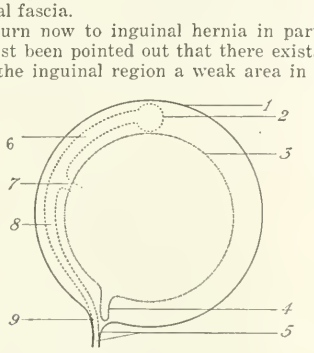


Fig. 6.—Diagrammatic illustration of a femoral hernia.

traabdominal fascia; and it is this weak area which determines the presence of an inguinal hernia.

At this point it may with propriety be argued that the anatomy just described exists in every individual, and yet only a certain percentage of these acquire an inguinal hernia. To combat these arguments we must turn our attention to the mechanical forces which come into play in a hernia. In every individual we must assume two forces to be constantly in action; one, the strength of the transversalis fascia, which tends to retain the intraabdominal contents within the abdomen; and the second, composed of a number of factors, namely, the intra-intestinal pressure, the abdominal muscles, the diaphragm and the muscles of respiration, which tend to propel the abdominal contents out of the abdomen. The latter force is not only constant, but is exaggerated to an extreme limit on some occasions. It would carry me beyond the limits of my time were I to enter into a description of these occasions; suffice it to say, that some are connected with physiological functions of the body, and some with our daily vocations.

Everything being normal we must also assume a perfect balancing between these two forces; and this being the case, no hernia will result. But let there be a disturbance in the exact balancing of these forces, *i.e.* let there be either a diminution of the restraining force or an increase in the propelling force, then the intraabdominal contents will tend to escape from the abdomen. Now this tendency is equally distributed throughout the entire abdomen, *i.e.* it is equal against all parts of the restraining force, *i.e.* the intraabdominal fascia. We

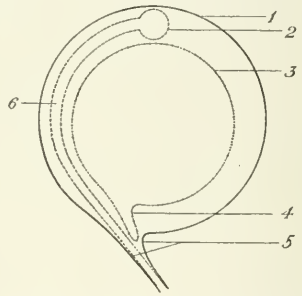


Fig. 7.—Diagrammatic illustration of an inguinal hernia.

have seen, however, that the intraabdominal fascia shows in certain locations of the abdomen weakened areas, preformed by the passage of vessels; it is not surprising, therefore, that the intraabdominal contents will find at these places inviting points of escape. These places are also protected by a layer of parietal peritoneum, and this parietal peritoneum is being pushed ahead of the escaping intraabdominal contents, in the form of a slight dimple. *This slight dimple is the beginning of every hernia.*

For a time everything is well, the propelling force having ceased the intestine resumes its normal anatomical position; the peritoneum also returns, and this I emphasize, it never again attains its normal conformation.

This is repeated time and again; more and more of the peritoneum is being pushed out, finally quite a fair sized sac is formed, until finally the intestine or omentum finds permanent lodgment within it. We now have a small, but nevertheless complete hernia. See Figs. 6 and 7.

The important points to remember in the formation of a hernia are two: First, the slight and insidious onset, and second, the slow growth. In other words, no fully developed hernia is ever acquired at the first insult, or at the first disturbance of the balance between the restraining and the propulsive forces. How soon thereafter a complete

hernia develops depends upon the frequency and magnitude of the increased propelling forces; in some cases it may take only days, in others it may last for years. The afflicted individual is only too prone to ascribe his hernia to one particular occasion, especially if he knows that a workingman's compensation award depends upon it. But you and I know that his hernia, which he may have only noted at that particular occasion, even if perfectly honest in his belief and statements, is only a culmination of many preceding insults, which may have antedated that occasion by years.

Finally we have also seen that the important part in the pathogenesis of hernia is the formation of the sac; and that the location of the hernia is entirely accidental, being proscribed by certain weak anatomical areas in the intraabdominal fascia.

The process just described is a crude, but nevertheless true outline of the manner in which an ordinary hernia is as a rule acquired. In addition there exist, however, a number of other factors which predispose an individual to the acquisition of a very common form of hernia, namely, the inguinal; these may be termed "contributing causes."

Contributing Causes. — 1. Certain Anatomical Peculiarities of the Inguinal Region.—If the inguinal region is viewed from within the abdomen there are to be seen three distinct elevations, separated by shallow, but nevertheless definite depressions. In the median line of the abdomen there exists the first elevation, caused by the presence of the urachus; to the outer side of the urachus is the first depression, the internal inguinal fossa. This is separated from the middle inguinal fossa by the second elevation, caused by the presence of the obliterated hypogastric artery. Finally, on the outer side of the middle inguinal fossa we have the third elevation, caused by the deep epigastric artery, to the outer side of which there is the third depression or external inguinal fossa, which corresponds to the internal inguinal ring. These shallow depressions, other things being equal, are preferred points for hernial incipiencies.

2. The Direction of the Inguinal Canal.—Roughly speaking, we describe as inguinal canal that portion of the inguinal region which is bounded internally by the internal inguinal ring (the hiatus in the intraabdominal fascia), and externally by the external inguinal ring (the hiatus in the aponeurosis of the external oblique). This canal in the normal individual has a definite length and width, and also a definite obliquity. In individuals afflicted with a hernia this normally definite length and obliquity are diminished, and the internal inguinal ring approaches the external inguinal ring; so that in herniæ of long standing the external and internal inguinal rings are directly opposite each other. But even in perfectly healthy individuals abnormalities occur in the direction, length, and width of the canal. While in a perfectly normal individual the internal inguinal ring is protected, for a while at least, by the overlying transversalis and internal oblique muscles; this is not the case in the short inguinal canals.

Incidentally, I may also add that I differ entirely from those observers who see in a large external inguinal ring a very important contributing cause to the development of hernia. I have already pointed out that hernia begins at the internal inguinal ring, and I, therefore, see no reason why any fault should be attached to the external inguinal ring. I will not deny the instrumentality of a large external inguinal ring in the later development of a hernia, but I do deny its instrumentality in the incipiency of a hernia. I have seen and followed for many years a number of individuals who upon first examination showed a very large external inguinal ring, and yet who never developed any hernia.

3. Varicocele and Veins.—By referring to Fig. 2 and Fig. 4 there will be seen a hiatus in the intraabdominal fascia, the internal inguinal ring so called, and the outward prolongation of this fascia, the infundibuliform fascia so called. This hiatus or internal inguinal ring transmits the spermatic artery, the spermatic veins, the vas deferens and its vessels, some nerves and lymphatics, and the fibrous cord remaining behind after the normal obliteration of the processus vaginalis. These structures are large in number, but small in size, and yet nature has been rather profligate in her dimensions, and has made the hiatus in the intraabdominal fascia more than ample for their transmission. This alone is to my mind sufficient to account for the greater frequency of oblique inguinal hernia, as compared to all others.

In addition there must not be forgotten abnormalities in the number and size of the vessels, particularly of the veins, which pass through the ring. I am also of the opinion that there must occur an alteration in the diameter of these structures, depending upon the greater or lesser amount of blood which passes through the vessels, depending upon the blood pressure in various states of health and disease, and upon the changing positions of the body; all of which tend to temporary dilatations, with a further weakening of the internal inguinal ring.

4. Mobility of the Peritoneum.—The parietal peritoneum is as a rule firmly attached to the underlying tissue in most parts of the abdomen, so that there is no unusual amount of redundancy. In the inguinal region, however, very probably in order to permit the alternating physiological distension and evacuation of the bladder, it is rather loosely attached. This loose attachment is of twofold significance. First, the peritoneum is very readily evaginated through the internal inguinal ring, and second, it accounts for the fact that oblique inguinal herniæ so readily attain large dimensions.

5. The usually erect position of the human race is also a factor inducive to the formation of hernia. I will, however, not enter into the details of this question, as it merely explains the greater frequency of hernia in man, as compared to many other mammals who by nature have an open processus vaginalis.

6. Hypoplasia of the Tissues.—Finally, I wish to call attention to a series of phenomena which are so closely interwoven with each other, and which merge so gradually one into another that their separation into simple factors is a matter of some difficulty. While composed of definite elements I have grouped them collectively under the heading of hypoplasia of the tissues.

It is important to remember that empty spaces never exist in the abdomen, on the contrary each crevice is completely filled out by the alternating shape of the abdominal contents. When a hollow viscus contracts and becomes smaller then either a neighboring viscus dilates and takes up the diminished space, or the muscles of the abdominal parietes contract and diminish the capacity of the

peritoneal cavity. It also requires a very carefully and well regulated mechanism in order to keep the viscera in position, and yet to allow a certain amount of mobility, in order to permit all the necessary physiological motions. Considerable discussions have taken place as to the forces, whose rôle it is to keep the viscera in position. Some authors assume that the main importance is to be attached to the fixation apparatus of the viscera, *i.e.* the so-called ligaments or mesenteries. Others deny at best a sufficient fixation of the viscera, and assert that the main reliance is to be placed upon the supporting forces, namely, the bones and muscles and fasciæ of the abdominal walls and pelvis. Others again ascribe a very important rôle to the atmospheric pressure exerted through the abdominal walls. And finally still others lay great stress upon the force of negative pressure exerted through the alternating contractions and relaxations of the diaphragm and other muscles of respiration. Personally I do not wish to take a positive stand in deciding the question, but it appears to me to be most probable that all these forces, and perhaps additional forces, have a rôle in the fixation of the viscera.

It is immaterial to us whether the main reliance in the fixation of the viscera is to be placed upon the mesenteric attachments or not, but it cannot be denied that these ligaments do really possess a certain inherent strength. That being the case it must also be conceded that this strength can and must be diminishable by atrophic processes of an acquired or congenital nature. The natural result will be a sagging or sinking of the attached viscera, which would constitute one variety of visceral ptosis.

It is furthermore immaterial to me whether the main reliance in the normal retention of the viscera is to be placed upon the supporting forces, but for the sake of argument it must be conceded that a certain amount of the retention of the viscera in a normal position is due to the support which they derive from the abdominal and pelvic muscles, fasciæ, and bones. Let us now assume that any one or more of these structures has been weakened, either by disease or by some atrophic process; then it must be also conceded that the viscera supported by them must sag to a lower level. This would constitute a second variety of visceral ptosis.

If this state is possible with a disturbance of one of the forces, how much more likely is it to happen when both forces, *i.e.* the fixative and the supporting forces, are disturbed. I am of the opinion that this is what actually happens in most instances, *i.e.* when there is a weakening of both forces, somewhat in the line of a hypoplasia of all the tissues which come into play. Incidentally I may add that this is perhaps an excellent way to account for the fact that it is not the blacksmith or hardworking laborer who most frequently acquires a hernia, but the ill-nourished man of sedentary habits.

An individual thus afflicted with a hypoplasia of the tissues presents in addition to other well-marked symptoms an unmistakable appearance. The supraumbilical region of the abdomen is usually sunken in, while the infraumbilical region is protuberant. Even different and distinct forms have been described, such as the "weiche Leiste" of the Germans, in which in the erect posture of the individual, both inguinal regions and just above and parallel with Poupart's ligament, are occupied by sausage shaped swellings. The "Pointe de hernie" of the French is similar in type, but appears only upon some, ever so slight, an exertion. The "ventre trilobe" in which the infraumbilical region of the abdomen is divided into three hillocks, two lateral and one median, is another example. There are still other varieties.

In all of the conditions just described the visceral ptosis may be looked upon as more or less permanent. There is, however, one other very important ptosis, which in contradistinction to the others is not due to any hypoplasia of the tissues and is only temporary. A very slight consideration of the anatomy of the parts will show at once that in the erect position all the viscera will bear a certain relation not only to each other, but also to the pelvis and parietes. This normal position will, however, be promptly altered when the position of the body is altered. All the mobile viscera will tend to be approximated to the pelvis and inguinal regions if the trunk is flexed upon the thigh, while the reverse takes place, for instance, in the Trendelenberg position. A similar condition takes place upon deep inspiration or exertion, as the diaphragm tends to become fixed in a much lower position, and thereby pushes and compresses the intestine into a lower level.

Assuming now the presence of any one of the conditions just described, we can very readily see how much easier it is for an individual thus afflicted to acquire an incipient hernia, or to acquire an increase of the hernia, after a beginning has already been made. It is beautifully illustrated, particularly, in that condition I have described as a temporary ptosis. Most individuals who ascribe their acquisition of a hernia to a particular time will usually be able to recollect a particular instant during which the conditions will conform to those just described.

Congenital Hernia.—Certain congenital malformations very frequently lead to congenital hernial sacs. It is not germane to the topic under discussion to discourse at great length upon the ways in which these malformations arise. Suffice it to say that in the normal descent of the testis into the scrotum, it is always either accompanied by, or according to some authorities even preceded by an outgrowth of the peritoneum, namely, the processus vaginalis. In the course of normal development this peritoneal process becomes shut off at the lower end, near the upper pole of the testis; the most distal portion remains and forms the tunica vaginalis. It also becomes shut off at the upper end flush with the peritoneum, while the intervening portion becomes obliterated and dwindles into a fibrous cord.

This shutting off process does not take place in some cases; it may fail to do so at either one, or at both ends, and failure of obliteration in the intervening portion may also occur. The abnormalities that may occur are manifold, however, only two are of interest to us at present.

1. The processus vaginalis does not become shut off at either end, nor does the intervening portion become obliterated. When this is the case we have a sac of peritoneum communicating freely with the peritoneal cavity above, while the distal portion contains the testis. This has received the somewhat ambiguous name of "congenital inguinal hernia." (Fig. 8.)

2. The processus vaginalis may become shut off

below, but it does not become shut off above, nor does the intervening portion become obliterated. In this case we also have an open sac communicating above with the peritoneal cavity, but it differs from the preceding variety in the fact that the distal portion of the sac does not harbor the testis. This

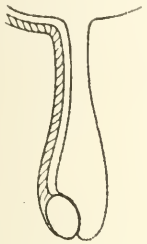


Fig. 8.—Diagram illustrating the sac of a congenital inguinal hernia.

form of anomaly has received the name of "hernia into the funicular process." (Fig. 9.)

It is stated very frequently that an individual afflicted with an undescended testis is particularly prone to the development of an inguinal hernia. I fully agree with this statement, but it must be clearly understood that the ready acquisition of a hernia in these cases is not due to the nondescent of the testis, but to the fact that in cases of nondescent of the testis the processus vaginalis fails to become shut off at either end; in other words, cases of undescended testes are accompanied by a sac of a so-called congenital inguinal hernia. These sacs are of various size and shape; their proximal end may be quite broad, so as to readily engage a piece of omentum or intestine; they vary in width, from one of extreme narrowness, so as to barely admit a probe, to that of a fully developed and wide sac.

In a previous chapter I have already pointed out how a hernial sac forms in its very beginning, and have traced its formation to full development and how a hernia develops after a sac has once been formed. In the class of cases under consideration here the entire process is abbreviated, because the sac is already fully formed at birth.

One further point must be emphasized, namely, that, while we call these cases, cases of congenital inguinal hernia, the hernia in reality is not congenital; all that is congenital is the sac. Hernial contents may find their way into the sac before or soon after birth, but not necessarily so; on the contrary sometimes they may not find their way into the sac until late in life, or never. This accounts for the fact that so frequently we obtain a history of the sudden development of a hernia during some strenuous exertion and a claim for damages is made, and yet when these cases are operated upon we find undoubted and incontrovertible evidence that the sac is of a congenital nature and not newly formed.

III. *Traumatic Hernia.*—I have now reached a point in my discussion which is beset with some danger. I also fear of being misunderstood because candor compels me to use a term which I am most anxious to avoid. When I originally set myself the task to write this paper my aim was to prove a fact, at which I arrived after many years of careful study, namely, that "traumatic hernia" does not exist. Traumatic hernia, however, does exist; in fact, it exists in so many different forms that their complete citation alone would exceed my limited time. Fortunately, they are so well known to you all that briefness on my part should not only be excusable but even welcome.

1. Herniæ which follow a clean laparotomy. In these the agent of the trauma is the surgeon's scalpel. Such herniæ may be due to various circumstances.

(*a*) Imperfect suturing. Formerly when most laparotomy incisions were sutured by through and through sutures, the resulting scar very frequently gave way and was followed by a hernia.

(*b*) Improper suture material. If, for instance, improperly prepared catgut, or catgut of insufficient strength has been used, it may become absorbed before firm union had taken place and is followed by a hernia.

(*c*) The sutures may have been tied too tightly, and may cut through the tissues, thus weakening the cicatrix with subsequent development of a hernia.

(*d*) Postoperative distension or vomiting may put such a strain on the sutures that the result will be similar to that described under the previous heading. Cases of postoperative subcutaneous prolapse occur in a similar manner.

2. Laparotomy incisions in which an infection has occurred. The fascial structures and muscles may slough, thus taking away one of the most important supporting elements of the abdominal wall.

3. Laparotomy incisions which require drainage are not infrequently followed by a hernia.

4. Certain cases of excision of the abdominal walls, for instance, for a tumor, in which only a very inadequate suture can be carried out, are very frequently followed by a hernia.

5. The abdominal parietes may be injured by being impinged upon objects, not necessarily, but still more or less sharp; for instance, by running or falling against a protruding object, for example, the handles of a wheelbarrow, or objects of a similar character, or by being gored by the horns of an animal, etc. The finaly result may differ widely, as it depends upon the nature and extent of the injury produced, viz.:

(*a*) If all the layers are torn a complete prolapse of some of the intraabdominal contents will very probably result.

(*b*) If the skin holds, on account of its greater elasticity, but all the deeper layers, including the peritoneum, are torn, a subcutaneous prolapse will more likely result.

(*c*) If all the layers of the abdominal parietes are

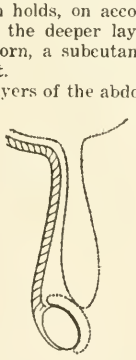


Fig. 9.—Diagram illustrating the sac of a hernia into the funicular process.

torn, but the peritoneum remains intact, a traumatic hernia will very probably result.

6. An individual may fall from a height; in falling there may occur involuntarily and reflexly such a contraction of the abdominal muscles, most frequently of the recti that they and their fascia are

completely torn through with a resulting hernia.

7. Penetrating or nonpenetrating injuries of the thorax, with injury of tne diaphragm are frequently followed by traumatic diaphragmatic herniæ.

These are only a few examples of traumatic hernia; doubtless many others can be cited, but these are sufficient to show what I mean by the words "traumatic hernia." It is self-evident also that they differ absolutely from "traumatic herniæ in the usually accepted meaning."

I have now described three different groups of hernial possibilities. Let us now see how far these come within the scope of the various Workmen's Compensation Laws. Granted that an injury within the meaning of the law has been fully established, there are to my mind only three possibilities.

1. The particular hernia was surely not caused by the particular injury. Into this class I would unhesitatingly place all the herniæ placed into group 2; namely, all those of a congenital malformation; because in these the hernial sac had existed long prior to the occurrence of the particular injury; all that could occur at that particular moment was the protrusion of the hernial contents, and I have already pointed out with sufficient emphasis that this is unimportant; the important part is the sac. Into this catagory belong also those herniæ of group 3, subclassified under 1, 2, 3, and 4 for obvious reasons.

2. The particular hernia was surely caused by the particular injury. Into this class I would unhesitatingly place all those herniæ of group 3, subclassified under 5, 6, and 7. I have now entirely accounted for group 2 and group 3; there remains only one more possibility, namely:

3. There is some doubt whether the particular hernia was caused by the particular injury. As group 2 and group 3 have been already accounted for, there belong into this catagory all that big class grouped under 1.

I have been very anxious to be candid and frank, not only with you but also with myself. As already stated previously, I have no particular case in mind; I have no pet theory to prove; it is entirely immaterial to me how the law is interpreted; I do not care one iota whether a workingman receives compensation or not; if anything, I have been particularly solicitious to give all the benefits of doubt to the injured person; but I am also firmly convinced that if only hammered at long enough justice will finally prevail, even in so abstract a question as the relation of trauma to hernia.

If we divest the question of the relationship of trauma to hernia of all its extraneous legal aspects, which do not interest us as physicians, there remain finally only one point, namely, that a particular injury should have produced a particular hernia. I lay no claim to a knowledge of the law, but it does not require much of a legal knowledge to understant that the relationship between injury and result must be firmly and clearly established beyond any doubt. For the sake of clear understanding I may be permitted to bring a few concrete examples.

1. Let us assume that an individual in perfect health slips on a banana peel and fractures his thigh. We have here an injury, a trauma, followed by a fracture of the femur; the relationship between the two is well established, and such a person would be entitled to all damages that the law may allow. Now let us assume that an individual suffering from locomotor ataxia fractures his femur in turning around in bed. We have here also an injury followed by a similar fracture of the femur, but the relationship is not established, the fracture is not due to the injury, but is due to the unusual fragility of the bones caused by the underlying locomotor ataxia. The question remains, should this second person be also entitled to similar damages.

2. The accident when an individual in perfect health fractures his humerus during the act of pitching a baseball again shows the relationship between trauma and result; but would this relationship be as fairly established if it could be proven that long before the advent of the injury this individual was suffering from a central sarcoma of the fractured humerus?

3. An individual in perfect health in loading a truck tears off the long head of the biceps; here we have a direct relationship between the trauma and the result; but how would this relationship be if it could be proven that the tendon involved was affected by tuberculosis long before the receipt of the injury?

I have brought forward these three examples to prove only one point, namely, that where an individual acquires a palpable and visible hernia in the course of his work, and if there was already present an impalpable and invisible hernia, or an open sac of congenital malformation, the relationship between the trauma and the result is altogether different than if it occurs in a perfectly healthy individual.

Let us now look at another phase of the subject. Based perhaps upon the ancient and discarded theory of the necessity of the presence of a rupture of the peritoneum in every hernia, there still exists in the minds of the lay people and with the advent of Workmen's Compensation Laws, also in the minds of the legal profession, an idea that something ruptured, something tore, and that the injury ot "that" particular something was the cause of the hernia. But you know, and I know, and the entire medical profession knows that such a pathology has never been found in the ordinary inguinal hernia. If only we can make this one point clear it would knock every support from under the claimants and their advocates.

The question may with propriety be asked, are there any definite criteria which characterize a traumatic hernia? The reply to this question is debatable from the viewpoint of the afflicted individual, and from the viewpoint of established medicine.

From the viewpoint of the patient every hernia which originated during his work is traumatic in nature, and in order to prove his contention the claimant adduces the following arguments. In parentheses I may add that the particular claim is made honestly and in perfect good faith. I exclude *eo ipso* from my arguments all those cases in which claims for indemnity are made by fraud. That such cases exist is amply proven by the records of the various compensation commissions throughout the world and by the files of a certain social-democratic paper in Germany, called "*der Töpfer*," in which directions are even given to prospective claimants, prior to the receipt of an alleged injury.

1. The patient who notices a swelling in either inguinal region usually sooner or later consults a physician. Upon inquiry, particularly if a claim is in view, he is frequently able to set a definite time for the appearance of the hernia, and not infrequently will be able to recollect some definite effort,

so called "überheben" of the German, or "strain" of the English language, during which the hernia first made its appearance. If my pathogenesis of an acquired hernia is correct it must be patent to everybody that the history as given by the patient is unreliable and not worthy of credit. It is most probable that the sac of this hernia has been long in formation and that though small in size it was present for a long time, only unnoticed by the patient. Most frequently the patient notices the hernia only when it has escaped through the external inguinal ring and has made a palpable swelling.

I might as well adduce here as a counter argument the fact, well known to every surgeon, that herniæ of recent date are frequently operated upon in adults, but in whom the operation discloses incontrovertible evidence that the sac is of a congenital origin.

2. In a majority of the cases the patient will also be able to certify that up to the moment of the alleged injury ("überheben" or "strain") there had never existed a hernia; he may even bring witnesses from amongst his fellow workers to that effect; but it is well known how easily such witnesses may be duped. Occasionally even a physician will testify that the patient had not been afflicted with a hernia prior to the receipt of the assumed injury. Even this apparently valid testimony is of very questionable value, as it is a well-known fact that even physicians on very careful examination can only testify to the presence of hernial contents. If the sac is empty at the time of the examination and persistently stays empty, he cannot testify to the absence of a hernia. In other words it only reiterates the well-known axiom in medicine that a positive proof is absolute, but a negative proof is no proof at all. This is also beautifully illustrated in those cases already referred to in which an individual is operated upon late in life for a hernia of short duration and yet the operation reveals a sac of congenital formation.

3. The sudden acquisition of pain in the inguinal region, which had not existed previously, is frequently brought forward by claimants as an argument in favor of the traumatic origin of the hernia. This is a very unreliable phenomenon for several reasons: first, because pain is too subjective a symptom; second, because herniæ of small or large size may exist for a long time without any pain at all; and third, because I am convinced that pain in a hernia is due only to stretching of the sac, consequent to a sudden descent of more hernial contents than it has hitherto accommodated. If anything, it may even be argued from this phenomenon that the hernia is old and not at all of recent standing.

4. Strangulation of a hernia, with its attendant train of symptoms, is occasionally used by claimants to verify a claim that the hernia is of traumatic origin. Hardly any importance should be attached to such an argument. It is a well-known fact that strangulation may occur at any time during the life history of a hernia. On the contrary, the very point of strangulation may just as appropriately be used as a counter-argument, because in many instances the strangulation is induced only by the sudden descent of more hernial contents than the sac has hitherto accommodated.

From the viewpoint of the surgeon an open operation and an open operation only can decide the question of the existence of a traumatic hernia with certainty. In recent cases all evidences of a trauma, particularly that of a hematoma, or at least traces of it in the form of unabsorbed blood, can readily be seen. There should be also evident tears or lacerations in the abdominal parietes with separation of the edges. In older cases the effused blood will very probably have all been absorbed, but careful examination of the parts will, even after the lapse of years, show the effects of the trauma.

I make this statement with a positive degree of assurance, as I have had occasion to operate upon a number of cases of a subvariety of "traumatic" inguinal hernia, and have never failed to find evidences of the trauma beyond any question of doubt. I refer to cases of socalled "artificial hernia."

Cases of this nature usually affect Russian Jews, and careful questioning will usually elicit the fact that they had these herniæ made to order in order to escape military conscription. The history of the *modus operandi* is approximately the following: The willing victim is usually blindfolded so that he does not even see the "operator," and is placed upon the floor in the dorsal position. The operator then invaginates his finger through the scrotum into the external inguinal ring; directly after this the patient experiences violent pain in the inguinal region (some even faint). Thereafter the patient is ordered a snuff and also an emetic, usually an emulsion of yeast in water. The ensuing sneezing and vomiting is soon followed by the appearance of a small hernia.

At operation in these cases there is only occasionally found a laceration of the aponeurosis of the external oblique; but with unfailing regularity a tear with separation of the edges of that part of the transversalis fascia covering Hesselbach's triangle.

Now, these are true traumatic herniæ, but they are something totally different from those for which claims are usually made.

In the preceding it has been my aim to analyze and clarify the subject. In conclusion it is somewhat disagreeable to me to find myself compelled to use a term which may again tend to befog the subject, but I find it unavoidable. It would be, perhaps, wise to divide all herniæ from this viewpoint into two classes, namely, "herniæ caused by effort" and "herniæ caused by trauma." The principal difference between the two is that "herniæ caused by effort" always occur in certain definite locations, locations predestined to the formation of a hernia by a certain definite weakness in the intraabdominal fascia caused by the passage of a blood vessel; while the true "traumatic hernia" may occur in any part of the abdomen, usually, however, not in any predestined place. Of course, a traumatic inguinal hernia may occur, if, for instance, a trauma would tear the transversalis fascia just at the internal inguinal ring; but the chances for its doing so are so remote and so infinitesimal as to be barely worth while considering. My reasons for not wishing to raise this question are that it would again throw the entire question open to judicial interpretation as to whether the word "effort" comes within the scope of the various Workmen's Compensation Laws. If the question is decided in the affirmative then it should be advocated to award compensation in every case of hernia that may occur in a workingman, and that would evidently be preposterous.

It does not require any arguments on my part to convince you as medical men of the correctness of my attitude. Unfortunately, however, the problem is a more complicated one, as it concerns not

only medical men but also the employer, the employee, Workingmen's Compensation Commissions, the legal profession, judges and juries. A review of unbiased medical opinions is hardly called for because it is practically unanimous, and in all essentials agrees with the stand I have taken. A review of legal decisions upon the subject would be very interesting, but is evidently beyond my sphere. However, it may interest you to know that most of the opinions rendered by the Workmen's Compensation Commissions of various States have given their decisions in accordance with the views as stated herein, or have sidestepped them, fearing to give a definite decision by compromising the case. It is only when a particular case is tried in open court before a jury, even in the presence of "interested" expert witnesses, that the laws of nature miscarry and faulty decisions are rendered. Witness one of the most recent decisions in the State of Washington in the case of Zappala vs. The Industrial Insurance Commission. The language of the final decision of the Supreme Court of the State of Washington reads as follows:

" 'Sustaining of an injury while using extreme muscular effort in pushing a heavily-loaded truck is as much within the meaning of accident even as though the injury was the result of a fall or the breaking of the truck. To hold with the commission that if a machine breaks, any resulting injury to a workman is within the act, but if the man breaks, any resulting injury is not within the act, is too refined to come within the policy of the act as announced by the Legislature in its adoption and the language of the court in its interpretation.' "

Conclusions.—1. Traumatic hernia is exceedingly rare.

2. Traumatic hernia may occur in any part of the abdomen, but usually not at the site of the normal hernial openings.

3. Nontraumatic hernia is frequent and occurs at certain definite and predestined locations caused by weak areas in the intraabdominal fascia.

4. Workmen's Compensation Commissions are not and cannot be acquainted with all the facts relating to hernia. This is evidently the sphere of the medical profession; and Workmen's Compensation Commissions should be required to place implicit reliance in these matters upon the decisions of established medicine.

5. In cases of appeal from the decision of the commission, all the medical part of the testimony should be given by experts of the court's selection and not of the selection of the claimant or defendant.

925 Madison Avenue.

A NEW NON-OPERATIVE TREATMENT OF DISEASE OF THE ACCESSORY SINUSES OF THE NOSE.

PRELIMINARY REPORT.

By LEWIS A. COFFIN, M.D.,

NEW YORK.

Since the grip epidemic of 1889, disease of the accessory sinuses of the nose has held the center of the stage in rhinological thought, discussion, literature, and practice. Outside of the very acute cases, the most that has been done for the patient suffering from an empyema of any or all of the sinuses has been along surgical lines. The extent of surgical procedure has depended not alone upon the extent of the disease, but upon the ability, technique, and mind of the operator in charge of the case. All have recognized the fact that in many unattended cases of disease of these cavities there exists a marked potential of danger to life through cerebral involvement, to the eye through involvement of the optic nerve, and always great distress to the patient, if not on account of the frequent accompaniment of pain, certainly on account of the ever present and annoying nasal discharge.

Operation is done frequently to the extent only of giving free drainage to the diseased cavity which relieves the pain and greatly reduces the potential of danger. More radical operation having for its object not only the accomplishment of the above results, but the stoppage of the distressing discharge is frequently done.

The most radical and I believe the most effective is the so-called Radical Killian Operation for the Relief of Empyema of Frontal, Ethmoidal and Sphenoidal Sinuses.

This operation, when well done, as a rule results in a complete cure of the disease. The disadvantages of the operation are that certain more or less important parts of the nose are destroyed, and there results a more or less scarring and deformity of the face. Certainly any non-operative treatment which bids fair to eradicate the disease of these obscure cavities in the majority of cases must be a most welcome addition to our means of aid to those suffering from this troublesome disease.

I take pleasure in describing a method of treatment which I believe gives greater promise in these cases than any other so far used.

Suction, negative pressure, or vacuum cleaning processes have been in vogue and increasing in practice for the last several years. The writer one year ago before the American Laryngological Association described and recommended this treatment as applied to the relief of sinusitis in children.

Some two or three months ago having "sucked" some of the pus from the accessory sinuses of a nose, I inoculated a culture tube with secretion taken from the nose after several applications of the negative pressure. The pathologist told me that it was almost impossible to separate out and grow the pathogenic organism, as there were present so many air germs, and suggested that probably this was due to the fact that there was such an unusual inrush of air into these partially vacuumized cavities when the nasal tip of the suction apparatus was removed from the nose. This seemed reasonable, and it occurred to me that we might make use of this Nature's abhorrence of a vacuum for the introduction of remedial measures into the sinuses. I had constructed apparatus such that I could at will produce in the nose and its accessory cavities either a negative or positive pressure and such that I could change from one to the other immediately. By means of the positive pressure obtained from an oxygen tank I was able to throw medicated vapor well into these cavities. That the current of oxygen enters the cavities is proved by this fact; after all the pus or mucus that can be obtained by the suction process has been taken from the cavities, and the nasal chambers proper have been thoroughly cleaned, one may by using for a time alternating suction and pressure currents obtain much more pus, in fact so much at times as to astound one. The pressure current seems to sweep it off the walls of the cavities as it were and into such position that the suction current can pick it up.

Whereas my almost home-made apparatus works perfectly, I am having it refined and perfected by the instrument makers. When the perfected instrument is in hand I shall describe it, outline more fully the technique, the various remedial measures used, and report cases.

156 West Fifty-eighth Street.

CONTRIBUTION TO THE STUDY OF CHRONIC APPENDICITIS.

By CARLO SAVINI, M.D.,

NEW YORK.

Chronic appendicitis is clinically a well defined pathological entity, but its lesions are anatomically variously interpreted.

It is very important to reach a conclusion in regard to the nature of these anatomical findings, as the knowledge of the pathogenesis of appendicitis in general is founded upon the study of the anatomical lesions of the chronic disease.

In necrotic appendicitis the destruction of the appendicular layers proceeds so rapidly that we cannot observe the sequence of the pathological changes; but in chronic appendicitis the changes occur more slowly, and if we direct our attention to numerous specimens, we can reconstruct the process and almost follow it from its beginning to its end.

No conclusion can be drawn by the examination of only one section or of only one specimen. Numerous sections of the same specimen and numerous specimens should be observed and compared to obtain a correct idea of how the lesions occur. It will be then evident that these lesions although different are all due to a similar cause, and that in their essence they should be considered as processes of repair.

Before proceeding to the analysis of these lesions it is necessary to make a few general remarks.

The vermiform appendix was formerly considered to be an involutive organ. Now it is proved that the appendix is not involutive, either phylogenetically or ontologically. It was also said that the appendix undergoes a process of regression during the life of the individual. This assertion has not been proven to my satisfaction. In my own experience I found that, excluding the operations for appendicitis, in five hundred laparotomies performed for various other diseases only one hundred and twenty-four times was it necessary to remove the appendix. In the remaining seventy-five per cent. of the cases, the appendix was apparently normal and well developed, irrespective of the sex and of the age of the patient.

On the assumption that the appendix is involutive and regressive, small lesions found in its mucosa have been disregarded and often derided and considered almost physiological.

The appendix has been likened to the tonsils and has been called the tonsil of the intestine. This similarity has given to the lymphoid nodules of the appendix the first importance in the pathogenesis of the disease. But the lymph nodes or follicles are present and abundant not only in the appendix, but in all the intestinal tract. They are certainly larger in the small intestine and there is no reason why the appendix should be singled out for the comparison.

In the pathogenesis of appendicitis greater importance should be given to three special conditions, rather than to the presence of lymph nodes. These conditions are:

First, the position of the appendix in relation to the large intestine, which position favors stagnation, the appendix being like a trap in the waste drainage of plumbing.

The second condition is the presence of the Lieberkühn glands, whose epithelium is so differentiated that, once destroyed, it is not reproduced, but is substituted by connective tissue.

The third condition is the constant presence in the appendix of small foreign bodies of carbon and iron, whose acute sharp edges wound and destroy the epithelium of the glands.* These limited areas of destruction of the mucosa are very frequent and numerous, and, on account of their smallness, have not been considered pathological. Although small, they are nevertheless pathological lesions.

Histologically the appendix is formed exactly as the large intestine, and we find in it the same elements in the same disposition; mucosa with Lieberkühn glands, submucosa with lymphoid follicles, areolar tissue, muscularis divided in two layers, circular and longitudinal, serous coat.

For my purpose it is sufficient to call attention to some peculiarities of the mucosa and submucosa, as these two elements are the most important in the disease. In the normal appendix of young subjects all the mucosa is occupied by the Lieberkühn glands. These tubules are disposed very regularly and the chorion between the tubules is very thin. The fundus of these glands rests on a layer of muscular fibers (muscularis mucosæ). This muscular layer separates the mucosa or Lieberkühn glands from the submucosa containing the lymphoid follicles.

The muscularis mucosæ follows the changes that happen in the mucosa. If the mucosa becomes thinner this muscular coat contracts toward the lumen of the appendix and if the mucosa enlarges the muscularis stretches toward the serosa, so much that sometimes it ruptures and its fragments retain the direction of the enlarged mucosa and remain as a line of separation between the mucosa and submucosa. The dimensions of the follicles or lymph nodes vary according to the individual.

In conclusion, in transverse sections of the normal appendix we find that the mucosa is made exclusively of the Lieberkühn tubules, and that the mucosa, the muscularis mucosæ, and the submucosa containing the lymph nodes form three concentric rings limiting the lumen of the appendix.

But this ideal disposition is very rare. The Lieberkühn glands are very often wounded by the sharp edges of the particles of carbon found constantly in the lumen of the appendix.

If the traumatic lesions of the mucosa become infected they give origin to necrotic appendicitis. But more frequently the lesions remain aseptic and heal with the formation of connective tissue. The different appearances of the lesions found in chronic appendicitis are due to the various stages of evolution of this connective tissue.

The traumatic lesion is first followed by a great infiltration of round cells taking place in the chorion of the mucosa, and in consequence the mucosa increases in volume and the muscularis mucosæ is seen stretched toward the serosa.

Later on, the formation of connective tissue progresses so that the mucosa is made thinner, and the

*C. Savini: "Microscopical Traumatic Lesions in Appendicitis," Medical Record, Nov. 28, 1914.

muscularis mucosæ is seen contracted toward the lumen of the appendix.

In time the mucosa becomes more atrophic, the Lieberkühn glands entirely disappear, and the lymphoid follicles are seen protruding into the lumen

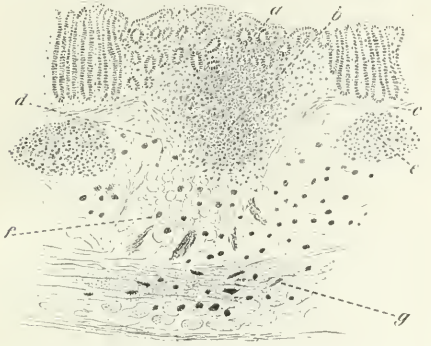


Fig. 1.—a, Infiltration of the mucosa; b, the same infiltration proceeding toward the submucosa; c, muscularis mucosæ; d, fragments of the muscularis mucosæ ruptured; e, lymphoid follicle; f, mastzellen; g, special fusiform appearance of mastzellen.

of the appendix. The lymphoid follicles appear enlarged, but their enlargement is more apparent than real and is in great part due to the atrophy of the glandular layer of the mucosa.

The lymphoid follicles protected only by a thin layer of connective tissue are brought now into contact with the foreign bodies collected in the lumen of the appendix and in their turn are wounded and destroyed.

The same sequence of pathological processes that we saw following the destruction of the Lieberkühn glands now follows the destruction of the follicles—round cellular infiltration and formation of connective tissue.

The last consequence is the atrophy of the mucosa and submucosa with the entire destruction of all the Lieberkühn glands and of all the lymphoid follicles resulting in atrophic or obliterated appendix.

All these different stages of cicatrization occupy very limited parts of the mucosa and of the submucosa and are found in different degrees in the same appendix.

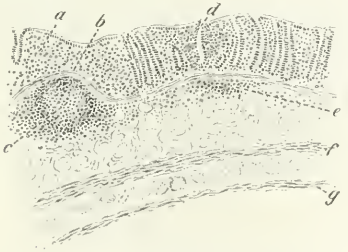


Fig. 2.—a, Repair of an old lesion of the mucosa; b, muscularis mucosæ; c, lymphoid follicle; d, traumatic lesion of the mucosa; e, collection of small round cells in the lymphatic spaces of the submucosa; f, muscular coat of the appendix; g, serosa.

We may find in the same section the traumatic initial lesion, the repair of another lesion, and an old scar, consequence of an older lesion. In this case we should not consider that all the lesions found in the section have the same importance or are the result of only one process. Or it may happen that we find only the follicles hypertrophic, wounded, and rupturing into the lumen of the appendix. But in this case we must remember that this lesion was preceded by a destruction of the mucosa.

Fig. 3.—a, Repair of an old lesion of the mucosa; b, lymphoid follicle brought toward the lumen of appendix by the contraction of the connective tissue substituting the mucosa; c, muscularis mucosæ; d, muscular coats of the appendix.

The combination of different stages of the same lesion is characteristic of the anatomical finding in chronic appendicitis. Chronic appendicitis anatomically should be considered as the succession of healing of numerous recurrent microscopical aseptic traumatisms of the mucosa and submucosa.

This schematic description of the disease is derived from the observation of the anatomical lesions found in appendicitis, combined with the clinical observation of the patient. This combination has the value of an experiment in explaining the pathogenesis of appendicitis. The history of the patient and the clinical symptoms have an importance certainly not inferior to the anatomical findings. Besides, no anatomical lesion, no matter how small, has been overlooked. Each lesion has its bearing in explaining the process. In my opinion the small lesions of the mucosa up to now have not been sufficiently considered. It seems to me that the power of repair deserves also the same amount of con-

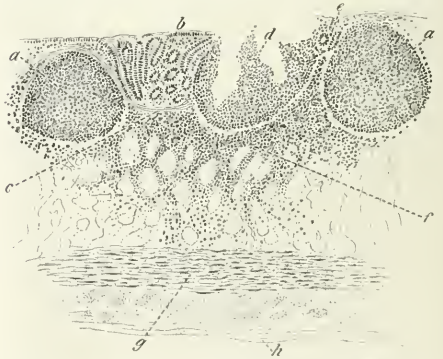


Fig. 4.—a, a, Lymphoid follicles; b, mucosa partially altered and infiltrated; c, muscularis mucosæ; d, lymphoid follicle wounded; e, remnants of Lieberkühn glands; f, infiltration of submucosa; g, muscular coats of the appendix; h, serosa.

sideration that we accord to the presence of pathogenic bacteria.

I will report here briefly the description of the lesions found in some cases operated upon by me in the Washington Square Hospital.

Case I.—A young woman was admitted to the hospital on August 14, 1914. A short time before she had suffered with an acute attack of appendicitis from which she had recovered. She was advised to be operated upon as a prevention of a recurrence. It was a case of interval operation. Operation August 15, 1914; recovery. At the macroscopical inspection the mucosa is found partially affected. The serosa is hyperemic, the mesentery thickened.

Microscopical examination (Fig. 1). A transverse section shows destruction of the Lieberkühn glands in the place of the lesion, the mucosa is infiltrated with a great number of small round cells; a layer of epithelial cells covers the lesion. The part of the mucosa so infiltrated is thicker than the remaining normal mucosa. The fibers of the muscularis mucosæ in the vicinity of the lesion are also infiltrated and almost dissected by small round cells. This muscularis is ruptured and its fragments are directed toward the submucosa. The lymph nodules near the lesions show a vigorous proliferation of cells. It seems as if the infiltration occupies all the space from the lumen of the appendix toward the lymphoid follicles, taking the follicles in it. All the other layers of the appendix, submucosa, muscularis, and serosa are infiltrated with large polynuclear cells containing round basophilic granulations. They have the appearance of mastzellen. These cells are numerous and sparsely disposed; they acquire a special fusiform appearance at the level of the muscular coat of the appendix as if they were compressed in the spaces between the muscular fibers.

Case II.—A man 30 years old was admitted to the hospital on October 21, 1912, affected with acute appendicitis of very short duration. A few months before

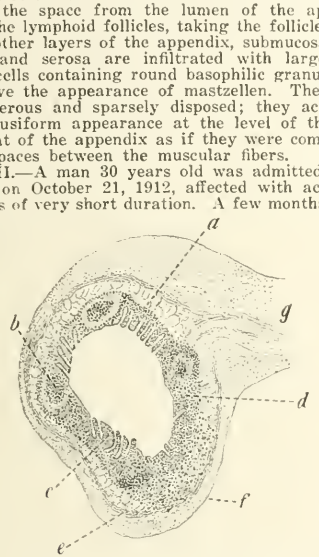


Fig. 5.—a, Normal mucosa; b, lymphoid follicle; c, mucosa partially altered; d, mucosa totally destroyed; e, muscular coats of the appendix; f, serosa; g, mesentery.

he had suffered another attack, from which he recovered. He was operated upon on the day of admission and made a normal recovery.

(Fig. 2.) At the microscopical examination of the specimen incidentally we notice a traumatic initial lesion of the Leberkühn glands, sign of the new attack. But for our scope it is more interesting to observe that in another part of the section the musoca is substituted by connective tissue which represents a stage more advanced of a lesion similar to the lesion observed in Case I. The infiltrated mucosa has already contracted, the tissue has become more condensed and compact, and its volume is reduced. The space between the follicle and the lumen of the appendix is thus diminished. The muscularis mucosæ in this place is contracted toward the lumen of the appendix.

Case III (Fig. 3.)—Represents still a more advanced step of a lesion similar to the lesions observed in Case I and Case II. The patient was a woman, operated upon January 20, 1913, for gallstones, and the appendix was removed because found affected; recovery.

Case IV.—A young woman, operated upon August 17, 1914, for acute appendicitis. History of other attacks; uneventful recovery. (Fig. 4.) The mucosa is almost completely destroyed and the lymphoid follicles brought near to the lumen of the appendix. One follicle is ruptured into the lumen of the appendix. It is most probable that the lesion in the follicle is of the same traumatic nature as the lesion found in the Lieberkühn glands of Case II. We notice also that other follicles are separated from the lumen of the appendix by a very thin layer of connective tissue which substitutes the old mucosa and is a sign of a progressive destruction of the mucosa.

Case V.—A man 35 years old, suffering with chronic appendicitis was operated upon January 29, 1914, and

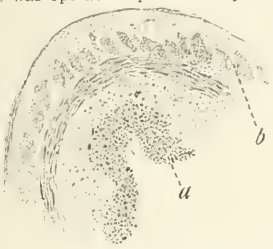


Fig. 6.—a, Connective tissue substituting the totally destroyed mucosa and submucosa; b, muscular coats of the appendix.

recovered. (Fig. 5.) One section of the appendix shows the mucosa in almost all the different stages of destruction.

Case VI.—A woman 45 years old, operated upon April 8, 1914, for chronic appendicitis with severe gastric symptoms; recovery. (Fig. 6.) At the examination the mucosa and submucosa are seen completely destroyed and totally substituted by connective tissue.

Case VII.—A man 35 years old, operated upon October 22, 1913, for chronic appendicitis; recovery. (Fig. 7.) All the appendix is found obliterated, no lumen remains. In this case some corpuscles of carbon are found encapsulated by the connective tissue almost in the center of the preparation as the only sign of the previous existence of a lumen in the appendix.

In all cases I have always found present in the lumen of the appendix the foreign bodies of carbon and iron.

Conclusions.—The pathological process of chronic appendicitis is the result of a wound of the mucosa of the appendix which has remained aseptic either by reason of special immunity of the patient or by reason of special conditions in the appendix.

It is very difficult to establish the immunity of the patient.

The special condition of the intestine can be attributed to the acidity of the contents of the large intestine and the appendix. We know that the normal reaction of the large intestine is acid, the acidity being due to the formation of lactic acid consecutive to the fermentation in the intestine.

In five cases of necrotic appendicitis I found the reactions of the contents of the appendix to be alka-

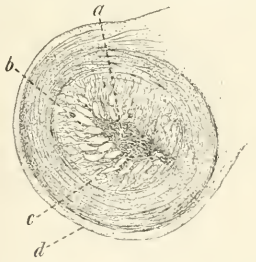


Fig. 7.—a, Central scar representing the mucosa, the submucosa, and the lumen of the appendix; b, areolar tissue; c, fibrous circular ring replacing the muscular coats of the appendix; d, serosa.

line. But this research has been limited to a number of cases too small to be authoritative. If this fact could be proved we could have a clearer idea of the pathogenesis of a great number of cases of appendicitis. Therefore the traumatic lesions of the

mucosa should be considered the starting point of appendicitis. When these lesions become infected necrotic appendicitis is the result. When these lesions remain aseptic we have chronic appendicitis.

In the pathogenesis of necrotic appendicitis the pathogenic bacteria are of the first importance. The process of repair is the most important factor in the pathogenesis of chronic appendicitis.

31 Washington Square West.

THE BUGBEAR OF DRUG ERUPTIONS.

By WILLIAM P. CUNNINGHAM, A.M., M.D.,

NEW YORK.

ASSISTANT DERMATOLOGIST, HARLEM HOSPITAL DISPENSARY; CLINICAL ASSISTANT, NEW YORK SKIN AND CANCER HOSPITAL.

Much has been written of drug eruptions. Many elaborate pen pictures and many obscure camera pictures have been published from time to time for the enlightenment of the practitioner upon these important eccentricities of the skin, with the net result of profound bewilderment and doubt. Let him recall any of the photographs he has sedulously scanned with the grim determination to master their indeterminate details, only to abandon the exasperating task in blank despair! Let him recall the minute descriptions he has read, penned with the painstaking accuracy of the scientific observer only to emerge therefrom in a state of utter stupefaction. He is reasonably lucky if he retains at this point his rudimentary grasp of bromide and iodide acne. This is in the very nature of things. It is impossible to represent the characteristics of a drug eruption in a black and white illustration. Little besides outline can be portrayed in this manner. Verbal representations are usually unconvincing because, being written by men familiar with the minutiæ of the subject, they are too detailed and circumstantial for the man who is groping his way. If something can be done to get this subject before the busy doctor in a way to avoid these drawbacks, a substantial service will have been rendered; for these drug eruptions are numerous and deceptive. If encountered and misapprehended, no results whatever of a favorable sort can be achieved. The cause continuing to operate, there will be a steady persistence or aggravation of the dermatosis, until the doctor through accident or expert assistance, makes the disconcerting discovery that it lay right under his hand and was removable at any stage of the proceedings. This is a humiliating situation, for the laity do not appreciate the difficulty involved in making the diagnosis, and mercilessly discredit the unfortunate practitioner!

To attempt to do what has so often failed at the hands of erudite and eminent observers may arouse the charge of arrogant presumption. But this would be unfair; for I maintain that failure to impress and enlighten the average medical reader has been due to failure to get his angle of observation. If you are seeking to impart information to an elementary class in astronomy you will not plunge into the intricacies of differential calculus. Much essential truth may be imbibed to the exclusion of interesting but unimportant details. A man who has not been a general practitioner, who has begun and maintained his professional activities within the confines of a special department, cannot appreciate the mental attitude of the other toward his scientific lucubrations. They are over his head and he is swamped. And this implies no disparagement of the American general practitioner. It is a natural situation in which one brain cannot comprehend all the involutions of a dozen specialties. I feel that, shorn of excess refinement, this subject can be presented in a form to be readily grasped and retained.

Drug eruptions have two constant characteristics. They appear suddenly and always in connection with the taking of drugs. That second phrase may sound like stilted vapidity, drug eruptions being necessarily dependent on the taking of drugs. But the importance of its emphatic inculcation lies in the fact that its purport is so often ignored and the eruption attributed to something else. If in every case of skin condition involving any obscurity the doctor would interrogate the patient regarding the taking of drugs, he would often get on the trail of a gratifying discovery. In fact it should be made a point of routine investigation no matter how plain the case appears to be.

Suddenness of appearance will need a little qualification. It does not mean that the eruption will always appear at once after the administration of the drug, but that on a hitherto perfectly normal skin there will be a sharp and decided outbreak inexplicable on any ground in the patient's general condition. For example a young woman with a clear complexion, unaided by artificial expedients, will one day present several acne pustules in full maturity. Nothing out of the ordinary has occurred in the routine of her existence. Her functions are normal. This distressing disfigurement is unfathomable. You proceed to treat her on the lines for acne vulgaris and you get absolutely no result. Finally, and probably through the intervention of Providence and not your own brilliant cerebration, you stumble on the insignificant and almost forgotten circumstance that she has been using a cough medicine for a slight cold, and on ascertaining the composition thereof you receive the illuminating information that it contains bromide of ammonium! The amount may be trifling, but is rendered noxious by the patent's idiosyncrasy. The etiology of these cases is frequently further obscured by the peculiar tardiness of the eruption in responding to the irritating medicine. It may not come out for days or weeks after the medication is begun. In point of fact it may not come out until the medication has been suspended, thus apparently leaving no connection between the two. If bromide has been administered within a compass of several weeks its causative relation should be taken into account. Once this is established or even suspected, there is no likelihood of mistaking these lesions, whether they invade the face, scalp, chest, back, arms, or legs, or all these localities combined.

The acneiform manifestation of cutaneous bromism is the commonest and least important of its effects. In some individuals there would appear to be a sort of malignancy in the outbreak, as evidenced by aggregations of pustules into carbuncular masses; papillomatous tumors studded with minute abscesses; verrucous outgrowths rimmed with abscesses and fixed in a deep wide zone of infiltration; pulpy flat condylomatous lesions, purplish or brown, many or few, arranged in strings, groups, or cordons, and revealing gaping follicular openings or pointing pustules. These appearances are mystifying, as a rule, until the idea of "drug eruption" flashes across the mind, whereupon the problem is solved as if by magic. In this description of the unusual and virulent assault of bromine on the skin, certain distinguishing features stand out with di-

agnostic clearness; namely the purplish or brownish color, the pulpy consistency, and the sluggish pustulation. Even the verrucous manifestations are soft to the touch. Sometimes the attack may be unique in a double sense. This apparent contradiction in terms is explained by the circumstance that the eruption may be confined to a single lesion and that that lesion may be remarkably large. It is usually located on the leg. If carefully studied it will be found to possess the dominant characteristics appertaining to all bromine eruptions, viz., it is purplish, pulpy, and pustular. The key to the varied phenomena of cutaneous bromism is that it is a pustular dermatitis, whether it appears as isolated pustules of the acne sort, or as conglomerate masses of the same, or as a papillary hyperplasia thickly studded with these primary lesions. This symptomatic quintad "purplish, pulpy, pustulated, abrupt, and drug-associated" will make out a clear case to any careful investigator. Where the pustular element is not apparent it may be evolved by the application of any irritating treatment. Bromine dermatitis has been dealt with thus at length because it is the most frequent and in its outré expressions the most puzzling of the drug-engendered lesions of the skin.

Iodide eruptions come next in order of frequency and importance. The usual manifestations are similar to those of bromide, namely a pustular acne involving face and body. Here as in the bromide eruption the absence of comedones should arouse the suspicion that we are dealing with something besides ordinary acne. Iodine may also produce lesions like the rarer ones of bromine. But in certain susceptible individuals it will develop a furious crop of enormous bullæ of all sizes and shapes, displaying in the most exaggerated form the picture of erythema multiforme bullosum. These bullæ may be as large as eggs; one of them may envelop the entire ear. They may be crescentic, oval, circular, or angular. One smaller bulla may be encircled by a chaplet of larger ones illustrating the condition known as herpes iris. In cachectic individuals these bullæ may be followed by ulceration, pyemia, and death. Any physician who administers iodides (say for the reduction of strumous adenitis) may find himself confronted with this horrifying phenomenon. It is well to be guarded in the use of this remedy, especially in children. The extreme results are not very frequent, it is true, but, occurring once, they will effectually quash all our enthusiasm for this universally employed resolving agent. Of course in luetic conditions demanding vigorous action, the risk must be run of these untoward remote effects; but here we are somewhat more advantageously placed than our predecessors, because we may have recourse to symptomolytic salvarsan in many of our cases. And while salvarsan is demonstrably no specific for syphilis, its effectiveness as an emergency remedy and surface cleanser cannot be gainsaid. It is questionable also whether the iodides have any real effect in struma and their administration to children, who are especially susceptible, is a matter of doubtful expediency.

The combined administration of the bromides and the iodides, as is often practised in cases of spasmodic bronchitis, exaggerates the tendency to the production of the ill effects of both.

In this day of the universal employment of antitoxin in the treatment of diphtheria every physician is familiar with the erythematous and urticarial eruptions consequent theron.

The newer methods of managing gonorrhea have not utterly displaced those heretofore in vogue and the morbilliform eruption of cubebs and copaiba is occasionally encountered. If this occurs in the experience of the physician who is treating the gonorrhea the etiology will be manifest. But if it is presented for diagnosis to a different physician and if the patient after the manner of his kind, and heaven only knows upon what impulse, withholds the information that would clear up the situation, then an active course of zealous mistreatment may be instituted. A rash of this character will appear suddenly, without antecedent constitutional symptoms, and accompanied by decided itching. This should serve to distinguish it from measles, the only exanthem with which it is apt to come in conflict. The abrupt onset and the lack of constitutional disturbance should limit the field of inquiry to the toxic dermatoses, and a question or two should elicit the determining confession.

It should be carefully borne in mind, however, that cubebs is occasionally administered for other pathological conditions than gonorrhea, and the nauseous suspicion of unchastity does not necessarily attach to an elderly patient of good repute who may present the eruption. For instance it still appears in some prehistoric cough mixtures and in cigarettes and powders to be used in asthma.

The analgesic action of the coal-tar preparations has merited for them a pronounced popularity. With all our croaking about the danger of these various derivatives of the gas-house rubbish heap, they are exceedingly helpful upon occasion, and if rationally employed give no cause for alarm. Incautiously administered, however, they are liable to produce disquieting symptoms in certain individuals. We are all familiar with the cardiac depression and cyanosis occasionally observed. Fortunately they frequently expend their toxicity on the skin and set up an efflorescence of the most irritating character. The percentage of outbreaks is undoubtedly small, but remembering the extensive use of these remedies both in prescriptions and proprietary medicines the aggregate is large. They all act pretty nearly the same. There will be a vivid efflorescence like scarlet fever, or a duskier patchy one like measles, or a distinctly infiltrated one like urticaria, or a crop of vesicles and bullæ either alone or interspersed with the other characters just enumerated. They really constitute a toxic erythema and the variety of the lesions corresponds to the intensity of the cutaneous reactions. Just as in a burn the bullæ or blisters follow a graver traumatism. All these lesions itch and burn depending on the degree of cutaneous reaction and the nervous irritability of the subject. They follow the invariable rule of drug eruptions, in abruptness of onset without apparent cause. And these particular drugs differ somewhat from the bromides and the iodides in making their presence *quickly* felt. One dose is apt to create a storm of trouble almost immediately.

There are many people with a marked idosyncrasy to quinine. This is usually displayed in nervous hypertension, and tinnitus aurium. Some impressionable subjects, however, have the disagreeable effects confined to the skin. A scarlatinal flush with a sense of heat or a furious attack of urticaria with exasperating pruritus are the disturbances generally experienced. The almost universal employment of this drug in the routine of medical practice makes it inevitable that such dermatoses shall be encountered from time to time by every physician.

The rule for detecting all the other drug eruptions will prove as serviceable here—namely, sudden onset and lack of preliminary phenomena.

We are all aware of the activity of belladonna in dilating the capillaries of the skin. The accompanying dryness of the fauces and the extreme dilatation of the pupils are of great assistance in establishing the etiology.

Morphine induces in most of its partakers an intense pruritus, without discernible lesions. Sometimes it will single out an unusually sensitive victim and splotch him with an erythematous morbilliform or urticarial outburst. Contracted pupils and a sweaty skin should aid in coming at the right solution; the intense itching of the end of the nose should also direct suspicion in the proper direction.

Salicylate of sodium, one of the most valuable drugs in our pharmacopœia, is sometimes productive of a disagreeable dermatosis which is none the less noteworthy because of its rarity. One can never predict the vulnerable individual and it is well to store away for ready reference in an emergency the fact that an erythematous morbilliform, bullous, or purpuric eruption may follow the administration of this remedy. This is of serious import because so many ills are attributed to the rheumatic diathesis that the dermatosis is likely to be misinterpreted and the mischievous medication pushed with the idea of bringing it under control. All of the compounds of salicylic acid, under whatsoever title and with whatsoever pretensions exploited, will produce in the susceptible patient precisely the same disturbance as the salicylate of sodium. The salicylic acid is the offending element and it is present in every one of the fancifully-styled and widely-advertised substitutes for salicylate of sodium.

Arsenic after long continued use may produce pigmentation of the general surface and keratosis of the palms and soles. This keratotic condition may form the basis of epitheliomatous degeneration. This deplorable result has been many times observed. Herpes zoster has developed often enough in the course of arsenical medication to establish an etiological connection. Its faculty of causing peripheral neuritis is the explanation. There may be, as we have noted, after the ingestion of any of the heretofore enumerated toxic agents an erythematous morbilliform or urticarial rash, or even a bullous or purpuric one. As a matter of fact, the drug rash is a toxemic manifestation just like that of intestinal origin and its varieties correspond exactly to those of erythema multiforme. There may be sheets, patches, papules, wheals, vesicles, bulæ, or purpura, depending on the degree of toxemia and the individual reaction thereto. Mental fixation of this important generalization will assist materially in the simplification of this whole problem.

A great deal of confusion and diffidence has been aroused by the delusion that every drug in the pharmacopœia had a special and distinct toxicodermatitis. The infinity of detail scared off the average investigator. Realizing that all of these cutaneous irritants acting through the vasomotor nerves produce, with few and distinct exceptions, pretty nearly the same results varying with the intensity of the dose and the vulnerability of the patient, the proposition crystallizes into a readily apprehended, stable, and harmonious whole. The essential factors in the diagnosis are not the *appearance* of the eruption so much as the *time* and *manner* of its appearance. "Scarlatiniform, morbilliform, urticarial, bullous, purpuric"; these distinctions are of little practical moment, as any one of the drugs is capable under diverse circumstances of producing all of them. An abrupt invasion under any of these aspects is suggestive of a toxic cause and it is only necessary to follow that lead to discover what the particular agent is in any given case. As we have noted, in passing, the bromides and iodides differ from the other drugs in producing *pustular* lesions. Ergot may do the same. These are caused by the involvement of the follicles and the secondary infection of their open mouths, as in ordinary pustular acne. There is no way in which these agents could induce the suppuration save by preparing the ground for the pus organism. The conglomerate lesions, constructed of these pustular units and sometimes massed into enormous verrucous, papillomatous, and sarcoma-like excrescences, are diversified by the character of the inflammatory reaction. We are all acquainted with the sluggish dermatitis that surmounts the outward orifice of a scrofulodermatous sinus. It is dull, purplish, pulpy, and indolent; a parallel to the sluggish dermatitis aroused by the bromine irritation.

The long continued use of nitrate of silver produces a bluish discoloration of the skin called argyria. Naturally this is very rarely observed owing to the infrequency of the internal administration of the salt, which is undoubtedly of value in epilepsy but has been discarded on account of this very undesirable and permanent pigmentation. Now, however, a word of caution is in order. While the nitrate of silver is scarcely ever administered by the *mouth* it is very frequently administered by the *rectum*. It is used in mucous colitis to flush the bowel in weak solutions and with the expectation of its being promptly ejected. Obviously some of it will be retained or it can give no results. Persistently used over an extended period it has brought about the same lamentable condition of the skin. It behooves us, therefore, to limit the application of this admittedly efficacious remedy to a very short trial. (Since this was written two cases of argyria following the use of nitrate of silver as a swab to the throat were presented at the Academy of Medicine.)

Chloral is widely and wisely employed in acute insomnia and nervous disturbances of short duration, such as the active delirium of alcoholism. In certain cases it will produce the same litany of dermatoses that has become familiar from constant repetition; namely "scarlatiniform, morbilliform, urticarial, vesicular, and bullous." The chloral habitué is apt to develop a chronic congestion of the face, neck, and ears which, taken in connection with mental hebetude, is quite distinctive.

It may be a matter of interest to learn that there is not a drug in the hands of the practitioner that has not its predestined victim. Even such a bland reconstructive agent as cod-liver oil, may ravage the skin of its luckless imbiber. The staid old standby of the infancy of medicine, the nearest approach to a panacea that we possess, homely, honest, dependable castor oil, will occasionally amaze us by acting likewise. Boric acid has a tremendous vogue among the general and special surgeons and dermatologists. It is regarded as an utterly harmless remedy with very decidedly efficacious action of a sedative and cleansing character. It is not usually administered by the mouth except in gargles and other local applications. It is occasionally prescribed for cystitis by this route, however, and a

very excellent remedy it is in the chronic malodorous variety. In the language of the day, hexamethylenamin "has nothing on it" as a bladder disinfectant. Once in a while—a very long while—it will set up a dermatitis, adhering to one of the types so often mentioned. Even the trifling amount absorbed from the accidental swallowing of a portion of a mouth wash has had this unfortunate effect in a patient with a pronounced idiosyncrasy. Borax, being a compound of boric acid, has displayed the same pernicious activity. The internal therapeusis of iodoform is confined almost exclusively to dermatological practice where it sometimes renders excellent results in lupus erythematosus. A dermatitis of the usual drug type is an uncommon but deplorable concomitant.

The National Formulary might be ransacked in vain for a potential medicinal agent which could be pronounced absolutely and always innocuous. Sooner or later in the course of its administration the unexpected will eventuate and another drug eruption be added to the plethoric ensemble. It will be hardly necessary to swell the enumeration, as the caution of eternal vigilance has been sufficiently urged.

All that has been discussed so far has had to do with the effect on the skin of medicines administered internally. This is styled "dermatitis medicamentosa." For convenience of classification, a purely arbitrary distinction in terms has been established between this and the effect on the skin of medicines applied externally. The latter is styled "dermatitis venenata" literally "poisoned dermatitis." Both are properly considered under the head of "drug eruptions." As an example of how the same agent may produce both the one and the other pathological condition let us consider the action of iodine. We have seen that in a pliant individual, iodine taken by the mouth will produce a violent eruption on the skin in the form of vesicles and bullæ, constituting a dermatitis medicamentosa. In the same individual iodine applied externally will do the very same thing, constituting a dermatitis venenata. Arsenic taken by the mouth will eventually induce a dusky pigmentation of the skin or even localized keratoses, constituting dermatitis medicamentosa. Arsenic applied to the skin will produce a tremendous inflammation with sloughing, constituting dermatitis venenata. The inflammatory agent in both methods of attack is the same, but the result is placed in a different category for convenience of description. It would be just as exact and scientific to say that one mode of attack produced a dermatitis medicamentosa ab. internis, and the other a dermatitis medicamentosa ab. externis. Or dermatitis venenata with the qualifying adverb might be employed for the same purpose. But usage has sanctioned the distinction in terms arbitrarily established, and there would be no practical advantage in disturbing it.

There is not nearly as much likelihood of dermatitis venenata being misapprehended as dermatitis medicamentosa, because the sequence of events is sharp and convincing. If a man puts mustard on his chest and sets up a dermatitis, there is no mistaking the provocation. If a man applies blue ointment for pediculosis pubis and achieves the same result the causative relation is just as obvious. If in the golden summer time one is lured by the call of the woods, and luxuriously reposes on a bed of moss in some romantic wild, the swollen visage of the morrow will bring conviction "strong as proofs of Holy Writ" that he has been in touch with *Rhus toxicodendron*. Instance after instance might be cited of the indisputable liaison of cause and effect in this relation. But occasionally the concatenation of circumstances is a little obscured, and there may be some difficulty in establishing it. Exempli gratia: a lady in her forties or may be in her thirties will present herself with a dermatitis of the face, neck, arms, or even most of the cutaneous surface. For reasons best known to patients and inexplicable on any ground of the slimmest common sense, the sufferer keeps her own counsel and lets the physician flounder around in a vain quest for a cause and an adequate remedy. If she would confess that she had been using a hair dye to stay the visible ravages of time, or if the physician were alert enough to note the dissonance between the raven locks and the sulci in her cheeks, a flood of light would burst upon the whole situation and the proper course of action be immediately begun.

The aniline dyes in shirts, socks, and mittens is responsible for a good many attacks of dermatitis. The association should be positive under these circumstances, but the problem is sometimes complicated by the fact that the dermatitis may spread to regions far removed from the site of the irritant. For instance a pair of nice red mittens on the hands of a child may affect not only her hands but her face or even the greater part of her surface. It is believed that there is absorption and an invasion of distant parts from within, strictly speaking a dermatitis medicamentosa, secondary to a dermatitis venenata. Results that follow immediately the application of any unusual substance to the skin will be properly interpreted in almost every instance. Arnica, iodoform, bichloride of mercury, sulphur, turpentine, cantharides, blue ointment, chrysarobin, etc., usually leave a trail that the dullest eye can follow. It is when the exciting cause is not something out of the ordinary; when it is a thing that a person is used to having in contact with the skin, such as undergarments, soap, veils, pillow cases, sheets, blankets, fur pieces, fancy collars and ruffs, that the connecting link is apt to be overlooked.

Frederick S. Dennis ascribed his phenomenal success as a teacher to the talismanic phrase "Let us repeat." At the end of one of his lectures the dullest hearer had absorbed much valuable information. Fortified by such an illustrious example I will venture to reiterate what would seem to be already adequately urged; that the diagnosis of a drug eruption with few and well defined exceptions does not rest upon the form which it assumes, as nearly all of them may assume any form, but upon the abrupt and diffused onset without apparent cause. This applies of course to eruptions from within. Most of the external causes are easy to trace. Failure to do so is attributable in most cases to a want of thoroughness in the interrogation. It should be made a routine procedure in every dermatosis, to discover everything about the habits of the patient and everything out of the ordinary that has taken place. This comprehensive inquiry will leave no loophole for the escape of important data; save only in the case of the purblind hair dyer who would seek relief from her dermatitis without revealing the cause. Actuated by vanity or the hope that the consequences can be controlled with the cause still in operation, such a patient may deny the impeachment. But once suspicion is aroused the confirmation can be obtained by the

manifest incongruity of titian, brown, or dusky locks, crowning a set and seaming visage.

It is to be hoped that something has been said to put the drug eruptions in a light to clear them of much of their confusion. The writer remembers when their apparently endless variety appalled and stunned his staggering memory and how thankful he would have been to any compassionate deliverer.

The treatment is simplicity itself; stop the irritant. If need be apply a soothing lotion for a few days to help along. The results are gratifying to everybody concerned except the hair dyer and the epileptic. The self-esteem of the one and the nervous system of the other may suffer from the plan adopted. The first consideration is a negligible one. The second is of graver import, and it may be necesary, in weighing all the circumstances, to determine whether it may not be wiser to tolerate the dermatitis than the aggravation of the neurosis. Some maneuvering may be required to strike a tolerable balance between the two. Where the iodides are toxic use salvarsan.

323 West Fourteenth Street.

THE DANGERS OF IMPURE AIR.

By HORACE GREELEY, M.D.,

BROOKLYN, NEW YORK.

While sanitary housing conditions are supposed to be largely dependent upon cost consideration, the really minor extent in which this is true is not generally understood and should therefore be made plain; and as the spread of winter diseases, such as pneumonia and "colds," may be influenced by such factors, especially those concerned with ventilation, a short consideration thereof will be of interest now.

The actual oxygen content of air in our cities varies little from the normal, under ordinary circumstances, outside or within our closed houses; and even should there be a marked difference in this particular between city and country air, an increased rate of respiration, as takes place when we ascend to any considerable elevation, would make up the deficit without appreciable harm to our health, as is plainly shown by the well known salubriousness of mountain resorts. But what we have particularly to guard against are the impurities added to the air by our commercial and personal activities.

Our factories, through their furnaces, add many gaseous compounds of sulphur and carbon, and sometimes of nitrogen, that are poisonous to the blood if inhaled, rendering it incapable of carrying the normal amount of oxygen and probably also directly damaging the various tissues. Similar gases escape from sewers, putrefying refuse, and house fires, and our bodies even add their quota. Such effluvia, when escaping exteriorly, are usually so diluted, washed out of the air by the rain, or driven away by the wind, that as air contaminants they are then of negligible importance.

The effect of a varying amount of water-vapor contained in air may be noted here, and I will call attention first to the action of an atmosphere completely saturated with it. This prevents any evaporation from the body's surface and so arrests a principal method of heat dissipation, as water in passing into vapor absorbs and carries off much. The particular oppressiveness of a sultry day is due to this restriction combined with the interference of the damp air with good ventilation through its blanketing action on air currents and diffusion.

With an air only partially saturated considerable heat may be borne without discomfort, as evaporation of perspiration goes readily on, carrying off the excess. The Turkish bath furnishes a familiar example and an experimenter once exposed himself for a few moments in an oven in which meat was roasting, without injury or elevation of body temperature. As the temperature of air rises, its capacity for water greatly increases, and while it readily obtains the latter out of doors, within it may, by artificial heat and lack of water supply, become very dry and irritating to the air passages, as in becoming saturated on its way to the lungs it absorbs more water than the upper respiratory tract is normally able to supply and leaves a trail of dust behind which the lining cells are unable to dispose of, not being able to spare the mucus necessary to entangle and carry it off.

For this reason all stoves and furnaces should have attached to them a small vessel containing water which the heat will vaporize, and from the valve of every steam radiator a small jet of steam should be given egress.

Street air is rarely harmfully polluted except by dust; although in narrow lanes and airshafts, especially when air currents are absent and the humidity is high, gaseous waste matters may accumulate considerably, as previously explained, depending directly upon the neighborhood state as regards coal consumption, gases from special factories and the presence of putrefying materials such as garbage, manure, etc. It is, however, principally within the closed rooms of homes, offices, and factories that injurious gases, together with many other unclassified exhalations, accumulate in dangerous quantities.

The factors which directly control the indoor-air content of these various harmful substances are the heating, lighting, and cooking arrangements; the number of individuals per given air space, their general cleanliness in person and habit; and the construction and ventilation of premises.

Steam-heat and hot-water-heat neither add to nor take from the composition of the air, and their sole effect is to produce its expansion, thus increasing its capacity for moisture. Coal stoves, especially Baltimore heaters and hot air furnaces, on the other hand, always add an appreciable amount of harmful gases, especially when draughts are closed, and in providing adequate ventilation allowance must be made therefor, although the great influx of outside air brought by the hot-air furnace and the consequent hastening of the outflow from a room counterbalance to a large extent the ordinary pollution from this form of heater. In heating the ovens of kitchen stoves there is always a partial obstruction of the draught, and with the many openings around the lids and joints, this gives ample opportunity for the escape of gases. Cooking stoves with ventilated hoods catch most of the gases and carry them off. Unfortunately, many persons cannot afford to live in apartments whose kitchens, thus far, are so equipped. In the use of coal stoves and hot-air heaters, both for cooking and house warming, one cardinal principle should always be observed and that is never to put coal on the fire while any draught is turned off, and to keep the same turned on for at least a few minutes after adding a new supply until this has become quite hot, in order to prevent the escape into the house of the great amount of gas which is driven off from the coal when first added. This excess of escaping gas

has usually subsided by the time the topmost pieces of coal have become too hot to be handled, although at no time should a draught be allowed to remain closed while a noticeable amount of gas escapes into the room.

The ordinary kerosene lamp of sixteen candle power uses as much air as seven persons, the common (bat-wing) gas burner, of equal illuminating strength, as much as five, while this same flow of gas, if burned with an incandescent mantle, demands no more air but gives a light nearly five times as brilliant. An electric-bulb light has no effect upon the surrounding air.

Gas and oil used for heating have of course an effect similar to the same when burned for light, the sole difference, varying with the quantity used, being one of degree. The product of this gas or oil combustion is only carbon dioxide and water vapor and, in the case of gas, traces of sulphur compounds, unless, through fault of apparatus or material, some of the gas or volatilized oil escapes unburned.

The air we exhale contains about four per cent. less oxygen than when it was inhaled and in its place we find the gas carbon dioxide, derived principally from the oxidation of the starches and sugars of our food. This gas, always produced when coal, wood, or any carbon-containing material is burned, is so rapidly absorbed by all plant life, its carbon part being stored up and its contained oxygen given back to the air, that it never exceeds 6/100 of 1 per cent. of the outside air, even in our city streets. Within our dwellings, however, it accumulates rapidly, and when it has reached a percentage about double its limit in the outside air, a sensation of oppression may be distinctly felt, especially by one entering from outside. Recent investigators claim, however, that this sensation is entirely due to interference with the body's heat-regulating mechanism by the increased temperature and moisture saturation of the air and that if it be kept in motion, thus counterbalancing its lessened ability to take up perspiration through bringing more air in contact with the skin in a given time, many times this carbon dioxide percentage can be tolerated without either discomfort or apparent harm; still, since the general effect of impure air as a whole is known to be positively and uniformly injurious, and as there is no reason to economize it, nothing short of as perfect ventilation as may be secured under modern housing conditions should be tolerated.

Our respiratory system, besides serving to admit oxygen, has important excretory duties, the outflowing air carrying away waste matter, including carbon dioxide and putrefiable organic matter, greater in amount and no more fit to be taken into the body again than that thrown off by the kidneys. This waste and the emanations from the body, varying greatly with the persons present, are the most harmful contaminations of the air we breathe. Their reintroduction over and over again compels the system repeatedly to cast out that which should have been rid of in one effort, besides, their greater concentration must intensify all poisonous effects. The result of the accumulation of waste products, as affecting living cells, can readily be observed in connection with bacteria whose growth is at first slowed, and finally the organisms are forced into a resting stage or even destroyed, although ample food supply may be available. The aforementioned emanations, which go under the general name of "crowd poison," are recognized by their odor only and little definite is known concerning their chemical composition, but besides putrefactive gases they are probably largely made up of suspended solid particles. They are added to the air from the breath, decomposing perspiration, and intestinal gases of individuals and, when inhaled, probably tend to poison the body much as intestinal putrefaction ("auto-intoxication") does.

Air leaving the lungs contains no suspended material, but that entering is far from being its counterpart, as it is loaded with everything making up that most complex mixture called dust. In the country, any that may be present, aside from a slight amount of powdered soil, consists of the pollen of various plants, while in town it is hard to say what does not form a part of it. To start the reader's thought, a few components may be mentioned as pulverized stone, coal, iron, ashes, soot, manure, woolen and cotton fibers, leather, powdered substances from special factories, various animal and vegetable matters from waste food and all the microorganisms that flourish thereon, to which is added dried sputum, containing the germs of tuberculosis, pneumonia, "colds," and possibly many other transmissible diseases. Our streets are filled with this accumulating mixture which settles down time and again, only to be disturbed by breeze, passing vehicle, or street sweeper, until finally it is blown away or washed from air and street by a rain storm. If one successfully dodges an ash can or a street sweeper and walks upon the leeward side of the way, sure fate corrals him in the street car, which acts somewhat as a refrigerator for these delicacies and keeps them constantly on the jump as may be seen in the glancing ray of sunlight down whose golden path, to the imaginative, fleets of Zeppelins and aeroplanes manned with all the microbes of bacteriology seem to pour.

Dust particles, of course, in a degree directly dependent upon their composition, affect the surface of the respiratory tract (nose, throat, bronchial tubes, and lungs) and, as with a charge from a shot-gun, each pellet works its woe, although the general result depends largely upon the number and nature of those reaching the mark.

It is, however, particularly in connection with its association with the germs of disease that dust is dangerous to the general public, and although some regard each speck seen afloat as a harbinger of such passengers, the distribution of living disease-producing elements is much less general and, although tubercule bacilli, and a few other highly resistant pathogenic organisms, may live several days after drying, if protected from direct sunlight, most disease-producing microbes die within a few hours after such exposure. In rooms, however, in which a sufferer from disease, or any carrier, in nose, mouth, or throat, of specific germs, even though not the subject of active disease, coughs, sneezes, and expectorates, the dust is usually infectious, since a supply of the germs is constantly at hand to substitute those dying as a result of extreme drying and exposure to light; and some even float in a moist or partially dried state. Even though the specific germ may not always accompany the dust, the latter, through mechanical irritation, destroys the protective cells lining the respiratory tract and renders subsequent invasion an easier task. Stone cutters not specially protected exemplify this, as it is said that 95 per cent. of all illness among them is due to lung tuberculosis.

The screening of air is greatest when inhaled through the nose (mouth breathing giving little protection to the lungs) where it is warmed, saturated with moisture, and most of its floating particles caught, the remainder of course being deposited lower down in the bronchial tubes and lungs. The latter are able, without injury to themselves, to dispose of a small quantity—about that which usually reaches those of a country resident—but, as is well known, in our cities the lungs of all constant inhabitants become colored gray by the deposited dust.

All common "colds," so-called, are due to an infectious process produced by a rapid extension of growth of microbes already present, permitted through a lowering of the body's special resistance, or through contagion, either direct or through the medium of dust, and the general belief attributing their causation to cold air or a draught is both fallacious and unfortunate, as thus the exclusion of fresh air and the inhalation of its foul debilitating dust and germ-laden substitute is encouraged.

The coincidence of cold weather and frequent "colds" is chiefly responsible for their association in the popular mind as cause and effect, although, of course, actual chilling may, through its debilitating influence, predispose. Furthermore, efforts to keep warm often lead to the use of impure and irritating air. The above mentioned belief has been strengthened by the direct irritating effect of cold air upon the already inflamed lining of the air passages and its action, through contraction of the surface blood-vessels, in temporarily congesting those within, with consequent embarrassment of respiration. In cold weather it is extremely difficult to secure good ventilation owing to the discomfort that people fear will result, and this is the factor, more even than faulty construction, responsible for the vile air which so many of us breathe in the winter time. It is notorious that farmers during the cold months, although situated in the midst of an ocean of fresh air, are among those whose health suffers most from such effects, brought about through the common practice of stuffing cracks and hugging the stove. In the city, it is not alone the tenement that requires ventilation, as frequently the houses of the rich, the workrooms of factories, and the closed cars on our streets are as tightly shut off from outside air as their construction will permit.

Overcrowding as an air-contaminating factor is certainly patent, since it is so frequently accompanied by general uncleanliness and poor ventilation in premises often so arranged as to make thorough aeration difficult of accomplishment, besides the multiplication of individual contaminating factors proportional to the number present.

There are no hard and fast rules by which the public may be guided in the question of ventilation although, through an understanding of the principles just recounted, with the reminder which the nose unfailingly gives upon first entering a badly ventilated room, the question would be practically covered. So let the windows be opened, a little top and bottom, to permit an in and an out current, and, if necessary, let more clothes be worn, but do not permit the respiration of the foul air so common indoors in winter, and much will be done to reduce possible danger from pneumonia as well as from many other maladies.

Overcrowding should be avoided when possible, but when not, special provision must be made to meet the unusual requirements, and it should be noted that nothing short of an actual air draught through premises so occupied can be thoroughly effective.

While no inside room can be kept in a state of perfect ventilation, so long as our building practices allow their construction, we will have to make the best of the situation and do our utmost to overcome the difficulties. One step in the direction of entirely forbidding additions to the number of such rooms is the requirement which has recently been enforced by the Tenement House Department that all inside rooms must have at least one window opening through to an outside room, and, although the good which might result is much reduced through the common practice of allowing such windows to remain closed, the fact that an entering wedge has been driven is promising.

Dust in our streets might be controlled by the regular sprinkling of all unpaved surfaces and by requiring the street-sweeper to make thorough use of the watering-can before applying his broom. The new system of street flushing, introduced in some of the larger cities with a plentiful water supply, is ideal, and if carried out efficiently will do great good.

In our houses, even a greater reform has to be wrought, the feather duster and broom will have to be discarded and the damp cloth substituted. While carpets remain in vogue, of course, some sort of dust disturber will have to be used, but wet tea leaves, wet saw dust, or wet newspaper scraps will catch a good deal and prevent it from being driven from place to place, when, at each flight, it has an opportunity of entering our air passages. Vacuum cleaners are, of course, effective in this line. Some day, when sanitary science is more of a practice and less of a theory, our buildings will cease to be the dust-traps and microbe screeners that they now are, and their inmates will lose their belief in the greatest show for the least money, and will succeed to homes that combine cleanliness, comfort, and beauty in perfection. Then perhaps the Mohammedan's practice of removing his shoes before entering a mosque might be applied and all street dirt left beyond the baby's reach. Every effort will be made to secure a supply of Nature's best air and there will be no room without provision for its constant renewal. It has been calculated that a proportion of one-half the outdoor maximum amount of carbon dioxide (3/100 of 1%) is a safe limit necessitating a room space of 1,000 cubic feet, one large hall room's capacity, for each person, with ventilation sufficient to change all the air at least three times an hour. The openings necessary to accomplish this vary with the relative temperature within and without, upon which exchange currents depend, as the more heated air is the more it expands, consequently growing lighter and making the same efforts to rise above its cooler and therefore heavier surroundings as oil does when water is poured upon it, it issues from a heated room through every aperture with a velocity proportioned to this difference in temperature, the cooler and heavier air flowing in to take its place, and this in turn is warmed and follows the preceding. From this we may deduce that a room artificially heated in winter requires a smaller outlet than one not warmed and that the greater the heat of its contained air the more rapidly will it be renewed through the windows and crevices.

It is this property of air that makes it desirable

to place heaters near the lowermost openings of a room where they can warm the incoming air, and to have outlets near the ceiling toward which all currents tend, including especially the air vitiated by the body, thus keeping up a constant stream which washes all impurities from the room as soon as formed.

The most reliable and practical test of the salubrity of an apartment's atmosphere is the presence or absence of that sensation of oppression to a newcomer already alluded to, who, by the way, must not have had his sensibilities blunted by prolonged residence in those hybernating retreats of the sickly so common in our cities, nor have delighted in the sticky atmosphere of the winter street car where often even grease seems to float and microorganisms revel.

But even when this test is favorable, should the season or the heat available permit an open window, it should always be had, as only in the open where the purifying forces of nature have full sway can the best air be obtained, and as we are none too healthy this should always be sought. The well known difference between the general healthfulness of indoor and outdoor life is due largely to the variance in quality of this air-food, a prime factor in determining the thousands of cases of consumption with which our cities are afflicted. Not alone has the outdoor treatment been successful with tuberculosis, but many other maladies have been found to be profoundly affected by free air. A physician of international reputation even goes so far as to state that a tramp suffering from pneumonia by the roadside has a better chance to recover than a millionaire in a closed room.

From the foregoing we readily see that impure air may influence the general health in so many little ways, over such long periods, that the sum total often makes all the difference between disease and health. Certainly the respiration of the gases and compounds mentioned renders the body less able to perform its normal functions and an easier prey to the disease germ which it cannot but frequently encounter amid just those conditions where the air is usually most foul.

In concluding the subject, the importance of a continual supply of fresh air to our lungs, even more necessary to the sick than to the well, should be emphasized and the public reminded that its lack is a contributing cause to many cases of illness, some of which could never occur without its aid. Of all the conditions of civilized life depreciatory of vigorous health this is the most widespread in its influence and the least recognized by the public, not one in a hundred of whom does not suffer from its effects.

140 Clinton Street.

THE PHYSICIAN'S INTERESTS IN THE WORKMEN'S COMPENSATION LAW.*

By HENRY S. STARK, A.M., M.D.,

NEW YORK.

The officers of the Society are to be congratulated in having assigned the greater part of an evening to the discussion of a question of such vast economical interest to the profession. If the County Medical Society would adopt this practice generally, and would utilize all its vast resources for the benefit of its members, there would be no necessity for the formation throughout the city of physicians' benefit societies and physicians' economic leagues. It is just and proper at our meetings that we should occasionally turn from the strictly scientific to the human side of the practise of medicine. The Workmen's Compensation Law, like many other laws passed by the Legislature, as for instance the Boylan habit-forming drug bill, are notorious examples of what might be styled rapid transit legislation, bills that are railroaded through the Legislature in an unprepared and unfinished state, with the result that they are riddled by amendments by the next legislature so profusely that the original is scarcely recognized. In the case of the Workmen's Compensation Law, no hearing was ever given to any medical society or to any representatives of the profession at large, a most unusual procedure which should call for severe criticism. The medical profession has always received scant recognition from the public or from legislatures, state or national. The practice of medicine has never been considered a hazardous occupation, the sacrifices that physicians daily make in their practice, go unrecognized by state or nation or public at large; the too often gratuitous services are lost sight of in the aggregate; who ever heard of a hospital physician or professor in a medical college being pensioned? In these days of pensioning by such well-known foundations as Carnegie, Rockefeller, and Sage, a professor of homiletics who never handles an instrument more dangerous than a toothbrush or a fountain pen, is assured of a pension in the twilight of his professional career, likewise the professor of Egyptology and of descriptive geometry; but a professor of surgery who risks his limb and his life daily in the operating-room or the professor of bacteriology or pathology who risks his life and limb daily in the laboratory and autopsy-room are not considered worthy of a pension after years of sacrificial service. A physician is a distinct asset to a community, the medical profession itself is a constructive resource to the nation. In the present European struggle we can dispense with the artist, the poet, the literateur, but with the doctor we never could. I mention these instances to give color to the fact that physicians' services are not generally acknowledged as they should be and the Workmen's Compensation Law is no exception to the rule.

In the *New York State Journal of Medicine* for November, 1914, the statement is made that "The profession has every reason to be grateful, as it is the first time that our legislative body has recognized the rights of medical men, etc." Let us pause here a moment and see how true this is. It is also claimed that in many instances injured laborers were ambulanced to hospitals and that for such cases neither doctor nor hospital derived any revenue, while under the present régime physicians and hospitals do get a fee from such cases. Now let us see what the customary practice really was before we had a compensation law. The usual custom was that the injured workman would pay a regular fee for first aid and subsequent services. The laborer, like all other provident employees, usually had money laid aside for such a contingency as injury or sickness; in other instances he was a member of a benevolent society which allowed weekly benefits during disability from sickness; in still other instances, and this very often happened, the employer or company would pay for surgical services ren-

*Remarks made in the discussion on the Workmen's Compensation Commission at the February meeting of the County Medical Society.

dered an injured employee. It is true that under the present law patients sent to hospitals are expected to pay the hospital and physician, but let me ask how many of you are visiting surgeons to hospitals? Are not the hospital doors closed to most of you, and this last feature shows the injustice of our present hospital management, namely, that the doors of the operating-room and wards are closed to the profession at large. I firmly believe that all hospitals should be open to all physicians in good and regular standing, and not be given over entirely to the visiting staff. That is the next economic question the doctors in this city should take up. In consideration of injured workmen being taken to the hospital, many firms, companies, and corporations made yearly donations to such institutions. Now I imagine such donations will cease, and thus the hospitals will not be the gainers to the degree that they believe they were.

As a practitioner it has fallen to my lot to treat many injured workmen, and in almost all instances these patients paid me cheerfully for services rendered. Personally I am not opposed to taking a fee lower than the services are worth, but I decidedly object to being compelled to do so by legislation or by insurance companies. The medical and surgical fee bill which puts one in mind of the scale of prices, posted in the boxoffice of a theatre, is in my humble opinion the first step towards commercializing and socializing, if you will, the medical profession, a spirit which we as physicians have always resented and which we denounce today as being inconsistent with our Hippocratic oaths. We demur at the attempt of the State to barter for our service as though it were a piece of merchandise or a real estate parcel. Our services cannot be estimated arbitrarily in dollars and cents, each physician's service is a law unto itself; but once the State attempts to put an official value on medical services, it is morally, legally, and economically bound to put an honest and current appraisal on such services and not a rock bottom, prohibitive, and unjust appraisal. It must be evident to those who are familiar with this new act of the legislature that the interest of the insurance carriers came in for more consideration than did the interest of physicians. I would like to call your attention at this time to the methods and procedures which led to the adoption of this medical and surgical fee bill.

Many physicians are under the impression that this fee bill is a bill that has been passed by the State legislature; now as a matter of fact it is nothing of the kind. It is a scale of prices temporarily adopted by certain representatives of the Workmen's Compensation Commission, together with five members of a special committee of the Medical Society of the State of New York. Now my claim is that this latter committee was never clothed with authority from the State Society to enter into any such contract with the Commission. According to the resolution which was adopted by the House of Delegates of the State Medical Society in April, 1914, this committee was charged with the sole duty of presenting the views of the profession on questions that might come up for the solution affecting medical men to the compensation committee and nothing else. The committee was not authorized to fix a scale of prices with the commission; its duty was first to report back to the House of Delegates which created it. Now inasmuch as the next meeting of this body will not take place until April, 1915, in Buffalo, the report of this committee can not be handed in and acted upon until then. Section 6, Chapter III of the by-laws of the State Medical Society of the State of New York specifically states that special committees shall report back to the House of Delegates. On the other hand, as far as the compensation committee is concerned, it may be argued that it had no warranty in law or in fact to fix on a scale of prices with this special committee for the reason that the latter did not represent the profession at large but only the State Medical Society. The State Medical Society does not represent even half of the medical profession of the entire State. The other half was never consulted. A legal construction of these facts would seem to indicate that the medical and surgical fee bill is not binding upon any member of the profession and that it is no legal contract and therefore physicians have the right to set their own price on the value of their services as though there were no Workmen's Compensation Law in existence.

I think it would have been the part of wisdom if the Compensation Commission had consulted the medical profession of the State of New York and not solely the Medical Society of the State of New York. Unfortunately the medical profession of our State is not a perfectly organized body.

I would suggest to this commission, if it were desirous of getting the views of the physicians of this State as to what a proper surgical fee is, that it circularize every physician in the State of New York to that effect. This procedure would readily bring to light the majority opinion of physicians throughout the State and would furnish a rational working basis to be used in appraising surgical and medical services. Under the present operation of the law the individual rating and standing of the physicians in the community is not recognized, neither is the time consumed in attendance nor the character of the service, considered. All these elements should have received careful attention before a flat rate applicable in all instances was adopted. It must come to this before we will allow ourselves to become reconciled to the new law. We do not object to the new law. We recognize it has come to stay, but we want fair treatment from those who are empowered to regulate and prescribe fees for services rendered.

Let me at this time call your attention to a matter which transcends in importance the question of a fee bill, and it is this: has the State really the constitutional right to say what a physician may charge for his services and limit such fees to a certain scale?* While I am in nowise in a position to offer a legal construction of the State's rights to regulate physicians' fees, I venture the prediction that if the matter were brought up for adjudication in the courts the legality of the State's act would not be sustained. This society in the November meeting decided by resolution to repudiate the medical and surgical fee and to instruct its delegates to introduce and support a resolution to this effect in the House of Delegates of the State Medical Society in April. This measure seems to me to be wise, just, and fair, and we should stand by it until measures are taken by the Workmen's Compensation Law looking to a fair reconciliation of our individual differences and to a more just standardization of fees.

1309 Madison Avenue.

*I am now referring to physicians who are of course not in the employ of the State or any of its agencies. That applies to most practitioners in the State.

PERMANENT ENLARGEMENT OF THE CONTRACTED PELVIC OUTLET.*

PRELIMINARY REPORT

By FRANKLIN D. SMITH, M.D.,
CHICAGO, ILL.

MANY cases of dystocia due to contraction of the pelvis can be temporarily overcome by a limited increase in the diameter of the pelvic outlet. Many borderline cases could be permanently relieved by an increase of not more than 1.5 to 2 centimeters in the conjugate diameter. It is possible to obtain this result by permanently spreading the pubic bones. This can be accomplished by the isoplastic transplantation of bone of a certain width to maintain the desired distance between the pubic bones.

The pubic bones are separated at the symphysis by a fibrocartilagenous articulation, called the interpudic disk. Each bony surface is covered by a layer of hyaline cartilage varying in thickness in different individuals. The bony surfaces are very irregular, presenting many nipple-like projections, which aid in securely fastening the hyaline cartilage to its surface. These hyaline plates of cartilage are distinctly separated from the compact bone, but bone gradually merges into cartilage, resembling very much the structure at the epiphysis of any long bone with the exception that the space of transition is very narrow in the symphysis. Between both plates of opposing cartilage is found an intermediate stratum of fibrous tissue. In this fibrous tissue structure is found a cavity, not lined by synovial membrane, called the cavum articulare, which can be demonstrated after the tenth year of life by a vertical section through the symphysis.

The structure of the pubic bones in this region is both compact and cancellous bone. A very thin layer of compact bone is found beneath the hyaline cartilage, although in the nipple-like projections the compact bone is thicker than in the depressions. Underlying the compact bone is found a very vascular, spongy, cancellous bone.

The transplant is obtained from the internal surface of the tibia near its upper extremity. In this region a transplant of sufficient width and length can be obtained. The periosteum can be removed with the transplant and may serve a much disputed purpose. The transplant must be obtained fresh and unless it retains sufficient vitality to proliferate and regenerate the results will not be satisfactory.

An incision is made over the symphysis long enough to accomplish the technical details and at the same time to conserve the tissues in this region, giving special attention to hemostasis and sepsis. The dissection is carried down to the symphysis and the interpudic fibrocartilaginous tissue is completely removed, curetting the irregular nipple-like projections of bone on the surface. The bones are separated a certain distance by an instrument made for the purpose, as previously determined, and the transplant is set in place. The transplant may be held in place either by grooves made in the pubic bones or by a heavy kangaroo tendon bound about the graft and pubic bones. After closing the incision with catgut a properly fitting plaster cast is applied. The progress and position of the transplant can be ascertained at varying intervals of time by means of the Roentgen rays.

UNIVERSITY HOSPITAL.

*This article is based entirely upon animal experimentation. From the Laboratory of Clinical Pathology, University Hospital, Chicago, Ill.

Medicolegal Notes.

Administering Anesthetic—Intent to Procure Abortion.—In criminal proceedings for administering a drug with the intention of procuring an abortion in violation of secton 12,412, Ohio General Code, the Supreme Court of that State made the following rulings: Whoever, with the intent to procure the miscarriage of a woman by the use of an instrument or other means, administers to her a nonabortive drug as an anesthetic preparatory to the use of such instruments or other means of procuring an abortion, and the woman dies in consequence of the administering of such drug before the use of instruments or other means by such person to procure a miscarriage, and it does not appear that such contemplated miscarriage is necessary to preserve her life, or that the procuring of such miscarriage was advised by two physicians to be necessary for that purpose, is guilty of a violation of the provisions of the statute. Under such circumstances every act done in furtherance of such unlawful purpose is an integral part of the whole unlawful transaction; and the fact that death ensues before the final act in the contemplated crime can be accomplished is not a defense to an indictment charging a violation of the statute. But if it appear that a nonabortive drug is administered to a woman as an anesthetic to enable a duly authorized and practicing physician fully and carefully to examine into the woman's actual condition for the purpose of determining if it be necessary to procure a miscarriage in order to save her life, and the woman die from the effect of the drug so administered, and no miscarriage is performed, nor intended to be performed unless the examination disclose that it is necessary to preserve the woman's life, no offense has been committed within the provisions of the statute. Evidence tending to show that no secrecy is maintained in the transaction; that a second physician is called in to administer the anesthetic; that while the woman is in a state of anesthesia the attending physician makes an examination for the purpose of determining whether the fetus is alive or dead, and upon such examination does determine that the fetus is still alive, and that it is not necessary to procure a miscarriage in order to preserve the woman's life, and, having so determined, makes no use of any instrument or other means to procure a miscarriage, but immediately desists from further efforts in that direction, and directs that the woman be restored to consciousness, is proper evidence to be admitted for the purpose of showing the absence of criminal intent in administering the anesthetic.—State v. Tippie, Ohio Supreme Court, 105 N. E. 75.

Basis of Expert Testimony.—Testimony of a physician, so far as it is expert testimony, may be based upon personal examination, or upon the facts proved upon a trial, or upon both such examination and proven facts, or, preferably, it may be based upon hypothetical questions.—George vs. Shannon, Kansas Supreme Court, 142 Pac. 967.

Practising Medicine without License — Manipulation of Nerves, Bones, and Tissues.—In proceedings for practicing medicine in the State of Nebraska without a license it was held that to "operate on, profess to heal or prescribe for, or otherwise treat any physical or mental ailment of another" is "practising medicine" by the express provision of section 2724, Nebraska Rev. St., 1913. It is held to be unlawful in the State of Nebraska to treat professionally and attempt to heal another by manipulation and adjustment of nerves, bones, and tissues of the body, without first obtaining a certificate or license from the state board of health, as provided in articles 2 and 8, ch. 27, Rev. St., 1913. Every such treatment constitutes a separate offense, although of the same individual and for the same physical or mental ailment, if such treatments are on different days and entirely independent of each other.—Harvey v. State, Nebraska Supreme Court, 148 N. W. 924.

Privileged Communications.—In an action for injuries to a passenger by falling on a defective station platform, it is held that a physician who had attended her was rendered incompetent by the Arkansas statute forbidding a physician to disclose any information acquired from a patient while attending him in a professional capacity, and which information was necessary to enable him to prescribe as a physician, to testify that the passenger was afflicted with cancer and died of that disease.—St. Louis I. M. & S. Ry. Co. v. Fuqua, Arkansas Supreme Court, 169 S. W. 786.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 3, 1915.

TUBERCULOSIS AND GOUT.

THE association of arthritic manifestations with pulmonary lesions has been known for a long time. The subperiosteal deposition of new bone, particularly marked in the region of the wrist and ankle and frequently observed in cases of bronchiectasis, has given rise to the clinical conception of pulmonary osteoarthropathy. In 1889 Sir Andrew Clark described an "arthritic hemoptysis" occurring in elderly persons and attributed to arthritic changes in the capillaries of the lung. It is widely recognized that a distinct antagonism exists between tuberculosis and the arthritic diathesis. In 1869 Maurice Raynaud noted that tuberculosis developing in a gouty individual is limited to the apex of the lung, and runs a slow and almost latent course. G. V. N. Dearborn in the article on "Diathesis" in the "Reference Handbook of the Medical Sciences," Third Edition, 1914, quotes a memoir by Sarda and Vires, in which there are pointed out the rarity of pulmonary tuberculosis in the arthritic, the resistance of the tissues of the arthritic to the invasion of the tubercle bacillus, and the certain arrest of the disease when such invasion does occur.

The mutual influence of tuberculosis and gout is discussed in an interesting article by Arthur Mayer in the *Zeitschrift für Tuberkulose*, December, 1914. He has already delineated a typical form of gout in which the sole manifestations occur in the respiratory organs, and to which he has given the name "pulmonary gout." The disturbance in purin metabolism which was characteristic of these cases suggested a new line of investigation, namely, the character of the purin metabolism in frank cases of pulmonary tuberculosis. Reference is made to the observation by Bandelier and Roepke that in persons with a disturbed purin metabolism tuberculosis runs a particularly benign course, and shows a striking tendency to fibrosis. The long recognized antagonism between tuberculosis and gout is, however, not an absolute one and must be accepted with two important reservations, namely: (1) The antagonism applies only to constitutional gout, for gout the result of lead poisoning tends to favor the development of tuberculosis. (2) There are also cases of atypical gout which may exist in association with tuberculosis to an extent far greater than is generally recognized.

Mayer reports a series of such cases which he has carefully studied. The outstanding feature in the clinical history was the occurrence of pulmonary hemorrhage as an apparent equivalent of an attack of gout. Hemoptysis occurred following an injection of tuberculin and coincident with the maximum of uricacidemia. Just as in cases of typical gout, there occurred, preceding the pulmonary hemorrhage, a fall in the uric acid content of the blood, which content rose very high during and after the hemorrhage. The curve of the excretion of glycocoll likewise behaved exactly as in cases of gout, namely, the reverse of the uric acid curve.

The conclusion is reached that in some cases of gout the sole clinical manifestation is pulmonary hemorrhage. It cannot be maintained that this hemorrhage is the result of the wounding of the minute pulmonary capillaries by uric acid crystals deposited in them, for it has been proved that the lungs, and particularly tuberculous lungs, have a very slight affinity for uric acid, nor have uric acid crystals ever been isolated from lung tissue.

SPLENECTOMY IN PRIMARY PERNICIOUS ANEMIA.

THE first splenectomy for primary pernicious anemia was done at Eppinger's suggestion in March, 1913. Five German cases had been reported up to the time when Harpole and Fox (*Surgery, Gynecology, and Obstetrics*, February, 1914) reported the first case treated by splenectomy in this country. Their operation was done of their own initiative and without being aware of the fact that these German cases had been reported between August, 1913, and the date of their operation. Their reasons for operating were that the patient was going from bad to worse under medical treatment and the fact that there was a palpable spleen which could not be accounted for by a previous malaria or other disease. Operation was followed by marked improvement in the patient's condition. Next, Roblee, writing in the same journal in November of last year, reported having treated two such cases by splenectomy. In the first case the result was astonishingly good almost from the outset; a second operation about six weeks later, for the liberation of colonic adhesions, was well borne and the patient was constantly gaining at the time the article was written. The second patient showed some improvement, but the prognosis was not considered so hopeful as in the case of the first patient operated upon.

From these and the few other reported cases, Roblee believed himself justified in claiming that splenectomy in primary pernicious anemia does not present any very unusual difficulties and the operation, unless a former splenitis has been present with resultant adhesions, does not cause much shock or inconvenience to the patient. The improvement is immediate and striking and a comfortable temporary lease of life appears to be assured, although, in view of the variability of conditions in cases suffering from this disease, we are not warranted in promising a permanent cure. Finally the immediate results are far more pronounced than those following a palliative operation for cancer or other chronic conditions, and if such an operation is

ever justifiable, this operation certainly is indicated.

This report was so encouraging that we were about to call attention to the new resource in the treatment of these otherwise hopeless cases when Roblee published a second communication (*Jour. A.M.A.*, March 6, 1915) in which he discussed the causation of this type of anemia, the normal function of the spleen, the immediate effects of splenectomy, and the later clinical results. He has found 40 cases recorded in which operation has been performed up to the present time, and in this article he gives a rather complete résumé of the subject. As to the results, he says that he has been unable to find a record of any case that the surgeon has been willing to report as cured. There has been an immediate and striking improvement in the majority of cases, but this improvement seems to last but a few weeks or months and in none has the blood picture become absolutely normal. His first case, which appeared so promising in September, ended fatally in December. The second, which did not appear to justify so favorable a prognosis shortly after operation as the other, gradually improved up to the time it was lost sight of in October. Roblee believes that blood transfusion should be resorted to in all cases before operation and insists that other therapeutic measures should be combined with splenectomy.

It may be that here lies the solution of the problem. Operation has added months to the lives of a majority of the patients, and it is to be hoped that the opportunity for study under the changed conditions brought about by the removal of the spleen will ultimately result in the discovery of the toxin or other cause of perverted function at the bottom of these cases and suggest the proper therapeutic attack. Meanwhile, since these cases are otherwise hopeless, splenectomy is certainly indicated, and it should be regarded as a duty by each operator to avail himself of the cooperation of a skilled pathologist and internist in the subsequent study of the case and to report results in every instance.

CLINICAL PROBLEMS IN DIPHTHERIA.

One of the most interesting phases of the study of diphtheria is the percentage of error in its diagnosis. This percentage is a large one in spite of the fact that in addition to the clinical symptoms there are objective evidences of the disease and there is the aid furnished by bacteriological diagnosis. But there are cases that clinically present all the characteristics of diphtheria and nevertheless are not diphtheria, and vice versa. Moreover, bacteriological diagnosis is not infallible. Overlooking the faults in technique and the accidents in the cultivation of bacteria, which account for a definite percentage of error, one may be certain that not all cases of membranous sore throat or follicular tonsillitis in which diphtheria bacilli are present are really cases of diphtheria. These bacilli may be non-virulent and innocent bystanders that have nothing to do with the disease that may be present.

An impressive commentary on the percentage of error in the diagnosis of diphtheria is furnished by the report for 1913 of the Metropolitan Asylums Board Hospitals of London. Of the cases admitted the percentage error was 15.6. There were 1,009 cases wrongly certified as diphtheria; these included 699 cases of tonsillitis, 64 of laryngitis, 23 of rhinitis, and 140 of bronchopneumonia. In an article based on the observation of nearly 3,000 cases of diphtheria, Cabrera *Semana Médica*, 1914, No. XXI) states that in 80 per cent. of his cases the bacteriological and clinical diagnoses were in accord. In other words, in 20 per cent. of the cases either the clinical manifestations or the bacteriological findings alone sufficed for a diagnosis. But the opinion is ventured that the clinical symptoms are even more to be trusted than the bacteriological findings. Opinions may differ as to the relative weight to be given to the clinical and laboratory findings, but in this as in other fields of medicine the physician's own experience will enable him to make an approximately correct valuation of these factors.

The disturbing element in all calculations regarding diphtheria is the diphtheria carrier. It is often difficult to decide whether in any suspected case of diphtheria one is dealing with an actual instance of this disease or with a disease simulating diphtheria in a diphtheria carrier. Of paramount importance in this type of case is the necessity of making tests to determine the virulence or non-virulence of the organisms isolated. With this idea in mind W. Buttermilch (*Deutsche medizinische Wochenschrift*, 1914, No. 12) has made a study of the clinical valuation of the types of organism in cases of nasal diphtheria in infants. Of extreme importance is the ability to differentiate the virulent types of diphtheria bacilli from the non-virulent types and from the diphtheroid organisms, a matter, however, of great difficulty. The author's study was made on the sixty-five infants in an infant's hospital, among whom there were three cases of genuine nasal diphtheria and two bacillus carriers with virulent organisms and five with non-virulent and diphtheroid organisms. These cases were isolated from one another and further bacteriological study could not reveal any transformation of the non-virulent organisms into the virulent ones, and vice versa. Nevertheless, there is ample clinical evidence that such transformation does sometimes occur.

It is an almost universal practice in children's hospitals to take cultures from the throat and nose of all patients admitted, and if diphtheria bacilli are detected in any patient to transfer the latter to an isolation hospital, even though the patient may have none of the clinical manifestations of diphtheria and the bacilli isolated may be non-virulent. There are many of these patients in public isolation hospitals known as "culture cases"; they usually remain for a long time with no apparent benefit to themselves and frequently to their own detriment. The rational procedure would be for all institutions to take care of their own "culture cases" if the bacilli are non-virulent. These patients should not be subjected to the real danger of superadded infection in an isolation hospital.

HEALTH EDUCATION, NOT COERCION.

THE first annual report of the New York State Public Health Council emphasizes the "new idea" in public health work—leadership rather than coercion. The report covers the council's activities since its creation in 1913 by the enactment of a new public health law. It goes without saying that leadership in order to be effective must be efficient and conducted along the right lines and in the proper spirit. It is also evident that the State is fortunate in this direction in having as its leader the present Commissioner of Health with an able band of coadjutors in the members of the council. The council thus expresses the new idea in leadership in health work: "In the framing of this sanitary code, the council steadily aimed to secure to the citizens of the State all the advantages which science and experience, especially during the last quarter of a century, have offered in the prevention of disease and in the promotion of the common welfare, with the least possible interference with the business, comfort, and convenience of the people concerned."

So far as the sanitary code adopted by the council is concerned, it states that it has attempted to enact a code which would be readily comprehensible to the citizens for whose use and guidance it is framed. In doing this it has eliminated not only useless sanitary procedures and "obsolete quarantine regulations," but has abandoned in its text those technical terms which, although still often used, have lost their earlier meanings and value. Seven chapters of the code have been enacted thus far. The first is entitled "Definitions and General Provisions"; the second relates to "Communicable Diseases"; the third to the "Production and Handling of Milk and Cream"; the fourth regulates the practice of midwives; the fifth relates to "Labor Camps"; the sixth to "Nuisances," and the seventh enacts regulations relating to spitting, the common drinking cup, the common towel, and barber shops.

There is little doubt that hard and fast regulations concerning certain important phases of public health are required not only in New York State but in all States of the country. People are apt to imagine that regulations of the kind constitute a curtailment of liberty, but they do not pause to consider that without such regulations the health of everyone is menaced. If the laws regarding public health are not strictly enforced, disease is afforded an excellent opportunity to originate and spread. It is only necessary to point to the milk supply to show that if the supply is not safeguarded milk, instead of being one of the most important sources of nourishment, is a fruitful medium for spreading disease. The enforcement of the regulations framed by Dr. Biggs and his associates will undoubtedly result in a great improvement in the public health throughout New York State.

THE VALUE OF AUXILIARY CLASSES.

THE methods of education in civilized countries have improved greatly in recent years. It is not so long ago when no special attention was paid to abnormal children and the fact did not appear to be recognized that all children could not be educated successfully on the same lines. At the present time, however, progressive educationalists have come to the conclusion that for the benefit of the community as well as of the individual, mental defectives and other children suffering from afflictions which disqualify them from ever earning a living in the ordinary way, must be so trained that the best use is made of those faculties which they possess. Thus mental defectives, the blind, and the dumb are now all taught to do some work which will not only render them less of a burden to the community but will make their lives happier and more contented. Dr. Helen Macmurchy of Toronto, inspector of Auxiliary Classes for Ontario, has issued recently at the behest of the Legislative Assembly of that Province, a book dealing with the organization and management of auxiliary classes. She has made a close study of the auxiliary class movement in various parts of the world and has put into this little book the result of her experiences, tracing also the history of the movement and the methods in vogue best adapted to minimize as far as is possible the physical and mental defects under which some children labor. The book is well written and arranged and may be termed an excellent text book on the subject. It should prove of great service to those who require information as to the manner in which auxiliary classes should be conducted.

GERMAN GRADUATION THESES DURING THE WAR.

THE titles of the inaugural dissertations for the last semester of 1914 in the University of Bonn (*Muenchener medizinische Wochenschrift*, January 26) show that the war has as yet made no impression on the normal course of medical instruction. Among the subjects represented each by a number of 39 theses, are radiography and radium; psychoses and hysteria; malformations; blood states; tuberculosis; special forms of surgical intervention; appendicitis; disorders of the internal secretions. These subjects are enumerated approximately in accordance with the number of contributions under each head. Some subjects of present vogue are represented by a single thesis only—cancer, syphilis, twilight sleep, etc. There is a natural tendency for the student to embody in his thesis the unusual rather than the trite, whether he reports a rare disease, a peculiar association, perhaps fortuitous, of lesions, a new method of treating a refractory affection, etc. The predominance of theses on radiant energy is due perhaps to its two-fold aspect of diagnosis and treatment. Psychiatry is prominent because of its secondary forensic significance. Worthy of individual mention is a practical dissertation on the treatment of rhizomelic spondylosis with sand baths.

News of the Week.

The Seventh Pan-American Medical Congress will meet in San Francisco, June 17-21, inclusive. It assembles pursuant to invitation of the President of the United States, issued in accordance with an act of Congress approved March 3, 1915. The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, San Salvador, Ecuador, Guatamala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo

Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas, and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates. The Congress will meet in seven sections, viz., (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology, and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology, and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is $5.00 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the Treasurer, Dr. Henry P. Newman, Timken Building, San Diego, California. The Palace Hotel will be headquarters. The President of the Congress is Dr. Charles A. L. Reed, Cincinnati; the Secretary, Dr. Ramon Guiteras, 80 Madison Avenue, New York City.

Committee of American Physicians for the Aid of the Belgian Profession.—The treasurer reports the receipt of the following contributions for the week ending March 27, 1915:

Dr. H. N. Torrey, Detroit, Mich.	$10.00
Faulkner County Medical Society, Conway, Ark.	25.00
Newburyport Medical Club, Newburyport, Mass.	20.00
Lieut.-Col. F. P. Reynolds, M.C., U.S.A., Honolulu, H. T.	25.00
Dr. Waldo Richardson, Seattle, Wash.	5.00
Mrs. O. W. Johnson, Racine, Wis.	5.00
Dr. Joseph Brettauer, New York, N. Y.	25.00
Dr. Lewis Gregory Cole, New York, N. Y.	25.00
Dr. J. N. Hall, Denver, Colo.	5.00
Dr. J. B. Rogers, Independence, Iowa	5.00
Medical Society of the Co. of Westchester, White Plains, N. Y.	25.00
Dr. Alex. Marcy, Jr., Riverton, N. J.	10.00
Dr. S. R. Woodruff, Bayonne, N. J.	5.00
Dr. G. C. McMaster, Pittsburgh, Pa.	5.00
Dr. Charles G. Mixter, Boston, Mass.	10.00
Dr. S. G. Laws, Spartanburg, S. C.	5.00
American Surgeons Clinical Tour of 1914, Galesburg, Ill.	150.75
Colorado Chapter of A. M. P. O. Medical Fraternity, Denver, Colo.	50.00
Boston Society of Psychiatry and Neurology, Boston, Mass.	100.00
Routt County Medical Society, Steamboat Springs, Colo.	10.00
Dr. Bertram M. Bernheim, Baltimore, Md.	10.00
Receipts for week ending March 27th	$530.75
Previously reported receipts	5,221.50
Total receipts	$5,752.25
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
715 standard boxes of food at $2.30	1,644.50
Disbursements for week ending March 27th:	
230 standard boxes of food at $2.30	529.00
Total disbursements	5,718.50
Balance	$3.75

Medical Work in China.—In addition to the Yale medical work in China, the Rockefeller Foundation has established a bureau to be known as the China Medical Board, the special work of which in the beginning will be to develop a comprehensive scheme of medical education in that country. With a view to building up a body of Chinese men able to teach medical science, the foundation has decided to establish six fellowships, each of $1,000 gold a year and traveling expenses, to enable Chinese graduates to study in medical schools here and in Europe. These six fellows have already been appointed, and one of them is now in this country. The Chinese Medical Board is constituted as follows: John D. Rockefeller, Jr., chairman; Wallace Buttrick, director; Harry Pratt Judson, Frank J. Goodnow, Dr. Simon Flexner, Jerome D. Greene, John R. Mott, Dr. William H. Welch, Wickliffe Rose, Starr J. Murphy, Dr. Francis W. Peabody and Frederick T. Gates. E. C. Sage is secretary of the board, and Roger S. Greene is to be the resident director in Pekin.

Michigan Board of Medical Examiners.—Governor Ferris of Michigan has appointed the following members of the State Board of Registration in Medicine, to serve until September 13, 1919: Drs. A. M. Hume, Owosso; Enos C. Kinsman, Saginaw; Duncan A. Cameron, Alpena; Frederick C. Warnshuis, Grand Rapids, and A. L. Robinson, Allegan.

Clinical Society of the New York Polyclinic.—The regular monthly meeting of the Clinical Society of the New York Polyclinic Medical School and Hospital will be held Monday evening April 5, 1915, at 8.30 P. M. in the Surgical Amphitheater.

General Gorgas Receives the Seaman Medal.—The Louis Livingston Seaman medal for progress and achievement in the promotion of hygiene and the migration of occupational disease has been awarded to Surgeon-General William C. Gorgas.

Removal of the Presbyterian Hospital.—Steps are being taken toward the removal of the Presbyterian Hospital from East Seventieth Street, New York, to a new location on Washington Heights and the trustees of the hospital recently took an option to purchase the former American League baseball grounds, bounded at Broadway and One hundred and sixty-fifth Street. This site is owned by the New York Institute for the Education of the Blind. The property is a large tract containing six city blocks. Part of the site will be used for hospital purposes, but considerable space will be utilized by buildings for special scientific and educational work in connection with the medical department of Columbia University.

Manufacture of Synthetic Drugs in England.—Successful work is reported from various British laboratories in the matter of manufacturing various synthetic drugs which have heretofore come from Germany. This will mean a large degree of independence of Germany in the matter of these supplies after the war.

Course of Lectures and Clinics on Cancer.—The faculty of the Cornell University Medical College announce a course of instruction on cancer for senior students and graduates in medicine, consisting of eighteen lectures to be given at the Medical College, Twenty-eighth Street and First Avenue, at 4 P. M., on Tuesday and Thursday, March 30 to May 27, 1915. Coincident with the lectures there will be a series of clinics in two sections, at the General Memorial Hospital, One hundred and sixth Street and Central Park West, on Mondays and Wednesdays, 9 A. M. to 12 M.

Influenza in Washington.—According to the health reports, grip has prevailed to a greater extent in Washington this year than at any time since 1891. In six weeks the deaths from the disease have numbered 210, as against 113 for the corresponding period last year.

United States Field Hospital Sent to France.—A complete field hospital formerly belonging to the U. S. Army was shipped last week to the American Ambulance Hospital in Paris. The complete unit with its tents, operating tables, cots, medicines, disinfectants, instruments, food supplies, stoves and filters, weighs 16,000 pounds, can be transported on three motor trucks and can care for 108 wounded men at once. Fifteen American automobiles and American doctors and nurses will be detailed to operate it.

For the American Hospital at Paignton.—On the American liner *St. Paul* which sailed for England

last Saturday were Dr. Henry A. Lange of Baltimore and Dr. A. N. Dykes of Atlanta and three Red Cross nurses going to join the medical staff of the American Hospital at Paignton.

Wellesley College Girls have contributed $800 for the purchase of an automobile ambulance for the American Ambulance Hospital.

To Study War Hospital Methods.—Surgeon Archibald M. Fauntleroy, U. S. Navy, has been detailed to make an observation tour of the war hospitals of France, Belgium, and England.

Explaining a Typhoid Epidemic.—Recently several members of the medical and nursing staff of the Sloane Maternity Hospital in New York came down with typhoid fever, and for a long time the origin of the epidemic remained a mystery. Finally a search for carriers among the kitchen staff resulted in the finding of one of the first discovered and best known of all typhoid carriers—in fact the queen of carriers, "Typhoid Mary." This poor woman was first detected as a spreader of typhoid fever by Dr. Soper in 1906, while he was investigating a succession of fever epidemics occurring for four years previously. Soon after that she was taken into custody and held for three years. In 1910 she was released on parole, promising not to take a position as cook again. She disappeared from view, but failed to keep her promise, and now has been again quarantined in North Brother Island.

Health of the Canal Zone.—The report of Dr. Charles F. Mason, chief health officer of the Canal Zone, for the month of January, gives the number of deaths from all causes among the employees as 17, of which 13 were from disease. This is equivalent to a death rate of 4.38 per thousand, as compared with 3.64 for the preceding month and 4.87 for the corresponding month of last year.

Death Rate in New York City.—During the week ending March 20 there were 1,743 deaths in this city, making a death rate of 15.66 per 1,000 of the population, which compares favorably with the figures for the corresponding week last year, during which 1,757 deaths were reported, making a rate of 16.42. The death rate for the first twelve weeks of 1915 was 14.09, as against a rate of 15.53 during the corresponding period of 1914.

Negro Death Rate too High.—Figures prepared by Dr. William H. Guilfoy, Registrar of Vital Statistics, show that the general death rate among the negroes here is almost double that of the city at large. In 1914, out of 74,803 deaths, 2,631 were those of negroes. As the total negro population of the city is about 100,000, this gives a negro death rate of 26.31 per 1,000, as compared to the general city death rate of 13.40 per 1,000 during the same year.

Sale of Christmas Red Cross Seals.—Reports to the National Association for the Study and Prevention of Tuberculosis up to March 1 indicate that the sale in the entire country will exceed 52,000,000 seals, an increase of 7,000,000, or 15 per cent., over the previous year. Winners of pennants for the best per capita sale of Red Cross seals in 1914 are announced to be: Garden City, N. Y., in Class A, population 500 to 2,000; Sewickley, Pa., in Class B, population 2,000 to 8,000; Charleston, W. Va., in Class C, population 8,000 to 25,000; New Rochelle, N. Y., in Class D, population 25,000 to 50,000; Troy, N. Y., in Class E, population 50,000 to 150,000; Rochester, N. Y., in Class F, population 150,000 to 500,000; and Pittsburgh in Class G, population over 500,000.

Proposed Consolidation of Tuberculosis Hospitals.—It is reported that Col. George Bushnell, Medical Corps, U. S. A., commanding the General Hospital, Fort Bayard, N. M., has been designated to inspect tuberculosis hospitals of the Navy and the Public Health Service, as a preliminary step in their proposed consolidation with the Army hospital.

The Health Department Aids in the Diagnosis and Treatment of Meningitis.—The attention of the physicians of New York City has been called to the fact that the Department of Health in its Division of Preventive Medicine and Specific Therapy (Bureau of Laboratories) maintains a staff of physicians and bacteriologists who have made a special study of meningitis. The services of this staff are at the disposal of the practising physicians of this city in the diagnosis and treatment of meningitis and meningeal conditions. The patients are seen only in consultation, for the department has no desire to supplant the private physician in charge of the case. Moreover, since in most instances the family cannot give adequate assistance in doing a lumbar puncture and administering serum, the presence of the family physician is most valuable. Any physician wishing the service of this staff in the diagnosis and treatment of meningitis or meningeal conditions should telephone Stuyvesant 1600.

Obituary Notes.—Dr. Edward Sprague Peck of New York, a graduate of the University of Vermont, College of Medicine, Burlington, in 1868, consulting surgeon to the City Hospital, ophthalmologist to St. Elizabeth's Hospital and the Montefiore Home, and a member of the New York State and County Medical Societies, the Northwestern Medical and Surgical Society, and the Physicians Mutual Aid Society, died at his home on March 25, aged 67 years.

Dr. Oliver Cotton Smith of Hartford, Conn., a graduate of the Long Island College Hospital, Brooklyn, in 1883, consulting surgeon to the Litchfield County Hospital, visiting surgeon to the Hartford Hospital, a member and president of the Connecticut State Medical Society, a member of the American Medical Association, the Hartford County Medical Society, the American Urological Association, and the New England Branch of the American Urological Society, and a fellow of the American College of Surgeons, died at his home, from cancer, after a long illness, on March 27, aged 55 years.

Dr. Joseph Francis Bloodgood of Flushing, N. Y., a graduate of the College of Physicians and Surgeons, New York, in 1884, attending surgeon to the Flushing Hospital, and a member of the New York State and Queens County Medical Societies, the New York Academy of Medicine, the Greater New York Medical Society, and the Associated Physicians of Long Island, died at his home from pneumonia, after a short illness, on March 12, aged 55 years.

Dr. Jones Cadwalader Abernathy of Birmingham, Ala., a graduate of the Tulane University of Louisiana, Medical School, New Orleans, in 1860, surgeon in the Thirty-second Alabama Regiment throughout the Civil War, and a member of the Medical Association of the State of Alabama and the Jefferson County Medical Society, died at his home suddenly, on February 27, aged 79 years.

Dr. Harry Garrison Plymire of South San Fran-

cisco, Cal., a graduate of the College of Physicians and Surgeons, San Francisco, in 1900, coroner and public administrator of San Mateo County for three terms, died at his home, after a short illness, from pneumonia, on February 27, aged 38 years.

Dr. THOMAS HENRY MAGUIRE of Boston, Mass., a graduate of the Harvard University Medical School in 1900, and formerly house physician at Carney Hospital, died at his home in Dorchester from pneumonia on March 5, aged 38 years.

Dr. RICHARD GORSHEL of Chelsea, Mass., a graduate of the College of Physicians and Surgeons, Boston, in 1894, died on February 20, from heart disease.

Dr. LUTHER GRAVES CHANDLER of Townsend, Mass., a graduate of the Harvard University Medical School in 1871, a veteran of the Civil War, formerly a member of the Board of Health of Townsend, and a member of the Massachusetts and Worcester North District Medical Societies, died suddenly at his home on March 1, aged 70 years.

Dr. ORRIS E. HERRICK of Grand Rapids, Mich., a graduate of the Albany, N. Y., Medical College in 1871, a member of the Michigan State and Kent County Medical Societies, and attending surgeon to the United Benevolent Association Hospital, died at DeVore Hospital, Grand Rapids, from paralysis, on March 5, aged 68 years.

Dr. WILLIAM GOLDSWORTHY of Duluth, Minn., a graduate of the University of Minnesota, Medical School, Minneapolis, in 1897, died at his home after a long illness, on March 4, aged 38 years.

Dr. WILLIAM W. MOSLEY of Richmond, Mo., a graduate of the University of Louisville, Medical Department, Louisville, Ky., in 1846, a veteran of the Civil War, and State Senator for two terms, died at his home on February 26, aged 90 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HUNTERIAN LECTURES, COMMEMORATION OF THE TWO BROTHERS AT ROYAL COLLEGE SURGEONS AND THE SOCIETY—HYDRONEPHROMA—ADDISON'S DISEASE—RODENT ULCER.

LONDON, March 12, 1915.

MR. Blakeway's Hunterian Lecture this year was on the "Treatment of Cleft Palate," which has of late years given rise to great differences of opinion, revealing dissatisfaction among practitioners, not to say inability to estimate the value of the several operations that have been advocated by different suregons. Le Monnier sutured successfully in 1764. Graefe cured a cleft of the soft palate in 1816. Ebel operated next year without success. Roux's first staphylorrhaphy dates 1819 and somewhat later Warren of Boston succeeded. Fergusson deliberately based his operation on anatomical grounds gaining by dissection of the muscles of a cleft palate in an adult, and divided certain of those muscles so as temporarily to relieve the halves of the palate from their traction. His method was at once generally adopted. By the middle of the last century median suture was performed much as it is to-day. It differs in two essentials from Langenbeck's—it is done much earlier and generally under anesthesia, both of which advances are owing to the late Sir Thomas Smith, who urged doing it before the patient could speak, and employed chloroform. The turn-over flap operation differs somewhat. One of the flaps from the oral surface of the palate is turned over like the leaf of a book, continuing attached along the edge of the cleft, so the raw surface looks downwards and the mucous membrane surface upwards. Operations of this kind have been done at various times since 1824. The claims were rviewed by Mr. Blakeway, who found but little evidence in support of them. The statement that they are life saving has not been proved. The suggestion that the worst cases can be closed only by early flap is not decided, it lacks proof, it is denied by Mr. Berry, who has had experience second to none. Moreover, the assertion that when done at the earliest age the speech is much better than when deferred, has yet to be proved.

You no doubt recollect that we have here a Hunterian Society founded to commemorate the work of two distinguished brothers—William and John Hunter. Both made great additions to our knowledge, many of the utmost importance, working much in the same manner, with the same energy, and in more or less the same direction. The society is not connected with the celebration of the younger brother, John, by the Royal College of Surgeons, the trustee of his wonderful museum, but employs similar methods in honor of him and his elder brother. Thus the society gives Hunterian orations in commemoration of William and John just as the Royal College of Surgeons adopts this method of keeping in the memory of successive generations the origin, progress, and needs of the great museum and the remarkable work of its founder.

To the notice of this year's oration at the college I will now add something about that at the society which was delivered by Dr. Russell Andrews, F.R.C.P., obstetric physician to the London Hospital. Like some of his predecessors, though treating of the brothers, he gave prominence to William, who was the elder by ten years and to some extent the teacher of his younger brother, at any rate in his earlier medical studies. It must seem natural to devote the chief attention to William, considering the ample exposition of John's work which is so often before us. In 1746 we find William Hunter lecturing on surgery and anatomy to a society of navy surgeons and practising midwifery, not exclusively, but with special interest in that branch. Two years later he made a continental tour. In 1748 he became physician-accoucheur to the Middlesex Hospital and the next year to the British Lying-in Hospital. Subsequently he took the M.D. and the Faculty Diploma at Glasgow and settled down to practise in London. In 1756 he took the license of the Royal College of Physicians and on this a very curious peep into past medical manners comes to light—the surgeons were offended at what they regarded as his desertion of them and they imposed upon him a pecuniary fine—actually £20. Does it not look incredible in this age of multi-qualification? In 1764 he was appointed Physician Extraordinary to the Queen—the first male to attend a queen in her confinement. In 1767 he was made a Fellow of the Royal Society and the next year began his buildings, which eventually included lecture and dissecting rooms as well as his museum and house.

His reputation in midwifery has rather overshadowed his other attainments, particularly, perhaps, anatomy, which he continued to study by dissecting for his lectures and for the preparations of his museum. He was also a diligent collector—manuscripts, coins, books, pictures, engravings,

curios, little came amiss. He is said to have spent £100,000 on his museum.

His brother John worked with him on this museum for about ten years and during that period we cannot doubt acquired the tastes, the methods, and the determination which enabled him to carry on the same researches which eventually brought about the still larger collection he gathered.

Hydronephroma has been before the Royal Society of Medicine in two papers. One brought forward by Dr. Frederick Taylor related a case in a man of 59, admitted to the Seamen's Hospital in November, 1907, with pulsating swellings of right elbow, right shoulder, and right gluteal region with hematuria. Systolic murmurs were audible over the tumors, which increased in size, the patient getting weaker. In the previous January he had passed clots with the urine with pain which ceased after their passage. The urine was then clear for two months, when another attack occurred and afterwards other clots and strangury appeared every five or six weeks with much suffering. Later another tumor appeared on the left side. This and the right both increased until they nearly met over the sacrum. The case continued to get worth until death in September, 1908. At the post mortem fractures of the bones at the sites of the swellings were found. These tumors on section were lobular, dark, and mottled from hemorrhage. There were nodules in the lungs. Cardiac valves sclerosed, inner coat of aorta atheromatous. In the upper third of the left kidney a spherical lobulated tumor, another separate one in the left suprarenal capsule.

In the other case, which was bilateral in a man of 49, there was secondary thrombosis of the inferior vena cava and terminal uremia. Both suprarenal glands and kidneys were infiltrated and there were secondary nodules in the liver and lungs. This case was related by Dr. Parkes Weber, who said the patient died from uremia and almost complete anuria and it was remarkable that he lived so long as he did; in spite of the condition of both kidneys his urine continued to be passed in fair quantities with very little albumin until a few days before death. The end seems to have been brought about by the complete venous thrombosis of the right kidney. As in other cases of thrombotic obstruction of the inferior vena cava, enlargement of the superficial veins on the front of the abdomen had been a striking symptom during life. The thrombosis may perhaps have begun in the veins of the greatly diseased and enormously enlarged left kidney, involved both renal veins and both hepatic veins and the whole length of the vena cava, the clot extending continuously from the iliac veins upwards to the heart for the upper end projected into the right auricle. Microscopic examination of the clot close to the heart showed it to be infiltrated from the malignant tumor.

Dr. Weber also read at the same meeting an account of a case which he called latent Addison's disease. The patient was a man of 35 who died with symptoms of pneumonia at the right base and some crepitation but no dulness at the left base. Much debility and later signs of empyema on the right side; at the post mortem the heart was found greatly enlarged and weighed 25 ounces. This was probably due to old chronic interstial nephritis. The suprarenals were both occupied by necrotic caseous material which involved the whole of the medullary substance and was covered by only thin layers of live cortex. This condition with the cardiac hypertrophy had apparently counteracted the tendency towards very low blood pressure, which equaled in this case 155—170 mm. Hg. But his debility was characteristic.

At the Harveian Society on the 25th ult. Dr. Graham Little read a paper on Rodent Ulcer, which had been described by Jacob in 1827. He complained that of late confusion had been caused by some who tried to turn a clinical group into a microscopical entity. It was better to return to Jacob's clear idea and regard as rodent ulcer all cases of ulceration of epitheliomatous tumors in which the cardinal symptoms were slowness of ulceration with absence of glandular invasion. He had had about 100 cases in hospital and private practice—most of them between 40 and 60 years of age. Mentioning several methods of treatment he gave the preference to that of freezing by carbon dioxide snow, considering it compared favorably with any other for safety, convenience, rapidity, and permanence. Quoting the truisms that some types of rodent ulcer advanced in spite of all treatment he admitted having failed in some with every recognized method in succession. Afterwards he exhibited three cases cured apparently by actual cautery, zinc ionization, and carbon dioxide snow respectively.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 18, 1915.

1. Progressive Neuromuscular Atrophy (Peroneal Type of Charcot, Marie, and Tooth): With Report of Three Cases in a Family Without Heredity. F. F. Hatch.
2. On the Value of the Gold Sol Test (Lange) in Cerebrospinal Fluid Obtained Post Mortem. H. C. Solomon and E. S. Welles.
3. Enchondroma. A Review of the Literature of the Subject with Report of Three Cases Operated Upon by the Author. L. A. O. Geddu.
4. A Study of Disturbances of the Stomach. H. F. Hewes.
5. A Study of the Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. A Critical Analysis of 134 Microscopically-Proven Cases. T. W. Harmer.

1. Progressive Neuromuscular Atrophy.—F. F. Hatch notes that the characteristics of this affection as originally described by Charcot and Marie are: (1) Progressive muscular atrophy beginning first in the feet and legs, not appearing in the hands and arms until several years later, the progression of the atrophy being slow. (2) Relative integrity of the muscles near the trunk, or at least much longer preservation of these than of the muscles of the distal ends of the limbs. (3) Integrity of the muscles of the trunk, shoulders and face. (4) Fibrillary contractions in the atrophying muscles. (5) Vasomotor disturbances in the portions of the limbs which have atrophied. (6) Absence of pronounced contractions of the tendons. (7) Sensations usually intact but sometimes affected. (8) Reaction of degeneration in atrophying muscles. (9) Hereditary and familial tendencies.

2. The Gold Sol Test of Lange in Cerebrospinal Fluid.—H. C. Solomon and E. S. Welles state that the test is performed by the addition of a preparation of colloidal gold to ten dilutions of spinal fluid, ranging from 1/10 to 1/5120, the results reading according to the change in color ensuing. Where no change occurs the reaction is called negative and recorded as 0. The color changes, depending on the amount of gold precipitated, are recorded as 1, 2, 3, 4, 5, the latter being clear, due to all the gold being flaked out. In the clinical application of the gold sol test it has been shown that different inflammatory processes of the central nervous system give reactions differing in the amount of color change and in the dilutions in which the color change occurs depending on type of condition existing. Thus

syphilitic disease of the central nervous system characteristically gives a reaction in the first five dilutions; tuberculous meningitis, as a rule, tends to react in the middle dilutions; while the meningitides of pyogenic origin often show the reactions in the high dilutions. Further, general paresis usually gives a characteristic reaction differing from that of cerebrospinal syphilis or tabes. Cases that are clinically fairly stationary give the same results ante and post mortem with the gold sol test. Post mortem spinal fluid from cases of general paresis will usually give the typical "paretic reaction," such as given by similar cases ante mortem. Post mortem spinal fluid from cases of a non-inflammatory nature may give the expected negative reaction; but "unexpected" positive reactions are obtained with certain post mortem spinal fluids, as are found with certain ante mortem fluids from similar types of cases. The results obtained with post mortem fluids tested by the gold sol test of Lange are comparable to those obtained with the ante mortem spinal fluid and when the body is well preserved, or the fluid obtained early, the results are the same as would have been obtained just prior to death. The gold sol test has the same value in the examination of cerebrospinal fluid obtained post mortem from the lumbar region as ante mortem, and the results may be similarly interpreted for diagnostic purposes.

New York Medical Journal.

March 20, 1915.

1. Intestinal Stasis, Bands, Kinks, and Membranes. R. A. Keilty and A. J. Smith.
2. Hematogeneous Infections of the Kidney. G. E. Brewer.
3. Arsenic Poisoning. A. C. Reed.
4. Solid Fibroid Tumor of the Ovary. J. T. Johnson.
5. A Gallstone Tray. A. Schachner.
6. Abdominal Symptoms in Pleurisy and Pneumonia. J. Dorning.
7. An Iodine Fumigator. W. L. Capell.
8. The Nature and Pathogenesis of Epilepsy. L. Pierce Clark.
9. The Treatment of Epilepsy. I. Bram.

1. **Intestinal Stasis, Bands, Kinks, and Membranes.**—R. A. Keilty and A. J. Smith note that these "bands" are of three types: congenital, developed hypertrophies, and inflammatory. Intestinal toxemia is common, the result of stasis, brought about primarily by the traction of these various bands, producing intestinal hypertrophy, with secondary fatigue or degeneration and dilatation. The condition occurs in the well nourished as well as in the neurasthenic. Intestinal ptosis occurring with general visceroptosis is merely an exaggerated type of the simpler forms. The various possibilities must be clearly understood and each individual case carefully studied before any treatment is inaugurated. When surgical means are applied, the mechanism must be clear, else the result will be worse than the original condition. Finally, at operation the entire abdomen must be carefully explored, because these conditions rarely affect one region without another.

2. **Hematogenous Infection of the Kidney.**—G. E. Brewer concludes first, that during the progress of any acute infectious disease a certain number of microorganisms find their way into the blood current, and that many of these organisms are excreted through the kidneys. If the number of these organisms is comparatively small, if their virulence is low, and if the kidneys are in a healthy condition, the transit of the organisms through the renal apparatus gives rise to no demonstrable lesion. If, on the other hand, the number of organisms is large, if their virulence is high, or if one or both kidneys are diseased, lesions are produced which may at the outset produce an overwhelming and fatal toxemia, or may proceed more slowly to the development of any of the classical types of renal infection or suppuration; second, that while the disease may be bilateral, in a large number of instances it is unilateral, and that its unilateral character is due to the fact that the affected kidney has lost to some extent its normal resistance to infection by trauma, abnormal mobility, previous disease, calculus irritation, anemia, passive hyperemia, complete, incomplete, or intermittent hydronephrosis; third, that the presence in the body of a kidney damaged by trauma or disease to such an extent as to lower its normal resistance to infection is a distinct menace to the individual, in that it possesses a potential susceptibility to even the mildest forms of blood infection; fourth, that while the author has been able to produce these lesions in animals by *Bacillus coli, Streptococcus pyogenes, Staphylococcus pyogenes aureus, Bacillus typhosus*, the pneumococcus, and the pyocyaneus, in clinical cases he has only been able to isolate the first four of these organisms. In the number of clinical cases the results of bacterial investigations have been negative, notably in one instance in which the disease was known to be a sequel of scarlet fever.

6. **Abdominal Symptoms in Pleurisy and Pneumonia.**—J. Dorning points out that the pain in pleurisy or pneumonia may be referred to almost any part of the abdominal cavity or it may be distributed over its whole area; most frequently it is limited to the right side or to the epigastric region, and when associated with considerable local tenderness and marked rigidity of the abdominal walls and an absence of noticeable respiratory symptoms, the attention may become so riveted on the painful region that only a superficial examination of the chest is made or the possibility of a pulmonary inflammation is entirely disregarded. It is believed that an explanation of these painful abdominal symptoms may be found in an irritation, or in an actual inflammation of one or more of the lower six intercostal nerves. The character of the pain is not always a reliable guide in the differential diagnosis, especially in children. The sharp, stabbing pain in the upper waist line, usually so expressive of a pleurisy, may sometimes be due to a peritoneal inflammation; and the colicky or dull aching pain typical of a peritoneal irritation may be caused by a diaphragmatic pleurisy.

7. **An Iodine Fumigator.**—W. L. Capell has devised an instrument of this kind consisting of a hollow cylinder, two and one-half inches in diameter, made of copper, with an opening in the top, closed with a cork. From opposite sides project hollow copper arms To one of these arms is attached a rubber bulb, and to the other arm a rubber hose. A glass nozzle and spirit lamp complete the instrument. The cylinder is for the purpose of vaporizing the iodine. The rubber bulb forces the air into the cylinder, which in turn forces the fumes through the opposite arm. The rubber hose is for the double purpose of giving flexibility to the arm and attachment to the nozzle.

9. **Venesection in the Treatment of Epilepsy.**—I. Bram believes that essential epilepsy is to be attributed to nervous instability which is accompanied by, and is probably the result of, an abnormally high intracranial pressure. An attack or fit is probably consequent upon a sudden increase of blood pressure (general) above the patient's usual pressure, associated with a tremendously high increase of intracranial tension. The treatment of epilepsy by drugs in the usual case is futile; the usual medicinal measures do more harm than good. The reduction of intracranial pressure by the removal through venesection of a quantity of blood sufficient to overcome the plethora and high blood pressure appears the most rational measure to employ. This treatment not only relieves the patient, but seems to favor a complete cure by overcoming the epilepsy habit. The frequency of venesection and the quantity

of blood to be removed at a sitting depend on individual circumstances. Dietetic and hygienic measures should supplement the treatment in every case. Occasionally the administration of thyroid extract or potassium iodide may also be deemed advisable as a supplementary measure.

Journal of the American Medical Association.

March 20, 1915.

1. Procedures Following Nephrectomy. W. J. Mayo.
2. Prickle-Cell and Basal-Cell Skin Cancers. H. H. Hazen.
3. The Classification of Medical Schools. H. S. Pritchett.
4. Pathology of Oroya Fever. Third Report. R. P. Strong and E. E. Tyzzer.
5. Etiology of Cancer in the Light of Recent Cancer Research. H. R. Gaylord.
6. Prevalence of Syphilis Among the Inmates of the Government Hospital for the Insane. E. B. Vedder and W. H. Hough.
7. The Value of the Wassermann Reaction, with a Discussion of the Treatment of Syphilis of the Nervous System. T. H. Weisenburg.
8. Involvement of the Nervous System During the Primary Stage of Syphilis. U. J. Wile and J. H. Stokes.
9. The Treatment of Intestinal Amebiasis. G. I. Jones.
10. Unusual Case of Sinus Thrombosis. H. Heiman and M. J. Ballin.
11. Partial Myxedema with Report of Case. W. M. Barton.
12. Cavity Formation Within the Medulla Oblongata; Syringobulbia, with Report of a Case. J. J. Joughin.
13. A Case of Typhus Fever. G. D. Head.

1. Procedures Following Nephrectomy.—W. J. Mayo notes that injuries to the third portion of the duodenum may occur during right nephrectomy. Perforation of the duodenum may occur as the result of the attempt to secure the pedicle for the purpose of ligation. As soon as the diagnosis is established the abdominal cavity should be opened through the anterior abdominal wall, the peritoneum incised to the right of the curve in the duodenum, the duodenum itself elevated from its retroperitoneal bed at its outer side and the duodenal opening closed directly by suture. The author has devised a method of ligating a deeply placed pedicle of the kidney by means of the use of two clamps. In the management of the ureter after nephrectomy for tuberculosis the rule should be that when the kidney removed for tuberculosis is still secreting urine, if there is any evidence of mixed infection, the better practice is to attach the stump to the skin to prevent the possibility of wound infection with tuberculosis and sepsis. In just such cases the ureter will be found enlarged and softened, but not shortened or rigid. Subsequently, the ureter will often discharge more or less for some days or even weeks, but in practically all the cases it will heal spontaneously. Those which fail to do so can be removed at a secondary operation very conveniently from in front and the removal is greatly facilitated by its anterior attachment. In a considerable number of cases in which the author attached the ureter to the skin there has been no pain or inconvenience from it beyond the necessity of wearing a little pad of absorbent material over it, should it discharge for a short time.

5. Cancer in the Light of Recent Research.—H. R. Gaylord states that one of the most fruitful advances in cancer research must be a realization of the fact that cancer no doubt represents a great group of pathological changes having many points of similarity which have led to a classification under one head, cancer. Within this group there must be a great range of agents, probably a number of specific viruses which have yet to be discovered and studied. The cancer problem will never be taken by assault, as Ehrlich once stated, but it will be broken up into a great field which will require many years of patient and extensive work of many investigators.

6. Syphilis and Insanity.—E. B. Vedder and W. H. Hough have made a study of the prevalence of syphilis among the 1,283 inmates of the Government Hospital for the Insane, and reach the following conclusions: Syphilis among the white women in this institution is comparatively rare. Among white men the presence of syphilis has been demonstrated in 20 per cent. of the cases. At least 30 per cent. of white males in this institution are syphilitic. At least 10 per cent. of the insanity in this institution is directly attributable to syphilis.

8. Involvement of Nervous System During Primary Stage of Syphilis.—U. J. Wile and J. H. Stokes conclude that the nervous system may be and probably is frequently involved before there are other evidences of the hematogenous spread of the *Treponema pallidum* from the site of the initial sore. Such involvement may be slight as far as clinical symptoms go, and may not be accompanied by changes in the spinal fluid, as measured by our present methods. Serious involvement, however, may occur extremely early with very marked changes in the cerebrospinal fluid, and with definite impairment of nervous function. The clinical changes most commonly noted in this preroseolar period are: headache, involvement of the second and eighth nerves, and increased reflexes. Of these, the headache is most commonly associated with demonstrable changes in the spinal fluid. Absence of any of the three accepted criteria of nervous system involvement in the spinal fluid can be accepted as indicating the absence of syphilis of the brain, meninges, or cord only when a careful examination fails to reveal any symptoms pointing to involvement.

9. Treatment of Intestinal Amebiasis.—G. I. Jones is convinced that emetine hydrochloride, while a valuable amebicide, if used alone will not cure amebic dysentery and that relapses will soon occur. The same statement is equally true of ipecac used alone. After an experience with each of these drugs used alone the author has reached the conclusion that emetine given by hypodermic injection, accompanied or followed by the use of ipecacuanha by mouth, will cure most cases of intestinal amebiasis.

10. Unusual Case of Sinus Thrombosis.—H. Herman and M. J. Ballin report a case of this condition in a boy aged eight and one-half years. There was a history of a mild aural discharge from both ears of one week's duration, three weeks prior to admission into the hospital. There was a complete absence of all active otitic manifestations and clinical symptoms indicative of a sinus thrombosis. The finding of a positive blood culture containing hemolytic streptococci permitted the tentative diagnosis of a sinus thrombosis. Although the history and course of this case suggested an otological origin, a definite diagnosis of lateral sinus thrombosis, in the absence of a positive blood culture, was practically impossible. Acute pyelitis, malaria and typhoid fever were all excluded, and yet before the result of the blood culture it was not considered justifiable to attempt operation for only a suspected sinus disease. The blood culture taken one day before operation was positive; one taken a few hours before operation negative. The result of the latter culture is explained on the generally accepted theory that, in a case of bacteriemia of pyogenic origin in which there is a distinct focus of pus, bacteria may be disseminated into the blood stream from the original focus, only at certain intervals, these crises manifesting themselves clinically by chills, sweats and a very high temperature. In these cases bacteria may sometimes be demonstrated only at the height of the temperature. The authors allude to the importance, as demonstrated in this case, of the finding of bacteria in a blood smear according to the method devised by Sophian and Fried. The fourth unusual feature of this case was the continuance of the septic temperature for weeks after the removal of the thrombus.

The Lancet.

March 6, 1915.

1. The Operative Treatment of Cleft Palate. H. Blakeway.
2. A Case of Multiple Pulsating Tumors Secondary to Hypernephroma. F. Taylor.
3. A Consideration of Some Elementary Principles Involved in the Treatment of Soil-Contaminated Wounds. A. G. R. Foulerton.
4. A Case of Phenacetin Poisoning; Recovery. P. Hamill and T. G. M. Hine.
5. Two Cases of Traumatic Hemoperitoneum. C. Hamilton Whiteford.

1. The Operative Treatment of Cleft Palate.—H. Blakeway discusses the relative merits of the operation of "median suture" and the "turn-over flap" operation. The former as now performed differs in only two essentials from Langenbeck's practice—it is performed at a much earlier age and almost always with the aid of a general anesthetic. The author reviews the evidence concerning the claims put forward on behalf of the flap operation. The evidence is remarkably little. The statement that the operation is life-saving has not been proved. That because of the overlapping of flaps and the absence of tension union is more easily secured than by the operation of median suture is suggested by Goyder's series of cases, but the series is a small one, and the details given are in several respects meager. The suggestion that the worst cases of cleft palate can only be closed by a flap operation in early infancy is difficult of decision. Finally, the expectation that on account of the early age at which the operation can be done the speech will be much better than in cases where operation has been deferred to a later date has not yet been realized.

2. Pulsating Tumors Secondary to Hypernephroma.—F. Taylor reports the case of a sailor aged 59 years who had pulsating swelling of the left elbow, the right shoulder, and the right gluteal region, together with hematuria. The course of the illness was uniformly downwards. The tumors gradually increased in size and the patient became paler and weaker. The hematuria was intermittent and even for long periods absent. At autopsy there was found occupying the upper third of the left kidney a spherical tumor two and a half inches in diameter, which on histological examination proved to be a so-called hypernephroma. The other tumors all had the same structure. The pulsation is presumed to be dependent upon the high degree of vascularity.

3. Treatment of Soil-Contaminated Wounds.—A. G. R. Foulerton has performed a series of experiments to test the practicability of inhibiting the activity of anaerobic organisms by means of nascent oxygen evolved from sodium perboñate; the object being to combat the development of tetanus and emphysematous gangrene which are so prevalent among the wounded in Flanders and France. As the result of these experiments it appears that when there is opportunity for the early treatment of a recently soil-contaminated wound, and before the probability of any active vegetation of spores has to be considered, a thorough insufflation with sodium perborate, after any necessary preliminary cleansing, will effect all that is required in the way of inhibiting the activity of anaerobic bacteria; also the growth of other species which may be present will be checked by the action of nascent oxygen. In hospital practice, the insufflation could be repeated at intervals of less than 24 hours; but consideration of the experimental results suggests that if the perborate is applied freely there will be a continuous evolution of oxygen for the full period of 24 hours. Meanwhile, the dressing should be of the highest possible description, and not more than is necessary to absorb discharges. If, on the other hand, the wound does not come under treatment until it may be reasonably supposed that there has been opportunity for the vegetation of anaerobic bacteria, and for establishment of infection of the wall of the wound, insufflation with the perborate should be preceded by thorough cleansing of the wound and swabbing out of the cavity with pure phenol, in the hope of destroying any anaerobic bacteria which already may have established themselves in the tissues.

British Medical Journal.

March 6, 1915.

1. The Application of Strong Antiseptics to Infected and Non-Infected Wounds. C. J. Bond.
2. Further Report on the Treatment of Pernicious Anemia by Salversan and Neosalvarsan. Byrom Bramwell.
3. Benzol Therapy in Leucemia and Lymphosarcoma. T. Gillman Moorehead.
4. Trench "Frost-Bite." Some Observations on Cases Admitted to the Duchess of Westminster's War Hospital. C. Gordon Watson and C. S. Myers.
5. Extraction of a Shrapnel Bullet from the Knee-Joint Through a Vertical Incision. W. Robinson.
6. Removal of Eyes in the Presence of Orbital Cellulitis. W. T. Lister.

1. Application of Strong Antiseptics to Wounds.—C. J. Bond has tested the effect upon incisions made for the removal of varicose veins, of the application of strong antiseptics such as carbolic acid and tincture of iodine. There was no difference between the wounds so treated and wounds not treated in this manner as regards painful sensations and as regards the process of healing. The question now arises, whether the application of a strong antiseptic to an infected wound materially adds to the difficulties of the defensive cells in their struggle with the disease organisms on the one hand, and in their effort to remove cell debris and regenerate new cells on the other. The problem is one of balance of advantage. If the antiseptic destroys or inhibits the growth of the invading organisms, it promotes healing, even if it kills a few more tissue cells. If, however, it damages a considerable number of defensive cells and fails to destroy or inhibit the growth of the disease organisms, it will do more harm than good. The result in any given case depends to a considerable extent on the variety and numbers of the invading organisms, also to some extent on the amount of injury to the tissues, but it depends less on the kind of antiseptic employed than on the time which has elapsed between the infection of the wound and the application of the antiseptic, or, in other words, the extent to which the disease organisms have established themselves in the wound and invaded the tissues.

2. Treatment of Pernicious Anemia by Salvarsan.—Byrom Bramwell adds to the twelve cases already reported by him in which this method of treatment was employed in nine other cases. For comparing the results obtained with these following the treatment by means of arsenic administered by the mouth, the impression gained was that the former method is decidedly superior. Salvarsan or neosalvarsan were given intramuscularly. Salvarsan was apparently the more effective of the two drugs. One advantage which both have over the long-continued use of arsenic by the mouth is that salvarsan or neosalvarsan do not produce peripheral neuritis or the other toxic symptoms resulting from the long-continued administration of arsenic.

3. Benzol Therapy in Leucemia and Lymphosarcoma.—T. G. Moorhead reviews the history of this method of treatment and reports four cases of his own in which it was employed. Von Koranyi was the first to use benzol in leucemia basing this therapy upon the observation made by Selling that among the manifestations of benzol poisoning there are a striking diminution in the number of white cells, the polymorphonuclear cells being diminished out of all proportion to

the lymphocytes, and a moderate anemia. The conclusions derivable from von Koranyi's cases and those of others are summarized as follows: Benzol first tends to increase the number of white blood cells, but shortly leads to an improvement of the leucemic condition. The decrease in white cells is at first slow and later more rapid, and may proceed in an irregular manner. Once the decline in number of white cells has started, it tends to continue for some time, even if the benzol is stopped. As the white cells diminish in number, the differential count both in splenomedullary and in lymphatic leucemia approaches more nearly to the normal, but as a rule some myelocytes persist in the splenomedullary disease, and in the lymphatic form the lymphocytes continue to be excessive in proportion to the other white cells. In short, even when the total number of white cells is reduced to normal, the differential count shows the presence of some leucemic characteristics. The average dose of benzol that may be administered with safety is from 3 to 5 grams daily. It is best given in gelatine capsules, combined with an equal quantity of olive oil, which seems to lessen the tendency of the benzol to produce heartburn and gastric irritation. The effect of benzol on the spleen in splenomedullary leucemia is variable. In some cases the spleen diminished almost to normal; in others, even when the blood picture is reduced almost to normal, the spleen remains large. The ultimate result in apparently cured cases of leucemia is still to be waited for. There is as yet no proof that the cure produced is of a permanent nature. One case of von Koranyi's was reported as quite well ten months after the cessation of the treatment.

Berliner klinische Wochenschrift.

February 15, 1915.

Practical Viewpoints in the Treatment of Tetanus.—Heile has thus far seen 12 cases of tetanus with a mortality of 5. The others all recovered completely. The treatment consisted of antitoxin and magnesium sulphate. The supply of the former was too small to permit the use of large doses. In some cases even less than 100 units were available for a case. The shortage was evidently due largely to the universal prophylactic use of the serum. Not a single case of tetanus developed after this prophylactic wound treatment. In one series of severe wounds all received prophylactic injection but one, who alone developed the disease, the latter proving absolutely intolerant to treatment. This case although proving nothing is highly significant. In treating tetanus we should never await the development of the complete picture of the disease. A probability diagnosis should be sufficient. There is a possibility of acting upon the cause of the disease before it has become anchored in the central nervous system. The earliest symptoms are twitching or perhaps actual contractions in the affected limb; discomfort in the wound; excessive perspiration—which may be universal; slight dysphagia; rigid carriage of the head; slight slowness in sitting up from the recumbent position, and increased excitability of the tendon reflexes—especially of the wounded limbs. In this early period it is useful to make an endoneural injection. It is hardly necessary to isolate the nerve completely, and this is not always possible. The region of the nerve can be reached by infiltrating the locality between the ischial spine and ischial tuberosity. The brachial plexus can be infiltrated by Kuhlenkampf's method. But after the disease picture is fully developed only an intradural injection can be of any value. When the disease picture is not very pronounced simple measures suffice to control the disease (serum, magnesium sulphate), and patients recover. Either plan of management may be pursued alone as long as the patient does well. The magnesium is given intramuscularly, 3 to 6 gms. To state that mild cases can recover without any treatment is offset by the counterclaim that the mildest cases may suddenly pass into the gravest types. In passing it may be stated that the inverse order is seen, to wit: cases beginning with violence become milder. When the paroxysms become violent at any time this indication must be promptly met, lest the patient die of suffocation. The intraspinal use of magnesium sulphate is here indicated, but we have no idea of individual tolerance to this substance. Increase in the severity of convulsions is assumed as evidence of cumulative poisoning but have we any other criteria? The author believes such a one to be increase of reflex activity. This gives us a rational indication for the use of magnesium sulphate, and by the cord. The initial doses should be small, until some idea of tolerance is obtained. The technique given by the author is too long to be reproduced here (or better the reasons upon which his technique is founded). In autopsies of cases in which lumbal injections had been repeatedly practised, certain changes have been found in the cord. In other words, magnesium has two actions—physical and narcotic. The former has not been fully studied. The author's rule has been to use an increase of reflex irritability as a guide to renewing the injections. In but two cases could tetanus bacilli be found in the wound secretions even in the most malignant cases (incubation 3 to 8 days). One case of 21 days' incubation, contrary to the rule, also ran a malignant course, but it is possible that something occurs in these cases to rouse up latent bacilli in the wound. If this is true the term incubation has no radical significance.

Münchener medizinische Wochenschrift.

February 16, 1915.

New Method of Treatment of Tuberculous Meningitis.—Bacigalupo of Buenos Aires states that he can find in the literature but 22 cases of recovery following tuberculous meningitis. Concerning the general use of tuberculin he states that it is used almost universally by hypodermic injection. He quotes one case in which the drug was thrown into the trachea at the bifurcation for pulmonary tuberculosis in the stage of hepatization, and others in which the remedy was injected directly into surgical tuberculous lesions. The thought was close at hand to inject the drug into the serous sacs and especially in the case of tuberculosis of the meninges, into the dural sac. Various preliminary experiments were made from this viewpoint. An intradural injection was made upon a child dying of miliary tuberculosis with meningeal complications. The child showed some improvement in its cerebral symptoms but died on the third day. Soon afterwards two pure cases were seen—tuberculosis limited to the meninges, and tubercle bacilli in the cerebrospinal fluid. Tuberculin was injected intradurally, one child receiving two and the other three injections. In the course of 20 days both children were cured. In all three cases the temperature fell after the injection about 1° C. and did not rise again. Hence of the now 24 recoveries 2 have been brought about by the same man and same method —about 8 per cent. The author in his very brief communication omits the dose and technique.

Feeding the Civil Population in War Times.—Hanauer, like all writers on this subject, introduces novel statements and arguments. Experience has shown that in famine times deaths from all causes increase, thus showing that resistance to all noxious agents is diminished. It is probable that even very slight reductions in ali-

mentation may weaken this resistance in certain individuals. Over and above this component an imperfect dietetic requirement greatly disturbs the psyche. The people are dissatisfied; they are filled with hate and rancor, and are ripe for revolt. There was so much beef on hand when the war began that the menace of slaughter for the sake of sparing fodder was impending. The price of beef eventually went up, and the authorities enforced the law against killing animals below a certain age. Appropriations were made for sufficient fodder. Whenever slaughtering was done beyond demand the beef was to be converted into permanent food products. A fixed maximum price for fodder and beef has been demanded. The shortage of fodder will have to be made up from potatoes, beets, turnips, etc., and kitchen swill. The best way to insure a meat supply, however, is personal self-denial. Some animal waste can be utilized for food, and horses and rabbits can supply much protein. Naturally the middlemen must be eliminated in threatened famine, as they contribute greatly to the cost of food to the consumer. The author says the German will be better off in more ways than one if he can learn the art of proper mastication of his food.

Rare Forms and Complications of Plaut-Vincent Angina.—Reiche of the Hamburg-Eppendorf Hospital saw in twelve years 4,052 cases of acute anginæ, in 139 of which was found the Plaut-Vincent disease in pure condition, *i.e.* with absence of the diphtheria and other pathogenic microorganisms. In all these cases mouth and pharynx were alike involved. In two previous papers the part of this clinical material then on record gave quite constant finds, and only recently, with increased observation, have certain peculiar finds been noted. These include severe prostration, headache refractory to analgesics, a picture suggesting typhoid fever (fever, enlarged spleen), peculiar blood-pictures, disturbances of accommodation and other anomalies of the nervous system. Locally he noted destructive ulceration of the fauces. In a word, there are cases of this affection which in an epidemic of diphtheria might readily pass for the latter. In one case the blood picture suggested pernicious anemia, and the patient died apparently of this affection. This association has been remarked by several clinicians. These points of contact between the Plaut-Vincent stomato-pharyngitis and the three diseases, diphtheria, typhoid, and pernicious anemia, require further study.

Deutsche medizinische Wochenschrift.

February 18, 1915.

Grazing Wounds of the Skull.—Noehte states that tangential wounds made by shrapnel bullets or shell fragments may be very superficial, but as a rule the missiles damage the portion of cortex beneath the wound. When the motor region is affected, or any other locality which has a peripheral expression (nystagmus, speech disturbance), we can comprehend objectively the nature of the brain lesion. These wounds, besides the local phenomena, may manifest themselves by general disturbances—anomalies of pulse and temperature apathy. Recognition of all these conditions is important for the treatment and for the just estimation of subsequent nervous difficulties which might affect claims for maintenance. Those wounded in this manner should not be classed with the slightly wounded, but as requiring bed rest and observation. The question of the integrity of these subjects cannot be answered in general. When all the subjective and objective phenomena of a cerebral injury have disappeared, it is safe to let the soldier return to his command.

Cardiopathic Hepatitis.—Heinrichsdorff sums up this condition as follows: in heart disease the liver is not only drawn secondarily into sympathy, since the blood stasis causes compression of the framework of the liver, but is also primarily influenced because the cardiac toxin is also an hepatic toxin which leads to acinous degeneration and perihepatitis. Hence the author substitutes the term cardiopathic hepatitis for stasis of the liver. There are acute and chronic forms. Acute cell degeneration appears in various forms—central fatty degeneration, with or without hemorrhagic changes; central necrosis with hemorrhage, coagulation necroses from vascular obstruction, etc., etc. From these acute forms chronic forms develop, characterized by more or less increase of connective tissue—fibrosis of the liver. The latter process tends to begin about the central veins, and, as a rule, on anatomical grounds there is an overgrowth of periportal connective tissue. The latter may be of a slight degree, but is often as marked as the central fibrosis. In a lobule the central and peripheral lesions tend to approach each other, so that an entire lobule may be uniformly involved. As a rule the parenchyma of the liver is not disturbed, but in certain cases changes occur like those in alcoholic cirrhosis of the liver. We see this if a stretch of hepatic tissue has been irregularly involved in the fibrosis. The changes are far less marked here than in alcoholic cirrhosis, but in both cases seem to be due to a breakdown of the parenchyma. The two components of cardiopathic hepatitis—stasis and toxemia—are not alone active in this condition, but also in tuberculosis and nephritis where there is cardiac stasis. Hence in addition to simple cardiopathic hepatitis, we see cardiac stasis with tuberculous cirrhosis of the liver, and complications of cardiopathic hepatitis with renal or vascular disease.

The Calvé-Perthes Disease.— Michelsen states that this affection was described independently in 1913 by the two authors concerned. He adds to the recorded material five personal cases. The affection is very rare, and nearly all patients are boys about the age of 5 to 10. Either after a trauma or without apparent cause the children begin to limp and, in fact, behave just like those with incipient tuberculous coxitis. However the complete absence of positive biological finds has led to the separation of this condition as being one *sui generis*, and this view has been corroborated by *x*-ray finds. Of its causation we know nothing. Rickets can be excluded, while the evidence concerning traumatism is conflicting. There seems to be some similarity to Kohler's disease, save for the localization. In general the changes in the bones in the new affection seem identical with those in the scaphoid of the foot and patella as seen in Kohler's disease. If the three locations should be attained in the same subject we could simply enlarge the picture of Kohler's disease to include the hip joint lesion (and vice versa). No descriptive designation has yet met with general approval, so that the disease is named for its two discoverers. There has been one attempt to christen it according to scientific nomenclature—osteochondritis deformans juvenilis coxæ—but the author repudiates this.

Non-Ligation of the Umbilical Cord.—A. N. Rachmanow concludes on the basis of a five-years' experience comprising 16,000 deliveries that non-ligation of the umbilical cord in the method to be elected in normal labor and in the case of full term infants. It is safe and favorable, leading to a good cicatrization of the navel. Ligation of the umbilical cord is a therapeutic measure, Rachmanow says, to be reserved for pathological cases, such as prematurity and asphyxia in the infant and hemorrhages in the mother.—*Zentralblatt für Gynäkologie.*

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN"

BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

THE essential distinction between insurance medicine and medical practice is that the insurance physician is concerned as a rule with the recognition of the substratum of diseased conditions before the latter develop, while the general practitioner endeavors to interpret symptoms actually present. The medical examiner in the absence of symptoms on the part of the applicant, must make a further search for predisposing causes in order properly to estimate his chances of survival. No matter how many factors are present which influence the latter, the individual himself is always the first factor to be considered among those which influence the hazard. In his prognostic computations the examiner begins with him and brings him into reciprocal action with all other determining factors.

Heredity and Constitution.—The most important rôle in the prognostic judgment of an individual has always been the latter's constitution as far as it predisposes him to disease; this should be brought into relationship with heredity. Selection according to this principle was one of the earliest fundamentals applied in life insurance. It is not without interest to examine not only the old Insurance Acts, but also the literature used in former days, and now preserved in libraries. These were the authoritative medical fundamental views of that period which determined the medical selection which we study in its operation to-day and apply as a principle of selection at present. We find the following passage in Piorry's work (translated in 1841) "On Inheritance in Disease": "Latent morbidity is the quality of the human organism in virtue of which the same is inclined, through adventitious influences in certain maladies, to perish." Insurance medicine to-day could hardly add anything to this definition, even if latent morbidity, or the substratum of disease, is defined further as the peculiar quality of the body, in virtue of which certain physiological or pathological conditions have been handed down from parents to children and because of which the children possess a quite special tendency to perish from the diseases from which their parents or ancestors have suffered. One distinguished also between generic, individual, and special disease substrata; knew that these were responsible for the fact that the action of the same occasional cause was quite different in different individuals; knew finally that there are certain periods of life in which the disposition to disease appears in the foreground or again vanishes. However, one concerned himself very little with the anatomical substratum; it was the dyscrasia which stood in the foreground of the humoral pathological conception and which determined almost solely the thought of that period.

If we then note further that upon these basic views in medical insurance selection Virchow's cellular pathology could exert only a very superficial influence and bacteriology no influence at all, this no longer seems strange to us; especially if we can place ourselves in thought back in the last decade of the last century, and again represent to ourselves the attacks to which life insurance was exposed, because it held so firmly to the old traditions and would not allow itself to be converted to the view that merely by the study of the exciting causes of disease everything could be etiologically explained.

Indeed, nothing could be more destructive to their edifice than the denial of the foundation upon which they had learned essentially to estimate their risks; nor could there be anything more disheartening than in place of this objectively conceivable comprehension, to be compelled according to the new learning to set up only the contingency of bacterial invasion. Their own empirical investigations and the results laboriously acquired therefrom for selection would, according to this view, have been a great error, and the teachings drawn chiefly from animal experiment would then alone have been of significance. Were the estimation of the duration of life in mankind a play of chance, and had life insurance medicine not become rooted fast on its own investigations, the powerful onrush of bacteriology would have been a source of danger to it. But it had long recognized morbid tendency and heredity as the first and principal causes which determine longevity. It had also recognized further that where it encountered one of these causes its influence on life expectancy seldom appeared alone, but was accompanied by a series of conditions which might alter the cause and also its operation. These conditions were age, mode of life, financial status, sex, residence, and occupation; and it had become its constant scientific task to follow them up exhaustively in their reciprocal relations with the strength of constitution of the individual for the determination of the life expectancy in the individual risk.

To-day, however, there has again come a change in general medicine, nor is this change only of yesterday. We no longer study exclusively the exciters of disease; we once more study the peculiarities of the infected organism, and we now know that infection alone is not able to call forth disease; for it is before all pertinent that the infected individual be susceptible to disease, *i. e.* have a morbid tendency or substratum. To uncover this in its final causes is the task which biological and clinical investigators have set for themselves. Life insurance medicine cannot participate in these labors because it is not able to push causal research; and thus far it has indeed only a very conditional interest in them, for it is, in the last analysis, quite indifferent as to whether falling ill with tuberculosis is ascribable to a new exogenous infection or to an infection acquired in childhood which manifests itself as a metastatic autoinfection.

The only question which it sets itself to answer is: Are there ways by which we can recognize latent disease or the morbid substratum in the applicant for insurance?

In the first place it is the constitution to which the study of life insurance medicine is directed. It understands, under constitution, the quality of body which is outwardly expressed by body measurements—in other words, the *external configuration* of the body as conditioned by the nutritive processes; or, briefly, according to the old medical nomenclature, the *habitus*. The conception of the constitution by insurance medicine is therewith purely a quantitative one; and becomes qualitative only when the constitution in relation to the external influences brought to act upon the individual, shows qualities which indicate a tendency to disease or health.

(*To be continued.*)

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held February 23, 1915.

THE PRESIDENT, DR. HOWARD LILIENTHAL, IN THE CHAIR.

The Relation of Hernia to the Workmen's Compensation Law.—Dr. ALEXIS V. MOSCHCOWITZ read this paper. (See page 547.)

Dr. WILLIAM B. COLEY said that while he differed strongly with Dr. Moschcowitz in his theory as to the cause of hernia, particularly as regarded the relative frequency of a preformed or congenital pouch of peritoneum, they finally arrived at practically the same conclusions. The old word "rupture" was responsible for most of the current ideas of hernia held by the laity, and for not a little of the loose thinking on the part of the medical profession itself. When once an idea was firmly fixed in the minds of the laity, and if it remained unchallenged for several centuries, it was extremely difficult to eradicate it even when it was clearly proven to be false. Phioraunti in 1585, spoke of a great secret to help those who were bursting or had rupture. Vigo in 1543, in his chapter on "Rupture and Burstynge," described three groups of hernia: (1) Certain relaxation, which he called "lyttle rupture"; (2) relaxation which had become so "grosse as to cause payne and swellynge of the flanx to the size of an egg," this was called "rupture incomplete"; (3) in which the hernia had entered into the scrotum. As regarded the etiology, the causes were given as primitive and antecedent. Among the primitive causes were mentioned, a fall from a high place, a "stryke with a fist, staff, dagger, or foote." Among the antecedent causes were mentioned, "humoris phlegmon," meats that caused "gasses," cold in the feet, etc. All of these things caused "rupture" or "burstyng." Dr. Coley said that Dr. Moschcowitz, contrary to Hamilton Russell and others, placed less importance upon the presence of a funicular process of peritoneum or preformed sac, as an etiological factor in hernia. Personally, he strongly agreed with Russell, and his own operative experience at the Hospital for Ruptured and Crippled (nearly 5,000 operations, the great majority of which were children), strongly confirmed this view. He did not agree with Dr. Moschcowitz that it was possible to distinguish between the so-called acquired sac and the congenital or preformed sac by the character of its attachment to the cord structures. In inguinal hernia in children and in most adults, except in a case of long standing hernia, the cord was spread out in a fan-like manner, often covering the whole posterior wall of the sac, and while it might be said to be intimately connected with the sac, the sac could always be pulled off quite readily. There was no way of differentiating an acquired from a congenital sac. He believed that practically all cases of oblique inguinal hernia were primarily due to the presence of a funicular pouch or a preformed sac, extending in varying lengths into the canal, and in a considerable number of cases, communicating with the tunica vaginalis. This constituted not a real or actual hernia, but a potential hernia, and in some cases the external ring was so tight that the patient might live a long life and never have an actual hernia. On the other hand, with a large ring, or even one of moderate size, a small piece of omentum was forced wedge-like into the funicular process or pouch, and any increased abdominal pressure tended to force this wedge further into the pouch until gradually the external fascial ring became dilated, and for a number of months, and in some cases years, an actual hernia was forming—that was, a sac with contents, omentum or intestine. This was a slow and not a sudden process. The main point at issue in determining whether a hernia was the result of an accident, thereby probably coming under the Workmen's Compensation Act, was whether a hernia could be produced by a single application of force applied externally, or by a single increase in intraabdominal pressure. Nearly all authorities on hernia held that actual true traumatic hernia produced by external violence were of extremely rare occurrence, as Dr. Moschcowitz had already pointed out. Excluding the very small number of cases in which the patient was struck by a sharp instrument penetrating the abdominal wall, or fell upon some sharp object, which tore apart the fibers of the natural hernial opening, both of which would be associated with evidence of severe pain, local edema, and hemorrhage, traumatic violence could not be said to be the cause of hernia. Now came the second question, one that was far more important and had given rise to more dispute in a medicolegal way than any other, whether a hernia might be caused by a single increase in intra-abdominal pressure. MacReady, the greatest English authority on hernia, stated that an acquired hernia was never due to this cause. Graser, one of the highest German authorities, stated that a hernia complete in all its parts could never arise at the moment of accident, or by a single increase in the intra-abdominal tension, be it ever so great. Dr. Coley's own personal opinion based upon an experience of twenty-five years at the Hospital for Ruptured and Crippled, at which institution from 4000 to 5000 cases were observed annually, practically coincided with the opinions held by MacReady and Graser. He knew, however, of two exceptions to this general rule; one was a case presented by Dr. F. Tilden Brown before the New York Surgical Society, November 11, 1903. The question of hernia accidents had been carefully studied from a medicolegal standpoint by William Sheen (Practitioner, London, 1909, vol. lxxxiii, p. 334), who stated as follows:

"Excessive strain must be regarded as an injury," epitomized a judgment of the House of Lords, the highest tribunal in England, and it was to "excessive strain," generally from lifting, that a workman commonly attributed his hernia, or "rupture," as it was, as a rule, wrongly and most unwisely termed. Sheen analyzed the subject in a very lucid and practical way, and cited an ordinary case of supposed traumatic hernia in which claim for damages was brought against an employer or corporation. The claimant would say: "On such and such a date, at such and such a time, he lifted an unusually heavy weight, and felt a sensation of something giving way in his right groin. His fellow-workman was with him at the time, and he mentioned the matter to him. He finished his day's work. The same evening when washing, he found a lump in his right groin. The next morning he went to a doctor." Of course, variations in the history would occur. Nothing might be felt locally at the time of the supposed strain. It might be days or weeks after the strain that the workman discovered the hernia. The hernia, when found, might be large or small. The hernia might be attributed not to a strain, but to a blow in the groin, abdomen, or elsewhere, or to some other cause. The presence of a double hernia was sometimes attributed to a single strain. Sheen stated: "I consider that its sudden complete development, in a pathological sense, is impossible, because the peritoneum cannot stretch suddenly to form the sac. The sudden projection of hernial contents into the preformed sac is accompanied by definite immediate symptoms. The affected individual suffers acute pain at the site of the hernia, at once undoes his clothes, finds a small lump there, is faint, helped or carried home. The hernia is reducible with difficulty only, if at all, and is often strangulated. A doctor is at once sent for." Sheen concluded with the statement: "A hernia may be felt for the first time during a straining effort, and this is very likely to occur in the working classes who are constantly straining. This, however, is the occasion leading to the discovery of the hernia; it is not the cause." In his paper on "Industrial Accidents in Relation to the Development of Hernia," Dr. Coley made an analysis of 4,797 cases of hernia in adult males that were over fifteen years of age. The causes of hernia as given by the patients at the time of examination were as follows: 3,102 male adults stated that the rupture had appeared without any known cause. Of these 2,022 had inguinal hernia, single; 976 inguinal hernia, double; 55 femoral hernia; 18 ventral hernia; 31 umbilical hernia. One thousand and fifteen attributed the hernia to lifting or carrying some heavy weight. Of these, 692 were inguinal hernia, single; 291 inguinal hernia, double; 17 femoral hernia; 7 ventral hernia; 8 umbilical hernia. One hundred and fifty stated that the rupture was caused by coughing or sneezing. Of these, 106 were single inguinal hernia; 33 double inguinal hernia; 4 femoral hernia; 2 ventral hernia; 3 umbilical hernia. In 123 cases the cause was attributed to a push, fall, or twist; in 27 to straining at stool, constipation; in 89 to a fall from a height, horse bicycle, wagon; in 34 to slipping; in 40 to a blow in the groin or abdomen; in 8 to a kick; in 20 to running or jumping. Of 502 cases of umbilical hernia in adult women, in 2 ascites was supposed to be the causative

factor; in 3 obesity; in 6 a fall; in 8 coughing; in 195 pregnancy; in 188 the cause was unknown, and in one case the hernia had existed since birth. This analysis showed very much the same facts that Berger had recorded on a basis of his study of a similar group of cases observed of the Société des Bandages in Paris. They showed that nearly 70 per cent. of hernia in adult males appeared gradually without any known exciting cause. In these cases there probably existed a preformed sac of congenital origin, which gradually became dilated by the normal increase in intra-abdominal pressure consequent upon the daily routine of life.

The Theory of the Workmen's Compensation.—Dr. FREDERICK W. LOUGHRAN presented this paper. He stated that workmen's compensation legislation was based on the principle that the cost of industrial accidents, however caused, whether due to the negligence of the employer, of the employee, or of no one, was a necessary part of the expenses of industrial production which should be made a charge upon the industry, not upon the individual, and as such should be assessed in the first instance upon the employer in the form of a premium for insurance and by him passed on to the consumer in the form of an advance in price. This principle had long been embodied in the legislation of European states, but it was only within the last four years that it had been enacted into law in this country. The soundness of the principle was generally conceded by the economists, and once accepted and formulated into law it would never be abandoned. These laws provided a method of indemnifying workers injured in the course of their employment, which was more certain, speedy, economical, and equitable than the old liability system. The speaker showed that in the last analysis the latter system meant that an injured employee was obliged to fight a powerful organization thoroughly equipped with all the financial and legal resources to conduct a long contest in court. The odds in the game were heavily against the injured employee. Only one employee out of eight on an average ever recovered anything in an action for damages brought against the employer. Under the new system it was not necessary for the injured workman to go to court in order to secure compensation. He was not required to prove fault on the part of the employer or his superintendent. The doctrine of fault had been swept away. The burden of proof had been shifted from the employee to the employer. The 42 groups of hazardous employments included practically all occupations except domestic service, farm labor, and mercantile employments. The act provided compensation according to a fixed scale for all injuries received in the course of employment which entailed a disability of more than two weeks, except those occasioned by the wilful intention or by the intoxication of the injured employee. This waiting for two weeks was to prevent a workman from claiming a minor injury in order to obtain a vacation with pay. After two weeks compensation began and was two-thirds the average weekly earnings. In case of permanent total disability, the compensation was payable throughout the entire period of its continuance. In the event of death resulting from injuries received in the course of employment, the compensation was payable to surviving heirs under the age of eighteen years and to dependent parents or grandparents, under conditions as to amount and duration as specified in the act, the total amount in any case being limited to two-thirds the average weekly earnings of the deceased. Employers were not permitted to pay this compensation directly to their employees, but were required to insure this liability, and for this purpose three options were offered, namely, insurance in the State Fund, insurance in any stock or mutual company authorized to write workmen's compensation in this State, and self insurance under conditions provided by the Workmen's Compensation Commission. All claims must be presented to the Commission and all payments to employees were made by the same body. The speaker, after describing in detail the method by which the compensation was payable, considered the medical aspect of this law. He quoted Section 13 of the law which was as follows: "Treatment and Care of Injured Employees. The employer shall promptly provide for an injured employee such medical and surgical or other attendance or treatment, nurse, and hospital service, medicines, crutches, and apparatus, as may be required or be requested by the employee, during sixty days after the injury. If the employer fails to provide the same, the injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or services unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so. All fees and other charges for such treatment and services shall be subject to regulation by the commission as provided in section twenty-four of this chapter, and shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living." It was pointed out that this immediate medical attention was a great advantage to both employer and employee as it lessened time of disability and emphasized the advantage of having healthy workmen and keeping them so. The community would be benefited as the workman and his family would not become public charges. On the other hand, it was claimed that in European states where such a law had been in operation for twenty years that new forms of nervous disease had arisen and that workmen had been accused of exploiting their injuries. European doctors had also been accused of using the Workmen's Compensation Law irregularly as a source of revenue. Of course this problem could only be solved by the co-operation of intelligent physicians. The object of the act was to return people to industry and one of the effects of the act was that people might refuse to go to work while in pain. The longer some of these injured employees, as for instance, a broken leg followed by contracture of the muscles, stayed away from work the harder it was for them ever to go to work, and it was not long until the atrophy became permanent and the injured employee became a charge on the law and later on public charity. Bearing this phase of the subject in mind the competent physician would appreciate the necessity of an early return to his accustomed labor by the injured workmen. Discussing the fee bill, the speaker showed that in the past from 50 to 75 per cent. of the cases, taken in the aggregate, did not pay for medical services rendered; of the cases that were paid for by the insurance carrier or the employer most of them went to the contract surgeon, and a tremendous amount of free work was done by the family physician and the hospital. The schedule of charges according to law must be made on an industrial accident basis. It was easy to conceive that the progress of these laws, unless properly safeguarded, might result in the practical enslavement of the medical profession to a bureauocracy created by legislative act. The recent history in European countries bore out this statement. In arriving at the rates decided upon, the commission had considered all the county fee bills that are now in force in the State of New York and from these fee bills and from the fee bill presented by the insurance company the present medical and surgical fee bill was evolved. While this schedule was not adopted, the Commission stated that it would be used as a guide in determining the charges for medical services in disputed cases. It was true that the fees agreed upon for specific surgical operations appeared small and ill-proportioned, when viewed from the heights of surgical eminence, but to the vast majority of surgeons, the certainty of their payment lent to them a delightful attractiveness in the knowledge that formerly they received from this class of patients practically nothing. It was a fact, however, that these rates were higher than those of any of the states in which Workmen's Compensation Laws were in operation. Dr. Boughran considered the objection that had been raised that the cost of rendering medical services was greater in some localities than in others and concluded that there was very little difference made in the charges against workmen in the city and those in the country. The greater difference lay not in the charge made for medical aid but in the amount collected. In this State the Compensation Commission had become voluntarily a collecting agency for all medical bills, and guaranteed the payment of 100 per cent. of doctors' bills when they were rendered in accordance with the spirit of the law. He did not feel that physicians had accepted this bill as the legal profession had done, for it acted everywhere to seriously curtail the income of many lawyers. The legal profession had accepted the act in a spirit of fairness and with a recognition of the humanitarian principles involved. The fact that a bill was reduced did not mean that the integrity of the physician was questioned; it simply meant that the bill had not been rendered in accordance with the law. The charge for first aid was seldom questioned; it was the question of too frequent after dressings. In this respect the practise of different physicians varied considerably. Under ideal

conditions some physicians employed by large corporations had reduced their number of dressings per case treated, taking all things into consideration, to an average of approximately three dressings per case, and this with an infection rate of one in a thousand cases, while ordinarily the number of infections ran one to every ten cases. This demonstrated the danger of too frequent dressings which added to the danger of infection and were an admission that the wound was probably not rendered as aseptic as it should have been to start with.

The Physician's Interests in the Workmen's Compensation Law.—Dr. HENRY S. STARK continued the discussion (see page 561.)

The Legal Aspects of the Workmen's Compensation Law as It Affects the Medical Profession.—GEORGE W. WHITESIDE, Counsel to the Society, presented this phase of the subject. He stated that the Workmen's Compensation Law was, in effect, a scheme of insurance against liability of the employer, created by the Act, for the injury or death of his employee in the course of his employment, against which liability the employer was compelled to take insurance. The Act created for a large class of employees definite rights and for a corresponding class of employers definite and positive duties in respect to those rights, and the purpose of the Act was primarily to provide legal machinery for the enforcement of such employee's rights with adequate safeguards both to employer and employee, against injustice and abuse. What then was the position of the medical man in this situation? It was evident from the discussion thus far that he was not one of the primary factors—he was neither the one for whose benefit the Act primarily created rights, that was the employee, nor the one charged with a duty in respect to those rights, that was the employer. The employee by Section 13 of the Act was entitled under certain circumstances to medical, surgical, or other treatment which required the services of a physician or surgeon. This right in the employee was enforced by placing upon the employer the duty to provide such medical, surgical, or other treatment. This duty of the employer arose only when the right of the employee existed. The physician or surgeon rendering service to such employee did so in reliance upon the right of the employee thereto and the duty of the employer to provide therefor, so that the medical man supplied that to which the employee was entitled and that for which the employer was liable. Obviously the medical man had no standing under the Act unless the employee was entitled to the services which the medical man furnished, so that the medical man's rights in respect to the service furnished by him was based and conditional upon the right of the employee, and the employee's right was the paramount one and the medical man's right conditional and secondary. The Act was not designed or intended as a benefit or a hardship to the medical profession—and its effect on the medical profession is but an incident of its operation and subordinate to the purpose for which it was intended. The interpretation of the Act in every particular, including the aspects that affect the medical profession, therefore, must be in harmony with its general purpose as well as in obedience with its specific terms.

The clause "All fees and other charges for such treatment and services shall be subject to regulation by the Commission as provided in Section 24 of this Chapter and shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living" was clearly intended as a protection to the employer or insurance carrier against exorbitant or unusual charges for medical services rendered the employee and provides a limit based upon the prevailing charges in a given community and the standard of living of the injured employee, beyond which limit the employer or insurance carrier should not be liable. When a statute made compulsory upon a certain class of the community to assume definite obligations for the payment of money to their employees under conditions which modify the common law principles of liability of an employer as that has been understood and interpreted, it was necessary to check any abuse possible under such departure from recognized and tried legal principles by safeguards, though such safeguards might occasion to parties other than the employer or employee some hardship or incidental sacrifice. Doubtless the last clause of Section 13, above quoted, might as such safeguard to the employer occasion some hardship or incidental sacrifice to the medical man. The actual disbursement of the award so made was done by the Commission (Section 25) so that a physician's claim under the Act, was secured by a lien backed by the State and was collected through the agency of the State. Thus in the regulation of the relations between the employer and the injured employee, the State in safeguarding those parties had bestowed upon the physician whose claim arises under the Act, the benefits of absolute security. The physician would not be heard to complain of these benefits, but might be heard to object to the amount of his award. In considering the amount awarded for his services he should naturally consider the fact that investments from which the element of risk had been eliminated and the security of which was, in effect, guaranteed by the sovereign power of the State, might give a smaller yield than those of highly speculative character. The physician's investment of his time and talents in the treatment of injured workmen under the Workmen's Compensation Act provided a return that was certain and sure, and if by choice he engaged in this work, accepting the security which it afforded, he might expect for such security somewhat reduced compensation afforded in such cases. Under these circumstances, what schedule should be adopted for regulating the medical man's fees in cases comprehended by the Act? In the twenty-two states now having an Act of this general character on its statute books there was wide diversity concerning the provisions affecting the compensation accorded the medical profession. In the states of Arizona, Kansas, and New Hampshire, the charge for medical services under similar Acts was paid only in the event of the injured man's death and then the maximum paid in Kansas including burial expenses, was limited to $100 and in New Hampshire to $200. In New York State a definite and rather flexible rule was laid down for the gauging of such fees, requiring on the part of the Commission in *each* case, a consideration of the charges for similar treatment, prevailing in that particular community in which the service was rendered and of the standard of living of the person treated. Following the provisions of Section 13 the Commission of necessity could not, with proper respect for the rule there provided, adopt any hard and fast schedule for all cases to be applied in all communities of the State to all persons of varying standards of living. It was plain, therefore, that the so-called fee bill which had agitated the medical profession was not and could not be a schedule fixed by or controlling the commission in its awards for medical service. This was so not only of this fee bill, but also of any other that might be devised that ignored the rules so clearly set forth in section 13 of the act. Mr. Whiteside said that he could not but regard this fee bill as anything other than a starting point from which the Commission in given cases worked, and as such he could see no reason why it could be the subject of serious concern. The question has been asked whether the injured workman must accept, under the Act, the physician provided for him by his employer, or whether he might employ his own physician and have the fees of such physician paid for under the Act. This raised a most important consideration for the medical profession. If the words of Section 13: "The employer shall promptly provide for an injured employee such medical, surgical, or other attendance, etc." were to be interpreted to preclude such employee from employing his own physician at the employer's or insurance carrier's expense, the control of the medical work for injured employees would fast fall in the hands of a few of the large insurance companies and self-insuring corporations, and the cases which otherwise would be distributed among a large number of practitioners would become concentrated in the hands of a few. This issue would probably be raised in some case and its outcome would be a matter of serious interest and influence with the medical profession and should be watched, and, if necessary, some action taken in presenting the medical profession's views to the Commission. In the legal profession the lawyer and his client were recognized as having toward each other a sacred and confidential relationship and the importance and necessity of such personal contact and relationship between the two had often been a matter of judicial consideration. It was regarded as essential. He took it that the medical profession was as jealous, if not more so of its standards and of its rights as any other and that the personal relationship between physician and patient was quite as personal and as sacred as the relationship of attorney and client, and any impairment of the individual's right to select his own physician in whom he had confidence and faith was essentially an

impairment of the personal and confidential relationship between physician and patient. It was of utmost importance that the interests of the medical profession be understood and appreciated by the Workmen's Compensation Commission and that in the consideration by them of the rights of employer and employee under this law the sacred prerogatives and professional standards of a great profession should not be impaired.

After the adjournment of the Scientific Session the Society went into an Executive Session with Dr. E. Eliot Harris in the Chair, and the Committee of the Whole discussed the questions from various standpoints, especially that of the fee bill as set forth in the New York State Medical Journal of August, 1914. By a vote of 63 to 63 it was decided to allow the resolution passed at the November meeting repudiating the bill to stand.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held January 26, 1915.

Dr. LeRoy Broun in the Chair.

Double Ovarian Inguinal Hernia, Absence of the Uterus, and a Rudimentary Vagina. — Dr. M. Rabinovitz reported this case. He stated that the patient was 35 years of age and had been married six years when she consulted him because of amenorrhea, sterility, and inability to have proper coitus. Physical examination showed that the vagina was represented by a blind pouch, lined with a smooth mucosa, one and one-half to two inches in depth. The introitus vagina was wide enough to admit two fingers, but was lax as if it possessed no sphincter. Vagina-abdominal palpation failed to reveal the presence of either a cervix or a uterus. In each inguinal region, at the site of the external inguinal ring, a semi-solid, irregular, reducible tumor was seen and felt. The right one was the size of a large walnut; the left one was about twice as large as the right, but more cystic in consistency. The reduction of these masses was not complete, for they reappeared as soon as pressure was released, irrespective of the position that the patient assumed. The physical findings furnished the data for diagnosing the case as one of congenital absence of the uterus, a rudimentary vagina, and, in all probability, a double ovarian inguinal hernia. At operation, exploration of the pelvic cavity revealed the following facts: (1) There was complete absence of the uterus. (2) The Fallopian tubes were of fair size, measuring from three to three and one-half inches in length. Their inner ends fused in the median line, forming an ovoid shaped thickening about the size of a lima bean. (3) Both ovaries were well-developed; the left one contained a corpus luteum cyst as large as the right ovary. (4) Both ovaries with part of the fimbriated ends of the tubes protruded through the external inguinal ring, forming the herniæ. Dr. Rabinovitz said that he resected the cystic portion of the left ovary, closed the abdomen, and then performed a bilateral hernioplasty. No attempt was made to improve the existing vaginal tract, since experience with two former cases had taught him that no matter what *modus operandi* he adopted the result would not warrant the additional operative risk, and since until this time the patient's husband had been unaware of her anomaly, having been satisfied with the ureteral orifice which admitted the index finger without causing any pain. The embryological disturbance in this case was an arrest in the development of the lower parts of the Müllerian ducts. The round ligaments were also wanting and were represented by the persistent fetal structures known as "the inguinal ligaments of the Wolfian bodies." This was proven by the fact that the ovaries were resting in the lower ends of the inguinal canals where they seemed to have been held by these embryological remains.

Dr. H. Vineberg said one rarely found the uterus present when the ovaries were absent, and he did not think there was one authentic case reported in the literature where the ovaries, in such cases, had been absent.

Dr. Henry D. Furniss referred to a case of pelvic kidney that occurred in the service of Dr. Ward in which the vagina was found but the uterus was absent. The tubes and ovaries were not discovered in the pelvis and their absence might not have been noted if further and careful search had not been made.

Dr. Rabinovitz said that the case reported was the first one of this nature he had met with and he was, therefore, unable to state how frequently such conditions were associated with pelvic kidney.

The Clinical Significance of Amenorrhea in the Diagnosis of Tubal Pregnancy.—Dr. Rabinovitz presented this report of four cases, giving the history and describing the operation and findings which left no doubt as to the condition being that of tubal pregnancy. Each of these cases demonstrated this clinical fact, that the history of skipping a menstrual period was not an essential diagnostic factor in all cases of tubal gestation. In all the case quoted the symptoms of disturbed gestation set in immediately before or just about the time when the next menstrual period was due, so that the patient could most assuredly state that she did not "skip" a menstrual period. It behooved one, therefore, to keep constantly in mind that irregular uterine bleeding, occurring immediately before or about the expected menstrual period, in conjunction with other well known classical symptoms, was just as strongly suggestive of extra-uterine pregnancy as was the bleeding that took place after the missing of one period. Furthermore, the clinical fact was in absolute harmony with physiological rules; it simply needed a proper interpretation tempered with mature clinical judgment.

Ovarian Cyst with Torsion of the Pedicle in a Child Twelve Years of Age.—Dr. A. H. Harrigan presented this case. The patient had abdominal pain and vomiting four days previous to admission to the hospital; the vomiting was frequent and the pain persistent, quite sharp in character, and more intense in the left iliac fossa. Urination was painful and the bowels were regular. The examination showed a symmetrical abdomen, not distended, but there was rigidity of both recti, more marked in the lower abdomen, and especially on the left side. There was tenderness in both lower quadrants, but particularly on the left side. No mass was palpable. The rectal examination revealed a definite mass in the mid line, movable, situated behind the uterus, and as large as a good sized orange. The temperature was 99.8° and the pulse ranged from 74 to 120; the respirations were 24. The white blood count was 15,000 with 78 per cent. polymorphonuclears. A definite diagnosis was not made but operation was indicated. A mass was found lying between the rectum and the uterus; this was easily delivered and seen to be a cystic tumor the size of an orange. It sprang from the left broad ligament and its pedicle had two complete turns passing from the left to the right. It was black in color and almost gangrenous. The patient made a complete recovery.

Dr. H. M. Vineberg said that four or five years ago he was called to see a girl, nine years of age, on whom he made a diagnosis of appendicitis. She had pain, vomiting, and a high temperature, with a rigid abdomen. There was no difficulty in mapping out a large tumor which proved to be a cyst with a twisted pedicle. It should be borne in mind that young people were not exempt from such conditions.

Early Interstitial Pregnancy.—Dr. Hiram N. Vineberg reported this case which occurred in a woman 32 years of age, the mother of four children, the youngest being three years old. About eight hours before admission to the Har Moriah Hospital the patient had been seized with severe abdominal pain, especially in the right iliac region and radiating to the right shoulder. With the onset of the pain the patient vomited, felt chilly and faint, and was covered with clammy perspiration. On admission it was surmised that an intraperitoneal hemorrhage had taken place, but there was some doubt as the patient gave no history of irregular menstruation, the preceding menstruation having occurred just four weeks before and being regular as to amount and time. The abdomen was distended and markedly rigid, and it was with difficulty that the uterus could be palpated. It appeared to be normal in size and position. The adnexa were not distinctly palpable. A misleading feature of the case was that the patient complained only of agonizing pain between the shoulders and appeared to be free from abdominal pain. The possibility of a ruptured spleen or a perforating gastric ulcer were considered, but the weight of probability seemed to lie in a ruptured tubal pregnancy. At operation the abdomen was found filled with blood. The adnexa on careful examination appeared to be normal on both sides. Owing to the thickness of the abdominal wall and the short broad ligament the uterus could not be brought into view, but there was nothing abnormal about it so far as palpation could determine. The only source for a hemorrhage that

could be found was a ruptured corpus luteum and this seemed insufficient to account for the extensive hemorrhage. Before giving up it was decided to make an ocular inspection of the uterus. The incision was extended and the uterus brought into view and inspected. A small vascular elevation, not as large as a kidney bean, was then found in the right horn of the uterus where the tube entered it. While this elevation was insignificant in appearance, the soft villous tissue protruding from it left no doubt as to its nature. The area was excised and the wound and abdomen sutured in the usual manner, after removing the blood from the peritoneal cavity. The interesting features of this case were: (1) the absence of any irregularity of menstruation; (2) the unusual situation of the pain; (3) the ease with which the source of the hemorrhage could have been overlooked. In a similar case a few years ago, the speaker had seen a gynecologist of considerable experience, after making what he considered a thorough search for the source of the hemorrhage, give it up and close the abdomen. The patient promptly died and at autopsy a condition not unlike that found in this case was discovered. It was the recollection of this incident that prevented Dr. Vineberg from giving up the search until he had inspected the entire uterus.

An Unusual Case of Adenocarcinoma of the Uterus.—Dr. Vineberg presented this report. He stated that the patient, aged 28 years, a widow for three years, entered Mount Sinai Hospital on December 8, 1914. Her family and personal history were negative. About four months ago the menses were prolonged to ten or eleven days. Examination showed the uterus enlarged to the size of the gravid organ at about eight weeks. It lay in retroversion, but was freely movable and easily anteverted. A diagnosis of fibroid growth, probably of the submucous variety, was made. At operation, December 11, it was noticed that the surface of the uterus was slightly rough and presented a deep reddish color. The effort at enucleation was proceeding successfully when a portion of the submucous growth broke down and some grayish friable material presented. A member of the pathological staff who was present suggested that it might be malignant. On closer inspection this supposition seemed well founded and a total hysterectomy was performed. The microscopical examination of the growth showed it to be an adenocarcinoma. The patient made an uneventful recovery. The points of interest in this case were: (1) the early age of the patient; (2) the absence of a flow or discharge in the intervals of the menstrual periods; (3) the evident rapid growth of the tumor; (4) the impossibility of making a correct diagnosis from the symptoms or local findings. This brought up a point in reference to the *x*-ray treatment for fibroid tumors and constituted one of the strong arguments against its universal employment for such growths.

Large Sarcomatous Tumor of Mesentery Removed Together with Eight Inches of Small Intestines; Recovery.—Dr. Vineberg reported this case, which occurred in a woman 29 years of age, the mother of three children, the youngest being two years of age. The patient's history was unimportant until three months before she presented herself to Dr. Vineberg. At that time she took a Turkish bath at the termination of a menstrual period which caused a return of the flow. The two following periods were accompanied with severe pain. The third period was attended with less pain than the two previous ones, but was scanty. Bimanual examination revealed the presence of a tumor lying chiefly to the left of the median line and reaching up midway between the umbilicus and the left rib border. The tumor was movable and cystic for the most part. A diagnosis of cyst of the ovary was made, with probable twisting of the pedicle as evidenced by the recent attacks of pain. At operation the tumor was found to have no connection with the pelvic organs although it lay in part in the cul-de-sac of Douglas and was moderately adherent to the pelvic floor. The tumor was found to arise from the mesentery; it was removed together with the overlying portion of the small intestine which was about eight inches in length. The ends of the intestine were sutured and a lateral anastomosis was made. The abdomen was closed without drainage and the patient made an uneventful recovery. The tumor was the size of an adult's head and proved to be a spindle shaped sarcoma, the center of which showed necrosis, hemorrhage, and cystic formation. The case was interesting because of the comparative freedom from symptoms, the difficulty of diagnosis, and the rarity of the condition. The symptoms of tumor of the mesentery were not characteristic. On local examination they offered one point of differential diagnosis in restricted mobility. This feature was not so marked in the case just reported as to excite due attention and so the plausible diagnosis of ovarian cyst was made for which these tumors were usually mistaken. The rarity of these growths might be inferred from the fact that the speaker in twenty years of active abdominal surgery had never before encountered such a growth. Only 85 cases had been reported in the literature.

Acute Traumatic Displacement of the Uterus.—Dr. Emily Dunning Barringer read this paper in which she stated that trauma had been conceded as a possible cause of uterine displacement, but that in the opinion of most writers it was rare in comparison with other etiological factors. Two reasons for the neglect in recognizing trauma as a factor in the etiology of uterine displacements were: First, that in case of displacement after an accident it was difficult to say whether the displacement had exisited before or not; and, second, it frequently happened that the symptoms were misleading and insidious and hence the condition was overlooked. From the study of a group of these cases the author believed it was possible to consider trauma the direct cause of displacement beyond the question of a doubt and considered a group of six cases which had come under her observation during a period of ten years or more. The histories of the accidents in these cases had shown, as pointed out by other writers, that the violence had occurred, (1) as a result of falls on the back or side in the supine positions, (2) sudden falls in the sitting posture, as falls on the ice, or the hard gymnasium floor, etc., (3) in sudden unexpected strains, where intra-abdominal pressure was enormously increased, or in lifting, pulling, etc. In the series of cases under consideration, a definite history of an injury of the first type was found in two cases, of the second in two cases, of the third type in one case, and in the other case the history was difficult to ascertain as the patient lost consciousness at the time of the accident.

All the cases, on account of their disability, were confined to their homes for periods varying from one week to several months. Five of the cases were nulliparæ at the time of the accident. The symptoms might be well defined or very vague in these cases and the diagnosis might vary from contusions of the coccyx, spinal contusions, "Railway spine," etc., which in no way included the uterus as a possible etiological factor. It seemed to the author that these cases might be recognized if one had in mind the possibility of an acute uterine displacement in cases in which there was present a fairly typical set of symptoms, such as pain over the lower portion of the back, slight sense of nausea and vague distress in the epigastrium when attempting to stand, and a feeling as though "things were out of place." Sometimes the symptoms included a dull ache radiating down the anterior aspect of the thigh, or along the course of the sciatic nerve; sometimes painful defecation; headache, generally occipital; bladder irritability, which sometimes might be a most distressing symptom; and change in the type of menstruation. In one case there was uterine hemorrhage immediately after the accident; in two cases menstruation became painful and prolonged; one case had not menstruated since, and one showed no marked menstrual change. The latter patient had early and successful treatment. There was sometimes a characteristic posture and gait very similar to that of traumatic lumbago, so marked that it might be noted on meeting the patient. The lower abdominal muscles were more or less contracted. In sitting the patient avoided direct pressure on the coccygeal region. In these cases vaginal examination showed various degrees of retroversion.

The author's cases showed three types, the mechanism of which the author described, comparing the uterus in its setting to a perfect joint and the accidents to dislocations of a joint. The result of any of these dislocations was to put certain of the uterine ligaments on the stretch and in certain extreme instances to actually tear the ligaments as in a dislocation of a bony articulation. A study of the mechanism of these displacements easily explained the symptoms of displacement. In cases of this class the importance of an early diagnosis was very great on account of the subsequent congestion and further sequelæ. The reduction soon after the accident was easy as a rule, and probably best effected in the knee-chest position. The uterus would sometimes "snap" back

into place and remain there and all discomfort immediately cease. This was demonstrated in one of the cases in which the diagnosis was made a day or so after the accident, and in which complete recovery followed rest in bed on the abdomen for a week and avoidance of exercises involving a concussion, such as horseback riding. This patient was advised to continue swimming and gradually resumed a vigorous athletic life. She had since married and become pregnant and had no difficulty with the pregnant uterus. When the uterus had remained out of position for a week or more the congestion incident to trauma made the reduction more difficult, and it then became necessary often to tampon the posterior fornix and between treatments use prolonged hot douching. Early diagnosis in these cases usually meant complete cure, while the longer the period of displacement, the less the chance of a non-operative recovery. It was important to arrive at a correct diagnosis because of the legal aspect of these cases. In four of the six cases reported the diagnosis had been overlooked and in two a rectal or vaginal examination had not been made. It should be made an invariable rule that the pelvic organs should be carefully examined in all cases of accident before one should make a diagnosis of railway spine, traumatic lumbago, concussion of the spine, traumatic hysteria, etc.

Dr. Hermann Grad said that these traumatic displacements were rather rare and when a retroversion was encountered it was difficult to say that the displacement occurred at any particular time. Dr. Marion Syms was the first to call attention to traumatic displacement of the uterus and the observation of that case led him to the invention of the Sym's speculum; by the use of this instrument he raised the posterior wall of the vagina; air would then enter and assist in the reduction of the displacement of the uterus. Two important points pertained to the condition of the bladder and to the condition of the perinuem at the time of the injury. If the bladder was distended at the time of the accident, it would push the fundus of the uterus toward the sacrum and one could readily see how under these conditions intra-abdominal pressure would become a factor in the uterine displacement. Again, whenever the intra-abdominal pressure was increased, like coughing or sneezing, the perineal musicle contracted automatically and gave support to the pelvic floor and the contents of the pelvis. During traumatism these synchronous muscular actions did not take place and, therefore, Dr. Grad said, their actions were not effective factors in preventing dislocations of the pelvic organs.

Dr. Abraham J. Rongy said that the symptoms which might be due to a traumatic displacement of the uterus were subjective in nature and the physician had no means of ascertaining the validity of these complaints. Personally he believed that the diagnosis of traumatic displacement of the uterus should never be made unless the patient had been examined before the accident and a change in the position was discovered immediately following the accident. Simple displacement of the uterus seldom caused symptoms. Dr. Rongy said he would be unwilling to ascribe any form of acute displacement of the uterus to an accident unless the latter was accompanied by a severe pelvic injury.

Dr. Barringer said that she had not intended to imply that she had made a physical examination in these cases before the time of injury, but had relied upon a careful history of the accident and physical findings after the accident. She believed that her cases had been in good health as regards the pelvic organs before the accident, and afterwards they were not. Two of the cases had previously been patients and had never complained of pelvic trouble. Both of these cases were completely disabled immediately after the accident. To consider all uterine displacements as being due to external trauma was absurd, as the vast majority of uterine displacements arose from other causes. In the course of ten or twelve years, in examining accident cases, she had found many cases of retroversion and prolapse which she had not reported as traumatic in origin. She supposed the three medicolegal cases reported in her series had been found in the course of about 150 such medicolegal examinations. Dr. Barringer said that she was much interested in these cases and realized that because of the element of litigation it was difficult to study them and obtain correct statistics.

College of Physicians of Philadelphia.

At a stated meeting held March 3 Dr. Alfred Reginald Allen presented a communication entitled "Recent Progress in the Physiology of the Pituitary Body." With the aid of lantern slides Dr. Allen discussed and illustrated the embryology, the histology, the anatomy, and the functional activity of the hypophysis. He showed how by reason of the complexity of the structure of this gland disease in one part might be unassociated with disease in an adjacent part, and how hyperplastic processes, with perhaps increased functional activity, in one lobe might be associated with disorganization of another lobe as a result of pressure with diminished or abolished functional activity. In this way were to be explained the multiformity and the contrariety in the symptomatology of disorder or disease of this organ. The anterior portion of the hypophysis appeared to have to do especially with tissue-growth and the posterior portion with carbohydrate metabolism.

Dr. George E. de Schweinitz read a paper entitled "Visual Phenomena in Disorders of the Pituitary Body." He pointed out that as a result of pressure on the optic tracts, chiasm on nerve vision might be impaired in any degree in the presence of a new growth involving the hypophysis, from mere obscurity to total blindness. Various forms of hemianopsia, homonymous and heteronymous, observed, with peculiar central scotomas, together with changes in the fields for form and color.

Dr. Charles H. Frazier presented a communication entitled "Clinical Manifestations of Pituitary Disorders in their Relation to Surgical Therapy." The principal symptoms for which patients suffering from disease of the hypophysis came under observation were headache and disorder of vision. In rare instances relief had been obtained from organotherapy, but as a rule not much was to be expected from this source. Usually the most that could be done was to perform cerebral decompression for amelioration of headache and conservation of eyesight, but at times successful removal of the neoplastic or hyperplastic formation could be effected. In some cases this could be done by the transfrontal route, while in others the transsphenoidal route was to be preferred.

Dr. Lyndon H. Landon by invitation read a paper entitled "The Transsphenoidal Approach to the Sella Turcica." He described the operation in detail, pointing out its advantages over other procedures directed to the same end, as well as the precautions to be observed in its performance. The steps of the operation as well as some of the conditions found were illustrated by lantern slides.

The Excretion of Arsenic in the Urine Following Use of Salvarsan.—K. Irokawa finds that from 40 to 90 per cent. of the arsenic injected either subcutaneously or intravenously is excreted in the urine during a long period of time. If salvarsan is injected subcutaneously it remains at the site of the injection unabsorbed and one can detect arsenic in the urine, after the lapse of three weeks. Excretion of arsenic following the intravenous injection is also quite slow. In a relatively large number of cases a fairly large quantity (10 per cent.) of the arsenic is excreted during the first day, but the greater part of the arsenic is excreted in the course of the first week. Even in the cases in which repeated injections have been performed intravenously a large quantity of the arsenic is not excreted during the first day. The relation between the excretion of the arsenic and the symptoms of syphilis is difficult to determine, but it has frequently been observed that the symptoms improve when the arsenic excretion is marked and get worse when the excretion is diminished.—*Sci-i-Kwai Medical Jornal.*

Hypertrophied and Dilated Urinary Bladder.—C. R. Box reports the case of a male, aged seven years, whose abdomen was noticed to be of an odd shape three weeks after birth. About this time the boy was circumcised. At the present the urinary bladder is greatly hypertrophied and dilated; it reaches almost to the navel. The child does not empty it completely and has some difficulty in starting micturition; nocturnal enuresis is present. There is polyuria (40 ounces or more in twenty-four hours). The urine varies in specific gravity from 1,004 to 1,030; it contains a trace of albumin but no casts. The point of special interest is the great hypertrophy of the bladder without any obvious obstruction of the urethra. Skiagrams show no stone; a catheter passes easily, and per rectum only the large bladder can be felt.—*Proceedings of the Royal Society of Medicine.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 15.
Whole No. 2318.

NEW YORK, APRIL 10, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE TREATMENT OF DIABETES MELLITUS IN DISPENSARIES.

BY HERMAN O. MOSENTHAL, M.D.,

BALTIMORE, MD.

ON account of the large amount of time that has to be spent upon each patient to obtain good therapeutic results, the treatment of many diseases, among them Diabetes Mellitus, in dispensary and office practice is extremely unsatisfactory. In order to obviate this difficulty, the following scheme was developed at the Vanderbilt Clinic in New York City; it was thoroughly tried out over a period of more than three years, and was found to yield good results. Three main objects were kept in mind. These with the methods of their accomplishment were as follows:

1. *The education of physicians wishing to acquire a knowledge of the disease.* This need is a greater one than is generally realized. Many practitioners have a very inadequate conception of the proper treatment of diabetes mellitus. An opportunity for remedying their deficiencies is not at hand, and they struggle along as well as they can. Men actively engaged in the practice of medicine are unwilling to spend three afternoons a week in studying and treating a single disease. Therefore, the presence of clinical assistants was asked for on only one day a week. This scheme was productive of admirable results, as long as the number of patients treated was within the working capacity of the clinic. The latter object was readily accomplished by having the cases return by appointment only. In this way, a group of from four to six physicians observed approximately sixty cases of diabetes—an ample amount of material for clinical experience—and the cases could be kept under thorough control and be furnished with proper treatment. By means of a uniform record system, each doctor was enabled to understand his predecessor's method of procedure and build upon it, without more than a minute or two spent in studying the history sheets. Thus every physician in attendance sooner or later came into contact with the whole clinical material, without detriment to any of the patients.

2. *Provision for adequate statistical and teaching material.* This need applies more to University Clinics than it does to the out-patient departments of hospitals. That a "diabetic" or, considered from a broader point of view, a "metabolism" clinic, fills a great want in this regard, is self-evident. For the completeness of clinical data and thoroughness of therapeusis, it is of great advantage if recourse may be had to an affiliated hospital for the treatment of the more serious cases and those burdened with complications. For three years the Vanderbilt Metabolism Clinic has furnished material for systematic instruction, bringing before the student the picture of the disease from the incipient to the advanced stage, and from the mildest to the severest type, in an orderly fashion.

3. *The adequate treatment of patients.* This is the keystone upon which the success of the clinic rests. The rule that each patient shall appear by appointment only must be strictly adhered to. If four physicians are in attendance, and each one can handle approximately four patients in two hours, it would be feasible to allow for twelve visits of old cases and leave one assistant free to interview the newcomers. Under such a system the patient requiring attention once a week receives it, while mild cases may be seen only once in two months; this meets all the necessities of the patient, without wasting the time of the medical staff. One further point requires emphasis: When the clinic is running to its full capacity admission should be refused to new cases. This is a matter of very great importance, and yet it is not put into force in any outpatient department, so far as the writer knows. Hospital authorities have put such a rule into effect for the wards, but not for the dispensaries. In an overcrowded clinic proper attention to each applicant is impossible, and either quantity or quality of therapy must suffer. In the metabolism division of the Vanderbilt Clinic there was frequently a waiting list, and, though this was unfortunate, it tended toward the greatest good of the greatest number. A patient, on being admitted to the clinic, has his admission history and physical examination charted upon the following blank:

THE VANDERBILT CLINIC.

METABOLISM CLINIC.

Diabetes Mellitus.

.....19 History by Dr.

Name. Age. Nationality. No.

Address. M. F. S. M. W. W. B.

Occupation. Religious Ancestry.

1. *Heredity*, Diabetes Mellitus. Tuberculosis.
   Goitre. Heart Disease. Apoplexy.
   Gout. Nephritis. Obesity.
   F. M.
   Brothers. Sisters.
2. *Personal*, Alcohol. Tobacco. Tea. Coffee.
   Genital.
3. *Past History.*
4. *Onset*, Date, Symptoms.
5. *Preceding Symptoms.*
6. *Sugar First Discovered.*
7. *Why Was Urine Examined for Sugar?*
8. *Possible Etiology* (Describe and give duration and date of each symptom).
   a. Obesity.
   b. Traumatic.
   c. Nervous.
   d. Pancreas, Abdominal Pain. Character of Stools.
   e. Thyroid, Exophthalmos. Tremor.
      Thyroid Enlargement. Cardiac Palpitation.
      Vomiting. Diarrhea.
      Nervousness.
   f. Hypophysis, Acromegaly. Gigantism.
   g. Kidney, Headache. Vertigo.

Visual Disturbances. Edema.
Dyspnea. Albuminuria.
h. Liver, Skin Pigmentation.
i. Unknown.
9. *Previous Treatment and Results.*
10. *Symptoms Since Onset of Disease* (Date of each and relation to any treatment).
a. Weight.....lbs. to-day.
.....lbs. highest.....19
.....lbs. at onset.
.....lbs. loss from highest weight.
.....% loss from highest weight.
b. Loss of Strength.
c. Polyuria.
d. Polydypsia.
e. Polyphagia.
f. Skin, Pruritus.
Furunculosis.
Other Conditions.
g. Pains.
h. Extremities.
i. Cramps.
j. Mouth.
k. Bowels.
11. *Other Symptoms.*
a. Digestive.
b. Circulatory.
c. Renal.
d. Respiratory.
e. Nervous.
f.
12. *Present Complaint.*

.....19 Physical Examination by Dr.....
Height. Weight.
General Appearance.
Skin and Mucous Membranes.
Eyes, Pupils. React. Light.
Mouth and Throat.
Thyroid.
Pulse, Rate. Regularity.
Blood Pressure (Recumbent posture).
Arteries.
Heart, Position and Character Apex Beat.
Area Precordial Dullness.
Sounds.
Lungs.
Abdomen.
Liver.
Spleen.
Kidneys.
Genitals.
Extremeties.
Edema.
Reflexes.
Eye-Grounds.
Urine.
General Appearance.
Reaction.
Sp. G.
Albumen.
Sugar.
Indican.
Microscopical.
Blood.
Hemoglobin.
Wassermann.
Sputum.

Such a "standardized" history appears at first sight to have many disadvantages, the main one being, that it does away with all incentive to original thought on the part of the observer. This is true to a certain extent, but may be counterbalanced by leaving enough blank space for such observations. The advantages, on the other hand, are very many. These history blanks are complete, and present the facts in a definite order. Through them statistics may be obtained concerning heredity, etiology, etc., with a minimum effort. Before this scheme was put into force, any statistical compilations which were attempted resulted in failure. It was found that the histories, even when taken carefully and conscientiously by competent workers, were full of omissions and it required much energy and time to read through pages of script to become oriented. With the present scheme, no such difficulties are encountered. It also makes the separate visits of the patient much more interesting to the physician, as any desired details may be rapidly ascertained without the usual series of wearisome questions.

The diet lists employed in this work are similar to those generally accepted in the treatment of diabetes mellitus, and the principles guiding their use differ in no way from that set down in the recent treatises concerning the disease. Their main merit is in being concise and clear, and thus leaving no doubt in the patient's mind as to what is required. Many of the Jewish cases refuse to eat the bacon demanded on the green day diets. A list was, therefore, devised in which beef flank, which has a very high fat content and is inexpensive, was substituted for bacon. This was found to answer very well. The restricted protein diet presented insurmountable difficulties. Up to the present time, no feasible plan has been developed by which a diet requiring weighing can be successfully maintained by a dispensary clientele.

VANDERBILT CLINIC
Amsterdam Avenue and 60th Street
New York City

Starch-free Diet.

MAY EAT:
Soups—Clear meat broths.
Meats—All kinds of meat, fresh, smoked or cured, except liver; all meats must be prepared without flour or breadcrumbs.
Eggs—Eggs in any form, prepared without milk, flour or sweetening (sugar, jam, etc.).
Butter—Butter, oil and lard.
Cheese—All kinds of cheese.
Fish—All kinds of fish, but no clams, oysters or scallops.
Vegetables—Greens, spinach, string beans, Brussels sprouts, asparagus, lettuce, endive, cucumbers, celery, cabbage, mushrooms, tomatoes, sour pickles.
Desserts—Gelatine jellies (use sour white wine, brandy or coffee for flavoring), custards made with cream only (without milk), and sweetened with saccharine (do not use sugar).
Beverages—Tea and coffee, sweetened with saccharine (without sugar or milk); claret, burgundy, sour white wine, and whiskey in moderate amounts. Vichy and water. Thick cream, 4 ounces (½ tumbler) a day, to be used with tea or coffee, or as desired in cooking.
Condiments—Pepper, salt, mustard, oil, vinegar.

MUST AVOID EATING:
Sugar in any form. Bread, biscuits and cakes of all kinds. Toast, crackers, rice, oatmeal (and all cereals); sago, tapioca, macaroni, vermicelli, potatoes, carrots, parsnip, beets, corn, beans, peas. All fruits, fresh, preserved and dried. Jams and jellies. Pastry, puddings and ice cream. Sauces and gravies thickened with flour.

MUST AVOID DRINKING:
Milk, ales, porter, stout, beer, cider, all sweet wines, port wine, liqueurs, sparkling wines, syrups.

BESIDES ABOVE, MUST EAT:

Green Day with Bacon.

BREAKFAST:
1 egg, boiled or poached.
Cup of black coffee.

DINNER:
Spinach with a hard boiled egg.
1 slice of bacon (this should weigh ½ ounce)
Salad, with 1 tablespoonful of oil.
¾ of a water glassful of sour white wine, or claret, or 2 tablespoonfuls of whiskey or brandy.

4.30 P. M.
Cup of chicken broth.

SUPPER:
1 egg, scrambled, with tomato and a little butter.
1 slice of bacon (this should weigh ½ ounce).
Cabbage, sauerkraut, string beans or asparagus, canned or fresh, in any quantity desired.
Cup of tea, without milk, sugar or lemon.

Take three flat teaspoonfuls of bicarbonate of soda during the day.

Water may be taken as desired.

Green Day without Bacon.

BREAKFAST:
1 egg, boiled or poached.
Cup of black coffee.

DINNER:
Spinach with a hard boiled egg.
1 slice of beef flank (this should weigh 1 ounce).
Salad, with 1 tablespoonful of oil.
¾ of a water glassful of sour white wine, or claret, or 2 tablespoonfuls of whiskey or brandy.

4.30 P. M.
Cup of chicken broth.

SUPPER:
1 egg, scrambled, with tomato and a little butter.
1 slice of beef flank (this should weigh one ounce).
Cabbage, sauerkraut, string beans or asparagus, canned or fresh, in any quantity desired.
Cup of tea, without milk, sugar or lemon.

Take three flat teaspoonfuls of bicarbonate of soda during the day.

Water may be taken as desired.

Oatmeal Day.

8 ounces (½ lb.) oatmeal.
8 ounces (½ lb.) butter.
6 eggs.

Cook the oatmeal thoroughly in water for 2 hours.
The butter and eggs must be well stirred in when the oatmeal is nearly done.
Use salt as desired.
This constitutes the food for one day. It may be eaten as gruel, mush or fried mush. It should be divided into 7 equal parts, one part to be taken every 2 hours.
Two cups of black coffee, and ¾ of a water glassful of sour white wine or claret, or two tablespoonfuls of whiskey or brandy may be taken throughout the day.

A patient on applying at the clinic for treatment is questioned and examined, and the observations are charted upon the history and physical examination blank. Dietary directions are then given. The diet usually ordered consists of the starch-free list, with some extra starchy food, such as three Uneeda biscuits with each meal, a slice of bread with each meal, or either of the above with an orange or an apple, etc. Each case is treated individually, and allowances are made for acidosis, idiosyncracies and personal preferences, and the dietary directions varied as indicated. The patient is told how to collect and measure a twenty-four-hour specimen of urine, is given one of the slips on which to chart all food and fluid taken during the period of collecting the urine, and is told on what day to return. At the subsequent visit, some errors are usually detected in the patient's "technique." The blank which has been filled out is a great help in this connection.

THE VANDERBILT CLINIC
Metabolism Clinic

Diet List for M.....
For the day.....19

(Specify every article eaten as well as giving approximate amounts, as: 7.30 A. M., Breakfast—1 cup of coffee, bacon 2 slices, 1 egg, water 1 glass, etc. Give time of each meal. Mention all food taken between meals.)

BREAKFAST:

LUNCH:

DINNER:

It enables the physician to tell whether the patient is eating a sufficient quantity of food, whether the diet as prescribed is fully understood, and, at times, helps in the detection of secret infringements of the prescribed diet. In treating diabetes, the medical advisor is in the fortunate position of knowing how strictly his patient is adhering to the dietary directions. A urine containing much sugar and no acetone is not that of a man on a strictly carbohydrate-free diet, no matter what his statements on the subject may be. The urinary analyses are best made before the patients themselves. Only a small laboratory equipment is required, and this can be placed in the clinic room without inconvenience. Dispensary cases are so frequently told that their urinary examinations will have to be postponed, obviously because the physician is either too busy or otherwise preoccupied, that an analysis of the urine in their presence has a very great effect in winning the confidence of the patients. It also saves the doctor's time by enabling him to do all his work within a short radius of space and to talk with the patient while he is working. The labora-

URINE AND DAILY NOTE CHART

C. D. C. Male. Age 38.

Date	Volume, 24 Hours C. C.	Specific Gravity	Reaction	Glucose %	Glucose Gms.	Carbohydrate Intake	Carbohydrate Balance	Acetone	Diacetic Acid	Bicarbonate of Soda	Weight Lbs.	Weight Oz.	Diet	Remarks
913														
May 8	4500			7 0	315 0	*	?	0	0		136	4	Lay, as customary.	
13.	1920	1026	ac−	3 0	57.6	90	+ 32	++ ++	Trace		136	4	C.F.,* 11 Uneeda biscuit, ½ grape fruit.	Feels stronger, much less polyuria.
20	1440	1029	ac	3.1	44 6	65	+ 20	++ ++	++		139	0	" 6 " " ½ " "	Lungs clear, no sputum, some cough.
June 3.	960	1028	ac−	0 2	1 9	35	+ 33	++ ++	+++	5ij	144	0	" ½ " "	
17	1800	1020	neut.	0.0	0	35	+ 35	+	+	5ij	147	4	" 15 Akoll biscuit, ½ " "	No cough.
23.	1440	1019	ac	0 0	0	50	+ 50	++	+		142	14	" 15 " " 1 " "	Loss of weight probably due to exercise.
July 8.	1400	1015	ac−	0.0	0	70	+ 70	+	Trace		144	0	" 3 Uneeda biscuit, 1 " "	
22.	1440	1020	ac	0 0	0	85	+ 85	+	0		144	0	" 6 " " 1 " "	
Aug. 5	2400	1013	ac−	0.0	0	100	+100	+	0		146	0	" 9 " " 1 " " 9 Akoll biscuit.	Feels well and strong
19.	1500	1018	ac	0 1	1.5	85	+ 85	0	0		145	6	C.F.,* 9 Uneeda biscuit, 2½ peaches 6 Akoll biscuit.	
Sept. 2	1920	1016	ac−−	0 0	0	100	+100	+++	Trace		147	0	C.F.,* 1½ rolls, 2 oranges, 12 Akoll biscuit.	
Oct. 2.	1650	1018	ac	Trace	Trace	100	+100	++	Trace		151	8	" 1½ " 2 "	
30.	1440	1020	ac	0.0	0	95	+ 95				150	8	" 8 Uneeda biscuit, 1 grape fruit.	
Nov. 19	1380	1023	ac	0.2	1 8	108	+106	+	0		154	8	" 3 slices bread 1 " " , 1 tablespoonful of cereal.	
Dec. 19.	1800	1017	ac+	0.5	9 0	100	+ 91	+++	Trace		151	4	C.F.,* 9 Uneeda biscuit, 1 grape fruit	
30	1680	1016	ac	Trace	Trace	60	+ 55	+++	Trace		154	4	" 6 " " ½ " "	
1914														
Jan. 16	1400		ac+	0 0	0	25	+ 25	++ ++	++ ++		156	4	" 2 " "	
30.	1440	1025	ac−	0 0	0	45	+ 45	++	+	5i	152	8	" 3 " " ½ " "	
Feb. 20.	1450	1025	ac+	0 0	0	57	+ 57	++ ++	++	5i	151	13	" 3 " " ½ " " , 1 Gluteo Luft Brod.	

*C. F. is an abbreviation for Carbohydrate Free.

tory equipment should include the following: Means for determining the reaction of the urine, the specific gravity, albuminuria, the qualitative and quantitative* glucose reactions, the presence or absence of acetone (Legal's reaction) and diacetic acid (Gerhardt's test). If access can be had to a centrifuge and microscope and the apparatus necessary to make blood sugar, ammonia, nitrogen and acid body determinations, the interest and pleasure in the work may be greatly increased, though these instruments are not absolutely essential. The urine having been analyzed, the patient is weighed, and a physical examination is made, if necessary. A sample of one of the combined urine and daily note charts is given.

These charts measure 21 x 9¾ inches. When folded over twice, they conform in size to the regular dispensary histories and can be filed with them. Nineteen columns are provided for tabulated observations. Of these, only the ones for the date, urinary volume, specific gravity and reaction have printed headings; the remainder are inserted according to the exigencies of the case and the desires of the observer. The appended sample is from one of the simpler cases. On the right is a blank space on which the diet is charted and the daily notes recorded. By this method, all the data of each visit are written on one line and are ready for rapid and complete inspection at each following consultation. The severest cases requiring more intensive treatment are referred to a hospital, and are asked to return to the clinic subsequently. Of almost 300 cases handled in this way, there was not one that was not benefited to some degree; in many the best therapeutic results could not be obtained, in some instances because of lack of will-power, in others because of lack of money to keep up an expensive dietary regimen. The Social Service department proved of inestimable value in meeting these emergencies.

The Johns Hopkins Hospital.

NEURASTHENIA AMONG GARMENT WORKERS.

By VALENTINE C. BAKER, M.D.

NEW YORK.

ASSISTANT PHYSICIAN OF CORNELL UNIVERSITY MEDICAL COLLEGE DISPENSARY; SHELDON FELLOW IN MEDICINE.

At the suggestion of Dr. W. Gilman Thompson, I undertook the investigation of neurasthenia among garment workers. In 1910 there were about 60,000 people employed at this trade in New York City, showing the industry to be a very important one.

The process of manufacture may be divided into three parts: the cutting, the sewing, and the pressing procedures. The cutting process consists in having a number of layers of cloth on top of which is placed the pattern, and the cutting of the goods, which is accomplished by means of shears, a large knife or the modern circular knife, operated by a small motor and guided by the operator. This work is performed by experts who command good wages and usually are paid by the week. Their work is more regular than that of the other departments. They are also given more space and as more light is required, are placed in the well lighted positions of the shop.

The sewing is one in which the work is specialized. Each worker is employed in basting, hand or machine sewing, on just one special portion of the garment.

The basting, requiring but little skill, is done by the beginners. The machine operators then finish the garment. The machines are usually in long rows set on tops of tables. The motive power is usually by electric power, but may be by foot.

During the assembling of the garment it is sent to the pressers. This work is done by hand-iron or heavy irons worked by hand or foot. The irons are heated by coal stoves, gas stoves, gas heating attachments to the irons, and electricity. The presence of carbon monoxide and an excess of carbon dioxide and aqueous vapor is the result.

Turning from the process of manufacture to the seasons, one is at once struck by the irregularity of the work, the rush and the slack seasons. Of the rush seasons there are two, known as the winter, August 15 to November 15, and the summer season, January 15 to April 15. These dates are approximate, varying somewhat with the nature of the garment and fashions. There are then about 4 to 6 months in which a man can work at his trade and draw the best wages. Dr. George M. Price tells me that if the wage earning capacity was reckoned on the daily average at this time, it would show that the worker is getting only 40 to 50 per cent. returns on his earning ability, at best. It would seem that these figures would be too high for the majority.

What happens in the slack season? There is very little work in the shops at times, 2 to 3 hours per day to none at all. The workers report at the shops and do what work there is.

Some find other work for the slack season in small stores and by peddling. The number of workers is increased in the rush season by some who have other business, which they leave to make more money while the returns are high.

The annual report of the Joint Board of Sanitary Control in the Cloak, Suit, and Skirt Industries, New York, 1913, shows the location of the shops to be as follows: In lofts, 83.8 per cent, while the number of shops in stores, attics, and cellars have decreased. This improvement is most satisfactory, for the loft is a more modern and hygienic location. Most of these places lack a separate lunch-room and dressing facilities. According to the report, these conditions are being remedied.

Taking the medium sized shop for an average example, one finds a fairly large room in which all the processes of manufacture of garments are going on. The cutter stands at his table under an arc light, a bright glaring light, or near the windows. On the floor at his feet are many small pieces of cloth, getting finer and finer as he walks around at his work. In better organized shops the pieces are kept cleaned up and placed in a tin-lined and covered receptacle.

At another portion of the loft are long rows of benches, on which are placed the machines, the shaft propeller protected usually by a board, which is only a fair protection for women's skirts. These machines are lighted in various ways, most are placed so that plenty of daylight is present. Others are lighted by electricity, most of these lights being shaded. Some shops used gas jets above the machines, protected by a wire shield. Some of these lights were formerly not protected and were a constant source of fire-danger as the busy worker flung the garment around in his haste. None of these

*Benedict's modification of Fehling's method has rendered excellent service. Benedict, S. R., *Journal of the American Medical Association*, 1911, LVII, 1193.

were shaded, not to mention the amount of air consumed and contaminated with carbon dioxide and other products of the complete and partial combustion of illuminating gas.

The chairs and benches are usually of the proper proportions, but I have seen some in which an average size person's knees must have been well on the way upward to his chin.

The workers sit at the machines, bent forward with their faces from 6 to 12 inches from their work. Their backs are bent in a quarter circle, an entirely unnecessary position with the chairs and lights used.

The pieces of work are small or large, according to the nearness of completion and the nature of the article. When finished these are dropped into baskets or other receptacles to be carried to the pressers.

These pressers were grouped in another part of the shop. They used mostly gas irons, fitted with air pressure, which insured the complete combustion of the gas and less contaminated air. However, there were many using the old gas irons. In none of the shops visited were there any hoods or other means to carry off the air about the irons. Also the pressing department was not separated.

The middle of the shop is commonly used for storage purposes. No dressing or lunch rooms were provided in those places visited. The toilets were fairly adequate in number, but the entrances were not screened off.

The report of the New York Bureau of Factory Inspection, 1911, concerning ventilation, showed that a large loft with numerous windows was not necessarily well ventilated. It was found that different portions of the loft varied greatly in the amount of carbon dioxide, solid matter, and the number of bacteria present. The presence of gas heating irons produced considerable carbon monoxide. There was also a large amount of dust, although the trade is not considered a dusty one. These findings would call for greater cleanliness and an efficient method of ventilation, preferably one in which the air is washed before distribution. In the case of gas irons mechanical means should remove the carbon monoxide and furnish fresh air. The gas and air apparatus causes a more complete combustion and obviates to a certain extent other means. Electric irons are good, but more expensive. The proper ventilation by means of open windows would vary with the seasons and individual preferment, which is a fallible safeguard.

In addition to the ordinary dust there is added the fine particles of material ground by the shoes of the workers as they walk over the scrap pieces. Proper cleanliness would remove this factor. In the shops visited, although not very busy, this material gathered rapidly. Otherwise, as to cleanliness, the shops were fair to good.

The means of entrance are by stairs and elevators. There is no necessity for the use of stairs. However, the elevator is small in many places and would require long waiting in rush periods.

In going over the great number of garment workers sent to the Cornell Medical Clinic for treatment by the United States Public Health Service, the presence of a neurotic element was apparent in the majority of the patients where the symptoms were in great excess to the physical signs. The most common symptoms were: exaggeration of symptoms, painful spines, indefinite pains variously located, mental depression, discouragement, and worry. Practically all the patients were Jewish and of Russian birth. This type of persons is noted for the occurrence of nervous diseases.

The following 18 cases were selected for statistics, because of the absence of organic diseases: Neurasthenia, 6 cases; neurasthenic spines, 4 cases; neurasthenia with gastric neuroses, 2 cases; nervous headaches, 2 cases; mucous colitis, 1 case; neurasthenia with obesity, 1 case; sexual neurasthenia, 2 cases.

Of these patients it was found that 3 were born in the United States, the other 15 were born in Russia. Two were of German descent and the remainder were Jewish. The sexes were 14 males and 4 females. As to civil condition, 13 were single and 5 married. The ages varied from 16 to 37 years, the average being 24 years.

The former occupations were as follows: School work, 6; farming, 1; fur trade, 1; examining embroidery, 1, and tailoring, 9.

The length of time at the garment trade varied from 6 months to 23 years. The 23 years' duration was that of a patient aged 37 years. One patient had left the trade and become a bookkeeper in the garment shop. Two patients were spending their evenings at night school.

In only 2 cases was the work regular. In the rush season there was plenty and in the slack season a small amount to none at all, 6 months of the year being spent in doing what little work there was to be found.

The kinds of work at which the patients were employed were as follows: Pressing, 1 case; hand sewing, 4 cases; machine operating, 13 cases. Thirteen patients did piece work and in all but 3 there was a "speeding up" of work, especially in the rush seasons, and by the employees to increase their wages.

One of the most important factors is the position of the workers. All the machine operators sit at their work, as do the hand-sewers. They bend forward with their eyes near their work. This bending forward seems to me to account for many of the spinal and other body pains.

The hours of work per week varied from 50 to 70 hours in one case, 13 working during the rush season about 50 hours. The figures given are for the rush season. During the slack season they may work a few hours, when a little work comes in, to none at all.

As to the place of employment, 17 worked in loft buildings. The other patient worked in a tenement. The work-room was described as large in 15 cases, and small in 3. Overcrowding was complained of by 5 patients. This seems to occur most often at the rush season. In reaching the shops 4 patients were obliged to use the stairs, which varied in number of flights from 1 to 6.

Ventilation was obtained by means of opening the windows in all but one shop, in which mechanical means were used. This simple way of ventilation is very faulty, the pure air being unevenly distributed. In the cold weather there is closing of the windows. This was complained of especially by the girls, who said that some of their number were always closing the windows.

The method of heating, being by steam, was satisfactory in all cases. However, there was no way to tell at what temperature the rooms were kept or if the heating was evenly distributed.

As to the presence of gas-heating irons, it was found that these were used in the same room in 13

instances. No separate room was provided nor were there hoods or other mechanical devices to carry off the products of their combustion. The use of gas and air pressure is providing a more complete oxidation of the gas.

The lighting was by daylight and electricity in all 18 cases closely studied. Shades were used in all but 4 cases. If these were shaded as poorly as some seen in the shops visited, in which large electric lights were equipped with shades several sizes too small, allowing the glaring light to shine directly in the eyes, these shades were of little use. The cases investigated all had day and electric lights, but several of the shops visited used gas light, with which there were no shades.

The time given to lunch varied from ½ to 1 hour. One man took no lunch-hour and he was suffering from a gastric neurosis. In no case was there a lunch-room provided. Three of the women and two of the men ate their lunch in the work room, the others eating at a restaurant. The lunches described were extremely satisfactory.

The distance that the patients lived from their work varied from ½ to 8 miles, 13 being within 1¾ miles, the remainder living at a much greater distance. In reaching their work 3 patients walked; the others riding on the surface, elevated or subway cars as suited their purpose.

In their salaries the women's varied from $5 to $7 per week, and the men's from $10 to $32 per week. These figures were taken for the rush season. When it is considered that the worker can possibly make only 40 per cent. of what his wages would be if his work were regular, we can approximate his yearly earnings; for the $10 per week man, $200 or less, and for the $30 per week man, $625 at best. One can appreciate what the high cost of living means to them.

The occurrence of similar disease conditions in co-workers was given as negative except in 2 instances, where several were said to complain of headaches and backaches.

In investigating the home life of the cases cited, it was found that 2 were attending night school. Also 2 of the girls helped with the housework. The sleeping quarters consisted of an inside bedroom in 6 cases, the remainder having windows that opened on the outside. At night the windows were kept open in all instances; 2 only in summer, and one only a little, in winter. In 5 instances the bedrooms were occupied alone, while there were 2 or more occupants in the remaining 13 cases.

The social lift included parties, theaters, and motion pictures. As to exercise, 1 girl belonged to a gymnasium, another patient was a bicycle rider. The others took their exercise in walking. Thus we see that in only 1 case was there systematic exercising.

The family history in 3 cases stated the mother to be neurotic. In one of these instances the mother was insane. This fact is of interest in that inherited tendencies are claimed to be transmitted through the mother.

The illness in all but 2 cases developed during their employment in the garment industry. Of these two, one began to have "nervous trouble" in childhood and the other dates her illness from the time she started to work. The duration of illness was 6 years in 2 cases, 4 years in 5 cases, 2 years in 8 cases, 1 year in 1 case, 6 months in 1 case. These figures show that, at least, the disease developed during their present employment.

Dr. Sidney Schwab reports in the American Labor Legislation Review on "Neurasthenia in Garment Workers" that he found that among laborers, laundry workers, workers in metals, and out of doors, neurasthenia was rare, while in 25 to 30 per cent. of garment workers neurasthenia was present. This has been practically our experience in the Cornell University Medical College Dispensary.

He considered the following to be factors in the occurrence of neurasthenia among garment workers: The majority of the workers being Russian Jews, the irregularity of the work with the speeding up at the rush seasons, the overtime, the out of work with worry and anxiety, and the piece work, which is monotonous and varies in amount and the wage earned.

Our findings agree with his to a great extent. Practically all the workers were Russian Jews, a type of people especially subject to nervous complaints. In only 1 case was the former occupation given as farming. The majority had been tailors or in allied trades. So one considers they should be to a certain extent adapted to their labors.

The irregularity of the work is an important factor. The rush to make all the wages possible during the busy season puts a heavy strain on both muscle and mind. This causes a general fatigue. Then comes the slack season, with its diminished wages and attendant worry and anxiety.

The remedy for this will be hard to secure, as it is naturally a result of climatic and other conditions. Perhaps in time the work can be planned ahead so as to provide continuous labor for the employee, and remove the expenses of a building idle for 6 months of the year from the employer. Economic reasons will aid. Efficiency in both the work and the worker is being investigated and utilized by the up-to-date manufacturer. It has been shown that a steady business is better than an irregular one for all concerned.

As to piece work, which has a tendency to become tiresome and monotonous, we find that it puts considerable strain on the worker in his endeavor to make the most possible. There is the lowering of the wage for each piece, attended by the increased amount of work necessary to make a sufficient salary. In New York it has been suggested that the work of an average worker be taken for the fixed scale of pay and not that of the expert. This seems to be a very good idea, thus giving the individual a chance to profit by his industry.

The position of the worker has already been commented on in this paper. Attention to the same by the worker would help. Light exercise at home or a gymnasium would relax and relieve the cramped muscles.

In the home life better tenement conditions will remedy these factors. The outside bedrooms should be the rule and not the exception. The importance of an undisturbed sleep to the worker can easily be recognized. Two occupants to a room would seem to be a suitable limit. The hours spent in bed were given as 7 to 8. Social meeting places in the neighborhood would act as a diversion.

As to family history, we can only look forward to the placing of the feeble minded and markedly neurotic in institutions where the occurrence of descendants will be prevented.

The Joint Board of Sanitary Control in the garment industry, the employer, the unions, and labor legislation are doing much to better the conditions

by inspections, suggestions, cooperation and suitable laws and regulations. These endeavors have produced satisfactory results in the past few years.

Perhaps it would not do to draw too decided conclusions from the small number of cases cited, but it seems from general dispensary work that neurasthenia is probably no more prevalent among the Russian Jew of the garment-shop, than the Russian Jew of any other occupation. The percentage of neurasthenia is always high among this race. Another factor is the rush and slack seasons, with their strain and fatigue, but only as an excitant of an already present neurotic element. Thirdly, piece work, in which there is the endeavor to earn as much as possible, holds about the same position as a causative factor as the seasons. The position at work seems the chief factor in the body pains, and neurasthenic spines. Instructions in proper positions and exercise at home or in the gymnasiums would correct this cause. Other causes, such as improper lighting and overcrowding, are well covered in New York by laws and inspections.

The conclusions as to symptoms peculiar to the trade showed only one, the painful spines, to be prevalent. The occurrence of other symptoms, such as anemia, constipation, eyestrain, decreased chest expansion, and permanent deformities, were not strikingly prominent features. One girl had a lateral curvature of the spine, which was present before she became a garment worker. The others were negative as to deformity. The garment-trade seems a fairly well regulated and sanitary trade in New York City, and compares favorably with other trades in these factors. The tenement shops and home work are the objectionable features. However, the number of workers employed in these shops is very small. The Joint Board of Sanitary Control, composed of employers and employees, has and is doing much to better conditions, for which it should be given due credit.

In closing I wish to thank Dr. W. Gilman Thompson, Dr. George M. Price, Dr. William H. Sheldon, and others who have aided in my work.

664 West One Hundred and Seventy-ninth Street.

THE INFLUENCE OF THE STUDY OF MEDICINE ON RABELAIS.*

By DOUGLASS W. MONTGOMERY, M.D.,
San Francisco, Cal.

Rabelais had the rare faculty of being able to work into his writings what he personally observed. In other words he was a most clever realist. As we are apt to think of him as the creator of characters of a most unreal bigness, this estimate of him may seem strange. As Abel Lefranc, however, says, the proofs of this side of Rabelais' way of constructing his stories have so accumulated during the last ten years that our conception of him as a writer has become profoundly modified.[1] It is known definitely that he practised medicine and that he had charge of a hospital, and in a man of his realistic type of mind these facts alone account for page after page of his works giving scenes and incidents having a decidedly medical flavor.

There are at least two classes of medical observations in Rabelais' works. In the first place there are his direct medical statements. These give some idea of medical thought and practice in the Middle Ages. They are curious and interesting in an antiquarian sense, but, of course, very little can be learned from them, as all the sciences on which the practice of medicine, as we understand it now, rests were then only either in their infancy or not at all imagined as existing. The other class includes medical turns of thought and ways of observing human beings, made by a master in his art. As human nature does not change, these are as fresh and true now as on the day they were written. It is here also that some of the finest examples of his realism may be found. As being made by a medical man of first class literary ability these observations are peculiarly precious to medical men. They show delightful pictures of the human side of medicine that is so neglected in modern writings on our art.

Modern medical treatises, although necessarily on subjects having an intensely human interest, are frequently as lacking in vividness and color as the ordinary guidebook; indeed one should be thankful if they are good guide books. This state of affairs is due to the wonderfully minute and patient work expended on collecting facts and describing diseases and drugs. Modern writers on medicine are swamped in these facts, which are often put together without sense of values or perspective. Rabelais' mind was not that of the searcher out of facts.[2] He was a story teller, and he was interested in the human side of his patients, and if a physician studies his writings in this way he will learn many a thing both to his amusement and profit.

Rabelais' situation in life and his opportunities were admirably suited to the work he was to undertake, or perhaps it would be more consistent to say that his work was the result of his genius, and of the situation in which he was placed. He was first a monk, a Franciscan, which was a preaching, begging order, and he must have been a good preacher, as he gained enough by his work to gather a fine library. Besides this, in the monastery at Fontenay-le-Comte, he had the companionship of an older man, and a finished Greek scholar, Pierre Amy. Fortunately also Rabelais had the faculty of intense studious abstraction, which he himself describes as an entire suspension of the natural faculties and exterior senses. Even in this description he could not refrain from a medical addition by saying that a man deep in study had the arteries of his brain stretched tightly like the string of a cross bow. And, by the way, this remark was not an observation, but a pure deduction from the theory that the arteries contained air, and served to convey the anima or spirit to the brain.

During this part of his life, therefore, he had a learned man as a comrade, who brought him in touch with some of the greatest scholars of the age, such as Budeus, and he himself was an assiduous student of the humanities as given in the classic Greek and Latin authors. He was prevented from stagnating and becoming a cloister student by his activities as a preacher, that gave him just the exercise he needed to make full use of what he read. This preaching had necessarily to be addressed to uneducated people, and on the simplest themes, so that he had to speak down to his audience, not up, educating him in that force of moderation and simple description which is so telling in an author.

After thirteen years of this work his fellow monks made it so uncomfortable for him that he had to leave the order.[3] The pretext was his large library. The real reason may have been envy of his success as a preacher. By a dispensation of Pope Clement

*Read before the Chit Chat Club, San Francisco, Cal., January 11, 1915.

VII he was allowed to enter the order of San Benoit, in which, among other privileges, he was permitted to own private property.

He then became the secretary of the friend of his school days, Geoffroy d'Estissac, Bishop of Maillezais, who seems to have loved good living and the society of learned and clever men. The associations here must again have had a decided influence in furthering Rabelais' literary tastes. According to Paul Stapfer it was about this time that medicine and botany became the principal objects of interest to Rabelais, and it was also about this time that he began those restless voyagings that made him one of the most noted travelers of his time.

It was not until 1528, when he was thirty-five years of age, that Rabelais began, in Paris, to really study medicine; it may have even been later, but it scarcely was earlier. He took his bachelor's degree in medicine before the Faculty in Montpellier, November 1, 1530.

Two years after this, in 1532, we find him in Lyons, that was then the literary and commercial center of France, and we find him in the company of the foremost literary men of the time. True to his literary instincts, to his associations, and to his love for medicine, he soon began to write on medical subjects.

When a young man graduates in medicine he often casts about for some subject on which to write so as to attract attention. Often these attempts at scientific work are absolutely worthless, and many of them are wearisome in the extreme, and come to no useful or interesting conclusion. As, however, hope is an accompaniment of youth and even of a fresh start in life, it not infrequently happens that enhusiastic expectations are built upon ordinary or even highly meretricious stuff. The principle on which this custom is based, however, is commendable, and often furnishes an incentive to do scientific work. Quite characteristically Rabelais took up translations, and did the Aphorisms of Hippocrates, the Ars parva of Galen, and the Letters of Manardi into French. These works got him friends, and through them he secured the place of physician to the Grand Hospital of the city of Lyons, a salaried position.

To his renown and to our happiness he soon ceased to write on purely medical themes, and in the same month, November, 1532, that he entered on his service in the hospital he published Pantagruel. As has been mentioned, his natural bent was toward being a story teller, and he was little inclined to the minutiæ and to the patient research that would have fitted him for a scientific career. Nevertheless to the end of his life he always inscribed himself as a physician, and always asserted he only wrote to comfort and cheer his patients.

There is no doubt that Rabelais is gross, and that this together with the old French dialect in which he wrote, constitute decided impediments to his study. There are, however, editions turned into modern French, that in parallel reading render the old French comprehensible, and enable one at the same time to enjoy the style and the diction, and in English we have an admirable translation, Urquhart's.

This translation is so good that a recent edition follows it almost absolutely.[4] It is not without errors, however, one of which, on account of its illustrating Rabelais' fondness for an anatomical joke, may be mentioned here. One of Rabelais' characters, Doctor Janotus, a learned theologian, whom we shall mention later, swears, when stirred to deep anger, Par la ratte Dieu, which Urquhart had rendered, by God's rattle. This is incorrect. This in modern French would be, Par la rate de Dieu, by God's spleen.[5] In the Middle Ages it was customary to swear by God's body, or by His head, or by His wounds, which oaths were undoubtedly all objurgated with due reverence and sincerity of heart, and as among the amenities usual in theological discussion, of which there was much in Rabelais' day. It was, however, reserved to Rabelais to be so minutely particular in his swearing as to swear by the spleen of the deity. In reading Rabelais the impediment due to grossness is another matter. There are many that see nothing else in his works, but I am sure that the more one studies, the more the grossness sinks into the background, and that, finally, the fire of the man's genius is such as to leave almost no impression in the mind but the admirable depictions of human nature.

Without being derogatory to the profession of medicine, I think much of the grossness of Rabelais may be ascribed to his being a physician. As has been remarked he was for several years physician to a public hospital, and a public hospital in those days must have smelt just as strong and no sweeter than roses. Even in my own student days, before the introduction of Listerism, the odor of a hospital ward was nauseating, but it was on a trip to Mexico City and to Guadalajara that I learned to appreciate, both as regards sights and smells, what a hospital in the Middle Ages must have been.

In order to describe vividly obscene and disagreeable incidents it is necessary to be acutely impressionable to them. It does not follow at all that because Rabelais was able to depict grossness strikingly that he was gross. In the authentic portraits we have of him, with his intellectual features and large luminous eyes, he looks anything but gross. Furthermore we know that in his person he was scrupulously clean, and he gives particular directions in regard to the tidiness that a physician should exercise in his dress and toilet.[6] Being so impressionably constituted it follows that he must have been profoundly affected by the sights, sounds, and odors he was compelled to endure in the practice of his vocation and while in the hospital. In addition to this a physician comes in intimate contact with the physiological personalities of people as no other man does, and with the faculty Rabelais had of stating objectively and strikingly what he saw, his observations necessarily had to reflect themselves in his writings.

We must also take into consideration that Rabelais was a monk, and therefore unmarried, and from all we can gather, lived remote from women. In fact in speaking of Gargamelle, the mother of Gargantua, he takes the opportunity to express his contempt for women. After having conducted this estimable woman through a most eventful childbirth, he says that he afterwards learned she died of joy following a feast given in celebration of the return of this very son from the wars.[7] He denies all personal knowledge of this, however, and says that he is interested neither in her nor in any other woman; a truly monastical attitude. Furthermore Rabelais' book is preeminently a man's book, and does not occupy itself at all with the woman's point of view. The essential of these remarks lies in the well-known influence that women unconsciously exert in repressing grossness, especially sexual grossness. Not long ago, when discussing woman suffrage, a well-known

lawyer drew attention to the way language and demeanor had improved in law offices since women had been employed in them. And it is only natural that this should be, for if this check did not exist, society would become a welter of unendurable coarseness.

It would, however, be unfair to say that Rabelais had no esteem for women. His eulogy of a wife at the sickbed is one of the finest in his works, and might be readily passed over as it is put into the mouth of the frivolous, thoughtless Panurge. Panurge quotes the wise as defining a wife as the mother of a family, legitimately married; "Where there is no wife," he says, "there the patient is in great peril." He had observed this clearly in the case of popes, legates, cardinals, bishops, abbés. priors, priests, and monks.

It is so eminently characteristic of Rabelais to enumerate all of the members of the hierarchy to which he himself belonged; and they were the great ones of the earth in his day, greater than kings. They were all celibates like himself. Was this sentence wrung from him in his tender nursing of his dear invalided friend, Cardinal Jean du Bellay? Surely it was a physician, with the heart and soul of a physician, who penned these lines. No matter how many skilled people may be employed, it is always the wife, the mother of a family legitimately married, who stands between the patient and the great peril.

One must also bear in mind that Rabelais was the personification of the spirit of the Middle Ages, and those Ages were coarse with the living, and insanely preoccupied with the materialities of the mouldering flesh of the dead. They had a luxury of disgust in gazing on corruption that we moderns find it hard to appreciate. In modern life the activities and varied interests to a great extent prevent such morbid ruminations finding expression, and Rabelais lived not in modern life but at its dawn, when thoughts and actions were still essentially medieval.

Bearing in mind the age in which Rabelais lived, his occupation, his unmarried state, and his clear vision in depicting what he saw, we think Rabelais was not gross, he was only contemporaneously objective. Furthermore, it must always be borne in mind that art and genius are free, and may occupy themselves as well with the exposition of the horrible and gross, as with the beautiful and good.

Rabelais' works are fragmentary and disorderly, and he himself said they were written at odd moments, and required no more time for their composition than it did for taking his meals.[8] He rambles on, and probably was frequently interrupted in his writing, and this is just the point, for who is more interrupted than a man in the practice of medicine? Rabelais' works are just such as a man with frequently interrupted leisure might write, and they are just such as a man in close proximity, as a physician is, to the weaknesses of human nature might write. Brandes says "Shakespeare was what Rabelais was not, an artist."[9] The conditions under which the two men wrote were, however, very different. Shakespeare had to write a continuous play, and he had to build up well rounded characters to fit into his plays. Rabelais wrote character sketches in detached situations.

Instead of regarding Rabelais as a physician, however, it might be more just to say that he was a writer with a large experience in the medical and physical observation of men, and undoubtedly much of the charm of his work is due to his dexterous management of this experience. For example, a physician more than anyone else knows what a comfort radiant heat brings to elderly people, and in two situations, in the case of Dr. Janotus, and in a scene representing Grangousier seated before a fireplace, Rabelais gives inimitable descriptions of this.

Boys have a natural tendency to play tricks with bells, and it was quite natural that young Prince Gargantua and his companions should steal those of the tower of Nôtre Dame de Paris. Princes in those days were noli me tangere, and therefore instead of sending a policeman or the sheriff to recover the bells, one of the eldest and most imposing members of the Theological Faculty of the Sorbonne, Master Janotus de Bragmardo, was commissioned to negotiate with the young rogues. If Janotus succeeded in his mission, he was to get as a reward for his services six measures of sausages and a good pair of breeches, that he admitted would be a great comfort to his legs. He was getting along in years, and had arrived at a time when men love their ease, and he did so desire to win those breeches! He said that in his youth he was good at arguing, or as they would say in Oxford, a great wrangler, but now he wished to retire to a quiet corner where he could enjoy a good cup of wine, a good bed, and have his back to the fire and his belly to the table with a deep dish, handsomely replenished, in front of him.

The longing of Janotus to get his back to a fine fire is touching. In advanced years the lumbar muscles are so frequently visited by pains, and so grateful for warmth, that immediately the reader is put into sympathy with the character, and wishes him every success in his endeavor. Fortunately his audience, composed of the young Prince Gargantau and his youthful companions, although mischievous scamps, were good hearted and would sympathize with him too. At a later date on the boards of a London theater, Falstaff told Prince Hal rather plaintively, that it did not take much to bring the laugh to the lips when there wasn't a pain in the back. Pantagruel, however, had more easy good nature than Prince Hal. Both Prince Hal and his father Bolingbroke, were hard even to the point of heartlessness, whereas kindly benevolence and universal charity of disposition were dominant characteristics in the Grangousier family.

Returning to the subject of radiant heat as being agreeable to the back, who has not seen an elderly gentleman standing with his back to the fire, with his legs wide apart, with parted coat tails, and gently stroking his hams, his beaming countenance showing how acceptable the heat is to him?

As illustrative of the tender regard in which this part of our anatomy is generally held, I may relate an experience I once had in London. While having some clothes made I remarked to the tailor that the trousers came up very high in the back. They were so high in fact that the suspenders crossed just below my neck. The tailor answered that they were so made in order to protect the kidneys. I perceived what he was driving at. A pain in the back is referred by the laity to the kidneys, and the tailor was catering to the laity both in regard to clothes and to ideas.

And Gargantua himself, out of the generosity of his princely heart, and as a reward for the jolly time Dr. Janotus had given him and his company, also extended presents, among which was cloth for trousers. He went still further in his solicitude and exhibited a due regard for the kind of trousers

that should be fashioned out of this cloth, fearing that they might not be suitable. He weighed this style and that, and paid particular attention to a pattern reaching scarcely to the knees, but having plaits and gathers both above and below that served for the greater solace and comfort of the kidneys. At the same time he also seriously considered a Swiss style, so fashioned as to keep the abdomen comfortable and warm.

But it is not alone the elderly that love to have heat play on the lower part of the body. Have you ever seen a mother washing her baby, and then hold it by its little feet so that the glow of a fire may strike the back of its thighs? The little fellow will squirm and crow and laugh, while the mother hugs it and kisses its little pink toes. It is in such scenes that one appreciates how fine it is that we die when old, and how grateful we should be that nature carries on her work by a continual rebirth.

This lively appreciation of the comfort obtainable from suave and gentle heat is of definite importance in the practice of medicine. In my early life my mental teeth have often been set sympathetically to chattering on seeing a poor devil suffering from typhoid fever put into an ice cold bath. It was no student of the genial humor of Rabelais that invented that form of treatment. One of the best practitioners I know often says he is opposed to anything too hot or too cold, either ingested or applied, and I have no doubt his sense of the ridiculous, of which he is plentifully endowed, has aided him in arriving at this conclusion.

Those who would narrow down a physician's observations to those of disease alone commit a great mistake. A definition of the word physician with them would be a man who listens to people's sorrows and miseries, and endeavors to correct them by the administration of chemicals. A physician's duty is wider than this, as he should not alone study the disagreeable things that a patient may suffer, but must also consider the agreeable things that solace and comfort him in his suffering. Again and again in his prologues, which by the way are masterpieces in prologue composition, Rabelais, as has been before remarked, repeats that his sole object in writing was to cheer and comfort his patients. A good story is told of him in this regard.

In a consultation at which he was present, it was decided to give an aperient. While the other consultants were lengthening out the consultation by conversation so as to appear to be earning their fee, Rabelais slipped out and ordered a fire in the palace court yard, with a cauldron of water suspended over it, into which he caused to be thrown all the keys of the household. When the other consultants finally came out they asked Rabelais what he was doing. He said he was making a key soup, as he understood that keys, with the exception of cannon, were the most opening or aperient things in existence. When the story was told to the patient he laughed so heartily that he recovered.

Of modern writers Anatole France is the one who most nearly resembles Rabelais in bringing the reader into sympathy with his characters by describing their physical disabilities. In Les Dieux ont Soif, for instance, there are at least a dozen references to subjects more or less related to medicine. One of these describes the condition of a vigorous, powerfully built man, who is assiduously engaged in a sedentary occupation, and who eats overmuch. In order to stimulate his overloaded digestive organs, he frequently takes a nip of ardent spirits, which, of course, only affords a fleeting relief to his permanent distress. At the same time the author describes the dull leaden complexion and pitted skin incident to this form of malnutrition that dermatologists call seborrhea, and introduces all these details into his narrative without giving a didactic impression. This is art, and this is the way Rabelais also interwove into his story the impressions he acquired in the practice of medicine. This is, I believe, the subconscious reason why so many medical men read Rabelais. What they acquire in reading him they acquire unconsciously, but it is none the less valuable. In reading medicine one is apt to become crammed and clogged with facts. Under such circumstances writers like Rabelais and Anatole France succeed in giving us clear, fresh, just views, and achieve what Aristotle designated as a mental catharsis or clearing out.

In reviewing Rabelais' life one can see how its course was ordered to bring out his peculiar genius. Even when a schoolboy he became acquainted with the d'Estissacs, who later filled powerful positions both in the Church and in the State, and helped him in many a pinch. After his school days he settled down to life as a monk, that gave him the leisure to study, and the opportunity to apply those studies as a preacher. The immediate practical incentive to work was the desire for money to purchase his beloved books. All this time and later there was the constant association with literary men. Shortly after definitely becoming a physician he resided in Lyons, the commercial and literary center of France, where we find him functionating as the medical superintendent of the city hospital, and writing medical works. Then came that wandering life, more or less connected with the practice of medicine, that must have been such a mental stimulant to a mind so observant and inquisitive. In medicine he saw enough of the hideous, ugly, and transcendently disagreeable, as well as many of the finest traits both in character and in human natural history that served him as material for his wonderful ability as a realistic writer.

REFERENCES.

1. "La Réalité dans le roman de Rabelais et speciale-ment dans le Gargantua." Introduction to the Abel Lefranc Edition of the works of Rabelais, 1912, P. 1.
2. "Peu porté, malgré sa haute culture, aux minuties, aux recherches patientes, il sentait s'éveiller en lui la vocation du conteur," is said of Rabelais by Abel Lefranc. Œuvres de François Rabelais, 1912. Introduction by Abel Lefranc, p. 14.
3. "Cronologie de le Vie de François Rabelais." Edition de Abel Lefranc.
4. "Rabelais." Selected and edited by Curtis Hidden Page. Published by G. P. Putnam's Sons.
5. Abel Lefranc's Edition. Book II, ch. 22, p. 179.
6. "The Author's Epistle Dedicatory to the Most Illustrious Prince and Most Reverend Lord Odet, Cardinal de Chastillon." Urquhart's Translation. Bohn's Library, Vol. II. Dedication to Book IV, p. 187.
7. "Gargantua," Ch. 37.
8. "Prologue to Gargantua." Book I. Abel Lefranc's Edition, p. 15.
9. "William Shakespeare," by George Brandes, 1907, p. 181.

323 Geary Street.

Acute Pemphigus Complicating Scarlet Fever.—J. M. Robertson-Ross reports the case of a boy aged ten years in whom on the thirty-second day of an attack of scarlet fever there appeared a bullous eruption which rapidly assumed a fairly general distribution, accompanied by an irregular pyrexia and running a course of little more than six weeks.—*British Journal of Children's Diseases.*

SCOPOLAMINE-NARCOPHINE ANESTHESIA (TWILIGHT SLEEP) IN LABOR.*

By K. E. SCHLOESSINGK, M.D.,
NEW YORK.

THE paper which I shall have the honor to read to you to-night deals with the scopolamine-narcophine anesthesia in childbirth. You will understand and appreciate my point of view when I say that I am not here to talk about "a new era of motherhood," about "the deliverance of womanhood from the curse of labor pains," and other similarly beautiful headlines belonging between the covers of magazines, or to the woman's page of the Sunday newspaper. It is my purpose to describe to you in plain words the technique, the advantages, and the disadvantages of an anesthesia which has been practised for the past eight years in Freiburg and in other European clinics, and which, we may claim, has in many cases eased the bitter hours of childbirth for the women of these days, whose activities and abilities have become more and more mental and less and less physical.

Going back to the first principles which have formed the basis for the development which this anesthesia has had at Freiburg one may briefly define it in this way: The purpose of the anesthesia is to place the patient in a state in which she is but semi-conscious (Dämmerzustand). In this state the patient, to speak in a physiologic-phychological sense, does "perceive pains but does not apperceive pains." The state is similar to that of a person who is suddenly roused from a sleep in the middle of the night and asked a few questions. Though answering those questions at the moment the sleeper will often not remember the occurrence at all the next morning.

The injections of scopolamine have the effect of preventing any sensations leaving impressions in the cortex. And only impressions are capable of being recalled through memory. But it is also undoubtedly true not only that these injections produce amnesia—the original purpose and idea of the Dämmerschlaf—but that in most cases we also obtain a fair analgesia.

We employ "scopolamine stable" and narcophine. Scopolamine stable contains an addition of mannite, a sixvalent alcohol which prevents its disintegration and produces a more even effect in its influence upon the patient. Narcophine is an opiate closely related to morphine except that it contains more narcotine, so that one molecule of meconic acid contains one molecule of both morphine and narcotine. The narcophine disintegrates easily and should not be used after becoming cloudy. The ampoules of scopolamine as put up commercially contain in 1.2 c.c., 0.0003 gm. or 1/200 grain, so that our first dose consists of 1.5 c.c., which is equal to 0.00045 gm. The narcophine we have made up in smaller quantities in a 3 per cent. solution, so that with 1 c.c. we gave 0.03 gm., or ½ grain.

Experience has taught us that hyoscine, considered by many as chemically identical with scopolamine, does not have the same clinical effect. The patients are slower to succumb to the effect of hyoscine and we had a very much larger number of cases of restlessness.

The anesthesia is best produced in a half-dark, quiet room. Sound-proof doors, felt shoes for the nurses, rug-covered floors are unnecessary exaggerations. The patients are very susceptible to sudden light or noise, both waking them easily from their half-slumber. Such a moment of wakefulness may produce an isle of memory (Gauss). And the labor pain felt in this moment of wakefulness may leave in their brains a picture which may enable them to reconstruct the entire act of child-birth, and in this way we may miss our purpose of bringing about a complete amnesia. It is, therefore, advisable to have the patient wear spectacles, in which dark paper takes the place of the lenses, and to have their ears filled with cotton.

The first injection is given when the labor pains reach their full activity, *i.e.* when the uterus contracts regularly every four or five minutes. This is one of the most important points to observe, because too early an injection may bring about a complete cessation of the labor pains. The degree of dilatation of the cervix is less important. Only in cases of dry labor or of occipito-posterior position I wait until I get dilatation of from three to four fingers. It goes without saying that pulse, respiration, and fetal heart should be examined as to their condition before the first injection—an examination which should be repeated before each subsequent injection, though irregularities in the heart action of the fetus which could be traced to the drugs have not been found.

The injections are given intramuscularly and best in the glutei muscles. The first dose consists of 0.00045 scopolamine = 1/140 grain (1½ c.c.) and 0.03 narcophine = ½ grain (1 c.c. of the 3 per cent. solution), which are given separately. The second dose is 0.00015 (1/400 grain) scopolamine and no more narcophine, and is generally given one hour later. The third dose is given after the "memory test" or after convincing oneself of the success of the injections by some other means, half an hour after the second injection. The subsequent injections are given in intervals of from one to one and one-half, or two hours, according to the depth of the "twilight sleep" of the patient. As a rule, as mentioned before, we give the narcophine but once. Only in cases where the patient is restless or does not sleep between the labor pains we give—at long intervals—two or, at the most, three injections of 0.015 gm. or ¼ grain narcophine. About half an hour after the first injection the patient begins to feel drowsy; she falls asleep readily between the labor pains, the face flushes, and the pupils become dilated. Often the skin and the lips begin to feel dry as early as this. This dryness of the skin has induced many to the erroneouse belief that the injection produces a rise of temperature. To give the patient relief she may be given water as often as she demands. The flush, which is purely peripheral, is absolutely harmless.

Half an hour after the second injection the "memory test" should be made. According to Gauss, the entire technique stands or falls with this test, as the dosage is made dependent upon it. Gauss shows the patient some object, a toy, a coin, the watch, or he calls her attention to some action which takes place during labor, such as wiping her face, examination, drinking of water, etc. About twenty-five minutes after he asks the patient whether she remembers the object or the action; if she does not remember, the purpose is attained and one may wait an hour or an hour and a half before giving the next injection. It is, however, very important not to let the patient wake up from her semiconscious state; first, because it is difficult to get her

*Read before the Chicago Medical Society January 26, 1915.

back into it, and, secondly, because one should avoid the "isle of memory." When we expect delivery in three-quarters of an hour, no more scopolamine should be given, as it would have an unfavorable influence on the child.

This "memory test," however, has several disadvantages. First, it assumes a certain amount of intelligence which is very often lacking. Secondly, the showing of a watch or a doll, etc., is such an extraordinary thing during childbirth that it is conspicuous and therefore leaves a stronger impression in the patient's mind. Other tests, on the other hand, leave impressions which are too weak. We know of patients who, when the memory tests were applied, remembered every time the number of injections, and who constantly asked to be given "twilight," but who would place three months back an examination which had just taken place, and who would be entirely anamnestic the following day.

Siegel, of the Woman's Clinic in Freiburg, depends more upon coordination, reflexes, and the general impression he gets of the patient. Anybody who has some experience with this anesthesia will soon know whether the patient requires a new dose, and the impression which he gains of the state of the patient will guide him so that he will not overdose or underdose, both of which should be strictly avoided. A primipara requires, on the average, five or six injections, if seven to nine hours is the average time of the Dämmerschlaf. It is, however, by no means dangerous to give more injections. The maximum dose (poisonous dose) of scopolamine is 0.001 pro dosi and 0.003 pro die, so that one may give without fear from eighteen to twenty injections inside of twenty-four hours. Beiruti reports a case which was over fifty-nine hours in twilight sleep. I myself had one of twenty-six hours, requiring eighteen injections.

Siegel, in his article on twilight sleep in the *Deutsche medizinische Wochenschrift*, No. 21, 1914, reports a somewhat modified method, which he had applied in 220 cases. The underlying thought of this new method is to standardize the number and strength of the injections. To do this Siegel has computed from the great material of the Freiburg Clinic the average dose required to bring about a successful anesthesia. According to his findings he has employed the following method:

1st Injection			0.00045 Scop.	0.03	Narcoph.	
2nd	"	¾ hrs. later	0.00045 "			
3rd	"	1½ " "	0.00015 "	0.015	"	
4th	"	3 " "	0.00015 "			
5th	"	4½ " "	0.00015 "			
6th	"	6 " "	0.00015 "	0.015	"	

One will observe that Siegel in the first place fixes his injections at regular intervals; secondly, that his second dose of scopolamine is equal in strength to the first dose, and, lastly, that with every third injection he repeats the narcophine, but in only half of the strength of the original dose. We personally believe that this method is contrary to the theory of Kroenig and Gauss and that the patients generally do not require such strong doses. I have treated only two cases according to Siegel's new method and have had in both cases, perhaps accidentally, asphyxiated babies.

When during the past summer so many American physicians came to Freiburg it is a very much to be regretted fact that they saw just those cases which were treated with the new technique—a technique which, as Siegel expressly states in his article, was nothing more or less than an experiment. Thus it came about that those who had seen the new technique introduced it in this country and had to abandon it shortly as unsuccessful. Going back to the old technique we obtained the same degree of amnesia with very much smaller doses and with the result of getting fewer oligopneic babies. The great secret of success in every direction is after all to be found by applying careful individualization to each case. To do so will come as a comparatively easy matter to every one with growing experience. For instance, while I used to give formerly on an average of from five to six injections, I now get along with from three to four injections. And as I have found by experience that whenever the mother shows herself very susceptible to the influence of the scopolamine the child is the same, I am very careful with my injections in cases of this kind.

The great advantage of this anesthesia during childbirth is to be found in the fact that it exerts none, or but very little, influence upon the activity of labor. Only the second stage is sometimes somewhat prolonged because the labor pains have not so strong an expulsive power. Siegel computes the prolongation in his primiparæ at one hour and twenty-two minutes for the first stage, and at thirty-three minutes for the second stage. However, there can be no doubt that it is better to leave a woman an hour and a half longer without pains in labor than to leave her the whole time with pains, the more so as this prolongation of labor is in itself inconsequential and only of theoretical value. Besides, we possess to-day in pituitary extract a drug which when properly employed helps us over the possible loss of time. Bandler does not like this anesthesia, saying that it interferes with the use of pituitary extract. Our experience does not confirm this. To the observer who is unfamiliar with this method it may appear as if the interval between the pains becomes greater after the injection. But this is caused by the fact that the woman in most cases will feel only the acme of the pains, and we, therefore, cannot perceive the crescendo and diminuendo of her pains from her expressions. There are women who even in the second stage manifest so little pain that if one does not keep a strict watch one may be surprised suddenly to find the child in the bed.

During the last pains, when the head is coming through, we sometimes give to very sensitive women about 10 c.c. of ethyl chloride to prevent her waking up through the pains which, of course, are strongest at this time. After the child is born the cord is clamped immediately and the child is taken into another room so that the mother does not hear it cry.

During the last stage the oft-mentioned restlessness or excitation which shows in some cases becomes especially noticeable. This is due to the fact that this state is not caused by an irritation of the brain, but by the pains themselves. The woman, who is in a semiconscious state, does not know exactly what is happening to her. She feels pains and does not know just where, and this feeling of discomfort causes her to toss from side to side. And inasmuch as the woman has no coordinated movements, the entire picture creates an even stronger impression. But that the pains themselves are the cause of this state shows most clearly when pituitary extract is given. The restlessness becomes more noticeable just because the pains are getting stronger. In the four hundred and more cases which I have handled in New York, I have seen but

four states of strong excitation in which I was compelled to give ether.

It is a fact that we find more restlessness among women of the lower classes than among women of culture and refinement. The free patients at Freiburg, mostly peasant women from the Black Forest, showed a very much higher percentage of restlessness than the private patients. I have had the same experience in New York—the more intelligent, the more nervous, and the more hyperesthetic a woman is, the better she takes the treatment.

Hemorrhages do not occur any oftener than usual. I have been fortunate enough not to have had one real hemorrhage among my cases here. In Freiburg they measured the loss of blood as carefully as possible, and comparing it with the loss of blood in ordinary cases, did not find any unfavorable results. I had two cases of retained placenta.

Lacerations of the perineum are, according to all reports, of rarer occurrence, as the perineum is stretched more slowly. Siegel reports only six small lacerations in seventy-eight spontaneous primiparæ, or 7.5 per cent., whereas the ordinary percentage is 13.5. Harrar and McPherson report thirty-seven lacerations out of a hundred cases of twilight sleep against forty-five out of a hundred without. Heller and Rongy also report favorable results in this respect.

Operative deliveries can be performed just as usual; small quantities of ether are usually sufficient. Moreover, the number of forceps cases is lessened, for the cases of "convenience" forceps, which make up the greater percentage of forceps deliveries, are eliminated as we know that the woman is not suffering.

After delivery it is best to let the patient sleep. About three hours after delivery she will emerge from her semiconsciousness.

The fresh condition of the patient after childbirth is, according to all authors, remarkable. The woman feels strong and vigorous and demands to get up after a short time. That is because there is no shock after the delivery. It is, of course, an error to assume that the anesthesia causes a quicker involution of the uterus, and if Kroenig lets the women get up twenty-four hours after birth it is for other reasons. By getting up we must not understand that they are tangoing or doing heavy work. They merely retire for a quarter of an hour to the armchair and then return to bed.

We now come to the child. It was the state of the children which created most opposition to the method, and there was justification on both theoretical and practical grounds. As a rule, we are anxious to avoid giving opiates and belladonna to infants, and in this case narcophine and scopolamine are introduced into the child during its uterine life. And that the child is influenced is shown when it is born by the sometimes dilated pupils, the dry lips, and the frequent state of dizziness. We must assume, however, that the selective powers of the placenta prevent the poison from exerting a really detrimental influence upon the child. And, as a matter of fact, the quantities of scopolamine and narcophine which analysis shows in the urine of the newly born are infinitesimal (Holzbach and Gauss).

The state in which the children are often born is, according to Gauss, an oligopnea, not an asphyxiation; it is a sort of dizziness. Clinically, the picture of the children is as follows: The children immediately after being born will take one deep breath, or will even cry; then the respiration will slow down, will become shallow, the heart will sometimes drop as far as thirty, and the child will take on a cyanotic appearance. By leaving the child alone, one will observe that after one to three minutes it takes another deep breath and that the action of the heart improves, and this recurs at constantly shorter intervals until a normal condition prevails. According to Gauss the explanation of this is that the scopolamine exerts an influence upon the vagotonus and the respiratory center, in consequence whereof the child requires a larger quantity of carbonic acid in its blood to stimulate the respiratory center. According to Gauss and Siegel, the best thing is to leave the children alone and do nothing. A very slight effort at resuscitation will, however, bring the child more quickly to a normal condition. We have followed the advice of Gauss and Siegel and have fared well in so doing.

Siegel reports that of 220 children, 148 were born with absolutely normal vitality, 61 were oligopneic, 4 were apneic and 4 asphyxiated; 2 children were born dead and one living child had to be perforated on account of fever of the mother. Of the four asphyxiated children, two were brought back to life, the other two died after living three-quarters of an hour and one hour and a half, respectively. The mortality of the children is therefore exceptionally small, amounting to only 2.15 per cent. Of the 220 children, 213 left the clinic alive and healthy. The total mortality during birth and during the first days of life is therefore only 3 per cent.

The lying-in period is normal. Harrar and McPherson report favorable results in the same directions.

I would like to call your attention especially to the fact that this anesthesia seems to have an exceptionally good influence upon patients suffering from some kind of heart trouble. There can be no doubt that shock and fear during childbirth have considerable influence upon women with cardiac troubles. The elimination of shock and fear under this anesthesia is, therefore, very much in its favor. Besides we know that scopolamine and particularly narcophine have a favorable influence upon the heart. I personally can report over ten cases from my practice in New York. Among these was one double mitral and aortic insufficiency, one stenosis of the mitral valve and insufficiency, two cases of simple stenosis of the mitral valve. The rest were mitral insufficiencies. Except for one case where delivery was spontaneous, all the women were delivered with forceps after complete dilatation. In all these cases, where the patients easily reacted under the drug, I got along well with three injections and less, and I had complete success in all cases.

Zweifel of Doederlein's Clinic reported some time ago several cases of eclampsia which showed up favorably under the treatment. We have had a number of cases of threatening eclampsia too, and we incline to give the anesthesia credit for the successful course of delivery.

I do not want to forget that this method is perfectly applicable in any well-kept and properly equipped private residence.* But permit me to point out again the necessity that the physician should take time to observe the patient continually or to leave with her a nurse trained in obstetrics.

*In my cases in private houses I never had any difficulties or bad cases.

Needless to say that the members of the family, who are under all conditions a nuisance, should be kept at a proper distance.

I have had only four cases of still-born babies among the approximately 450 cases in the different hospitals. The autopsies proved in one case congenital transposition of the viscera, in another edema of both temporal lobes, the third was undoubtedly a strangulation by the cord, and the fourth was born dead and macerated. Nine children died within the first ten days.

Heller reports 272 cases, in which the treatment was given in most of the cases by myself: Primiparæ, 210; multiparæ, 62. Total average dose for primiparæ, 0.0012 (1/50 grain); for multiparæ, 0.001 (1/66 grain). Total average duration of the anesthesia for primiparæ, 7 hours; for multiparæ, 3½ hours. Amnesia, 212 = 78 per cent.; partial amnesia, 32 = 12 per cent. Failures, 28, three cases could not be brought under, the others were admitted too late. Spontaneous birth in primiparæ, 71; in multiparæ, 53. Low forceps, 44; perineal tears, 45; breech extractions, 3; twins, 2 pairs. Still-births, 3 (transposition of viscera, macerated child, strangulation by the cord). Spontaneous crying, 224; oligopneic, 44; asphyxiated, 3; 7 died in the first 10 days (1 melena, 1 spina bifida, 1 subdural hemorrhage, 1 edema of the glottis, 1 bronchopneumonia, 1 premature child, 1 in which the cause was doubtful).

Abnormal positions are not contraindications, though it is advisable in such positions which in themselves show a high mortality of children (breech presentations) not to apply this method, so that the failure may not be attributed to the scopolamine. For the same reason it should be avoided in cases of premature children. With the above restrictions, the method is also applicable when inducing labor.

Conclusions: Scopolamine-narcophine anesthesia has—when applied in the right way—no dangers for mother or child. We demand a continued observation of the patient not because we expect some undesirable accidents, but because in case of possible complications we want to be certain that the method should not get the blame.

The anesthesia can be applied not only in the hospital, but in any well-appointed residence, demanding, however, constant observation on the part of a skilled obstetrician who must be thoroughly familiar with the technique in order to avoid over or underdosage.

The method scarcely prolongs the labor; on the other hand, it helps the woman through her ordeal by actually lessening the pains considerably and blotting them completely from her memory.

Operative confinements are more rare, so are lacerations of the perineum.

Disadvantages are the sometimes occurring restlessness and the sometimes occurring but harmless oligopnea of the children.

Summing it up we may say that we are, thanks to Kroenig and Gauss, at last in possession of a non-dangerous anesthesia which frees women from the dreaded labor pains. The knowledge of such freedom saves her from months of anxiety and fear during pregnancy and she faces her hour of trial less nervously.

And we may hope that at least one factor among the causes of race suicide, viz., the dread of pain when giving birth, will have lost much of its force.

86 Madison Avenue.

AN IMPORTANT GROUP OF SKIN DISEASES.

By CHARLES F. PABST, M.D.,

BROOKLYN, NEW YORK.

ASSOCIATE DERMATOLOGIST, BROOKLYN HOSPITAL AND DISPENSARY.

Instead of selecting one disease for my topic I have chosen a group which may be considered a unit when discussing affections of the skin. In this manner several distinct diseases can be studied comprehensively in the same space of time that it would take to read a long, stereotyped article on a single malady, which anyone could refer to in one of the standard text books. Although this fact is especially true regarding diseases of the skin, it would also prove useful and advantageous if applied to the entire field of medicine. Points of similarity would be perceived quickly, and slight differences between the various lesions would be understood readily, so that differential diagnosis would no longer remain a difficult task.

We are all too prone to scan the horizon for something "new" while Opportunity is standing by our side waiting to be noticed. Many articles that are bristling with "newness" fall far short of perfection because all that is new in them is not true, and all that is true is not new. Numerous theories are interesting to listen to or read about, but they endure but a short time—like the snowflake on the river, a moment there, then gone forever.

In presenting the vegetable parasitic diseases grouped under tinea trichophytina, or ringworm, I do not offer a subject which is new, but one which is full of interest and which can be studied easily, if properly classified. Ringworm may attack the scalp, the beard, the nails, or the general body surface, so that the most serviceable classification is that based upon the part of the body affected. The following varieties are found:

1. Tinea Circinata, ringworm of the smooth body surface.
2. Tinea Tonsurans, ringworm of the scalp.
3. Tinea Sycosis, ringworm of the beard.
4. Tinea Cruris, ringworm of the genito-crural region.
5. Tinea Unguium, ringworm of the nails.

I have added to the above list for the purposes of convenience, three diseases which are not due to the ringworm:

A. Tinea versicolor, or chromophytosis, which is due to a vegetable parasite called the *Microsporon furfur*.

B. Tinea favosa, which is due to a vegetable parasite called the *Achorion schoenleinii*.

C. Sycosis, which is not due to a vegetable parasite, and is therefore entirely different from tinea sycosis, or barber's itch.

Before describing the various forms of ringworm it is advisable to consider briefly the fungus which causes this disease. The fungus is tinea trichophytina, or ringworm, which may be divided into two main groups:

1. *Trichophyton microsporon* or the *Microsporon audouini*.

2. *Trichophyton megalosporon*. (*a*) Endothrix, which occupies the center of the hair shaft and usually invades the hairs of the scalp (tinea tonsurans). (*b*) Ectothrix, which occupies the intrafollicular region, forming a sheath between the hair and the follicles, and usually attacks the hairs of the beard (tinea sycosis).

The fungus is best studied by placing some of

the epidermic scales on a microscopic slide, adding two drops of a 10 per cent. potassium hydroxid solution, applying a cover glass and examining with an oil-immersion lens.

We will consider first tinea circinata, more properly known as tinea trichophytina corporis, or ringworm of the body. It is caused by the *Trichophyton microsporon* or *megalosporon*, and is conveyed from the horse, dog, or cat, and frequently by way of combs, brushes, and towels. The face, neck, and hands are the usual sites of the lesion, which begins as a small scaly patch, usually pink in color and having a slightly elevated border. These patches tend to spread peripherally and heal in the center, thereby producing the characteristic annular or ring shape. The patches are usually few in number, rarely numerous. In the tropics this affection is more severe and obstinate, and is called tinea imbricata, the entire body often being covered with patches and heavy scales.

The treatment of tinea circinata is chiefly local. Tonics consisting of arsenic, iron, or quinine, may be administered if required. This disease is either entirely cured or not cured at all. The clothing must be boiled and brushes, combs, and towels should be disinfected. Locally, the skin should be thoroughly cleansed with soap and water. Avoid medicated soaps. Various parasiticides may be applied, but I have found a 10 per cent. solution of oleate of mercury in olive oil the most beneficial. Twenty drops of oil of cade, and half a dram of alcohol may be added if desired. Whatever agent is used to destroy the fungi must be used persistently, and the patient should be kept under close observation for some time after the disease is apparently cured in order that treatment may be resumed promptly in case of recurrence.

Tinea tonsurans, or tinea trichophytina capitis, also known as ringworm of the scalp, is caused by the *Trichophyton microsporon* or *megalosporon*, usually by the *megalosporon endothrix*. The onset is the same as that described under tinea circinata. Signs of the disease soon appear in the hairs, however, which lose their luster, become brittle and present a broken-off appearance. They become grayish white in color, due to the presence of the fungus. There is a moderate amount of itching associated with this condition, but no pain, and the treatment is the same as that given for tinea circinata.

Tinea sycosis, also known as tinea trichophytina barbæ, barber's itch, parasitic sycosis and ringworm of the beard, is caused by the *Trichophyton megalosporon ectothrix*. The word "sycosis" is derived from the Greek, meaning a fig, and is used because the moist, red surface of the lesion resembles the pulp of a fig.

Tinea cruris is in reality a variety of tinea circinata, and is sometimes called eczema marginatum. The patches are brownish red instead of pink, and an eczematous condition is often present in addition to the ringworm. The fungus present is either the *Trichophyton microsporon* or *T. megalosporon*.

Tinea trichophytina unguium, or onychomycosis, or ringworm of the nails, is a rare condition affecting two or three nails which become thickened, brittle, and opaque. It is a chronic disease and difficult to cure.

Tinea versicolor, known also as pityriasis versicolor or chromophytosis, is caused by the *Microsporon furfur*. Small yellowish macules first appear on the chest, shoulders, or abdomen, rarely on the extremities. These areas increase in number and coalesce, producing irregularly shaped yellow patches. In treating this condition the clothing and all articles capable of harboring the parasite should be carefully disinfected. The body should be scrubbed daily with a mild soap and hot water. A solution containing one dram of sodium hyposulphite to the ounce, should be applied twice daily. I have obtained good results with a solution of mercuric chlorid, one grain to the ounce.

Tinea favosa, or favus, is caused by a vegetable parasite the *Achorion schoenleinii*. The lesion usually appears on the scalp, and begins as a superficial inflammation, followed by the formation of small yellow crusts about the hair follicles. There may be suppuration, which is the cause of the permanent baldness which sometimes follows this disease. The diagnosis is made by the sulphur-yellow color of the crusts, the scarring, and the presence of the *Achorion schoenleinii*. Ringworm is of shorter duration, the patches are round, the intense redness is absent and the hairs have a broken-off appearance. The diseased hairs should be removed, and the same treatment applied as recommended for tinea tonsurans.

Sycosis, also called sycosis vulgaris or sycosis non-parasitica, is an inflammation of the hair follicles caused by pyogenic organisms. Each lesion is always perforated by a hair. This disease should not be mistaken for tinea sycosis or barber's itch, and the following points of differentiation should be noted:

Tinea Sycosis.	Sycosis Non-Parasitica.
1. Spreads rapidly.	1. Spreads slowly.
2. Exceedingly contagious.	2. Slightly contagious.
3. Presence of small red areas, which heal in the center and spread peripherally.	3. Presence of pustules, perforated by a hair.
4. Deep structures involved.	4. Superficial structures involved.
5. Slight suppuration.	5. Free suppuration.
6. Slight pain and moderate itching.	6. Intense pain, itching and burning.
7. Hairs diseased; dull and brittle.	7. Hairs normal.
8. Hairs removed easily and without pain.	8. Removal of hairs causes pain unless suppuration is marked.
9. Sometimes causes permanent alopecia.	9. Permanent alopecia is very rare.
10. Mustache rarely affected.	10. Mustache frequently affected.
11. Fungus present (Tinea Trichophyton Megalosporon Ectothrix).	11. No fungus present.

In treating sycosis vulgaris, iron and arsenic should be administered internally because this affection is due to pyogenic organisms which necessarily produce constitutional disturbances. Autogenous staphylococcus vaccine is often used with excellent results, but there are many cases which derive no benefit at all from the vaccine treatment. After softening the crusts with olive oil, the hair should be removed by shaving. This should be repeated every other day at least and continued indefinitely. If shaving causes excessive pain, the

hair may be removed by applying the following mixture:

℞

Barii sulphidi		2½ dr.
Zinci oxidi		
Amyli	āā	gr. 75.

M. et Sig:—Mix to a paste with water, and apply for five or ten minutes. Depilation should be resorted to if pus is present in abundance. Severe inflammation should be treated with soothing applications, such as ten grains of the mild mercurous chloride to an ounce of cold cream. When the marked inflammation has subsided, disinfectants may be applied. A solution of bichloride of mercury, two grains to eight ounces of water is very efficient, or an ointment may be used containing twenty grains of ammoniated mercury to the ounce of cold cream. The *x*-rays have been employed with success in some cases, but they do not always effect a cure. In some instances electricity causes a permanent loss of hair, but even this defect is well endured if the treatment eradicates the disease.

In presenting the foregoing group of skin diseases, I have endeavored to demonstrate the essential points wherein these lesions differ, and trust that the classification offered may prove of assistance in correctly diagnosing these affections.

396 Franklin Ave.

TWO CASES OF LARYNGEAL OBSTRUCTION, AND ONE OTHER.

By CHARLES GRAEF, M.D.,

NEW YORK.

THE following cases are reported for their interest and value. While it is probable that these will be less to others than to those immediately concerned with the operations, such experiences seem sufficiently worth while to justify publication.

The first case was brought to Lincoln Hospital in the ambulance in November, 1914, the "bus" having been called because the patient was suffering from severe dyspnea. I saw the case about an hour after admission and was given a brief history by the interne.

CASE I.—S. F., æt. 36; suffering for several months with hoarseness and difficult breathing. Had become notably worse in past three days. No specific history. Trouble had been thought to be tuberculosis of the throat. The patient was propped on pillows and breathed with effort in stertorous inhalations. All the extraordinary muscles of respiration were in play. He was able to speak in a whisper, with gasps for breath.

I had him taken to an adjoining room for examination and found with the laryngoscope a massive tumor closing the larynx so that nothing of the cords proper could be seen, only a narrow fissure permitting air to pass with difficulty. To get a better view I passed a curved probe over the epiglottis to hook it forward. The patient had shown no especial increase in his distress up to this point but almost immediately after, while the epiglottis was being lightly pressed toward the base of the tongue, he began to show signs of impending suffocation. I released the tongue at once and removed the instruments from his throat to let him recover from the spasm. He did not recover, however. The difficulty increased instead. He made a number of furious choking but futile efforts to breathe, his face turned livid and in a moment or two he rolled over on the couch glassy-eyed, and to all appearances dead. As no preparation had been made for operation of any kind I had only one interne with me at the time. Of course we were not idle, but knowing that artificial respiration would prove of slight if any value we could do little until it became certain that there was no chance of his recovery unless the trachea was opened. I hurried to the instrument room which was some distance away and came back as quickly as possible with a tracheotomy tube and the first scalpel I could reach. There was no time for choice. As quickly as possible I did an emergency tracheotomy; no easy task under the circumstances. He was a short, thick-necked individual and I cut into a large engorged vein in the effort to penetrate the cricothyroid space. The very free bleeding added to the difficulty, but I finally succeeded in placing the tube in the air passage. We were compelled to continue artificial respiration for a very considerable time before the patient began breathing. This he finally did and was returned to bed in good condition. The tumor of the larynx was diagnosed as a gumma.

It is worthy of note that any laryngeal growth carries with it the danger of a sudden and fatal closure of the air passage from comparatively slight cause. A spasm of choking or coughing may provoke an edema which proves the last straw and the swollen mass shuts off the already narrowed passage completely. Two cases of this kind with death were reported recently from the Manhattan Eye and Ear Hospital.

CASE II.—H. R., æt. 11; referred to me by Dr. J. P. Ogden; had been suffering for several days with an acute otitis and mastoiditis for which an operation was required. She had pain, with much tenderness and boggy edema over the mastoid on the left side. Her throat was clear, with moderate sized tonsils.

While in the anesthetic room being put under ether she began to bleed from the nose—not very much but enough to be annoying to the anesthetist. He explained when the patient was brought into the operating room that he thought he had bumped the nose a little with the inhaler but she was nicely under and ready for the incision. The operation proceeded as usual, the bone being found very widely diseased, with much pus, granulations, and necrotic tissue throughout. It required an extensive operation, and I became so much interested in clearing out the disease that I did not pay much attention to the anesthetist. Toward the end of the operation he appeared to be in difficulty, however, and reported that the child was acting badly. Increasing trouble then rapidly followed; and breathing soon ceased entirely. Fortunately this time plenty of assistants were at hand. The head of the table was immediately lowered, the mouth opened, the tongue and the lower jaw drawn forward. Artificial respiration was steadily kept up. Stimulants by hypodermic were given and finger stretching of the rectum was also applied in the effort to restore the child. As considerable bloody, frothy mucus was in evidence about the mouth I had the throat swabbed, and luckily, among the blood-stained mucus, caught hold of a mass of membrane-like material which I succeeded in drawing from the throat. It looked much like the membranous moulds of the larynx and trachea which are sometimes coughed up by diphtheria patients, and I thought at first it must be something of that type. It was over six inches long and almost half an inch thick. It proved, however, to be a firmly-organized blood clot. After the removal, efforts to resuscitate the child were continued until finally breathing was established and she was returned to her bed in good condition. I was compelled to plug the nose to stop the bleeding. Next day I examined the nose and found a spouting vessel in the center of a small ulcer on the nasal septum. This was cauterized and the bleeding stopped.

I learned from the parents that the child had a number of nose bleeds during the days preceding the operation, but as she was suffering much with the inflamed ear and had a good deal of fever, the nasal bleeding was not considered of much moment. The hemorrhages, while lasting for an hour or more at a time, were not profuse and were overshadowed by the ear symptoms.

Undoubtedly the clot had been lying in the nasal fossæ for some time before the child was operated upon. The recurrent bleeding in the fevered patient had slowly built it up and permitted the firm, fibrous-like organization. Under the influence of the anesthetic with the more vigorous efforts of breathing, the ether itself, and the manipulation of

the head, the clot had become loosened and in part drawn into the larynx.

If I had not luckily got this cleared out the case would have, in all likelihood, gone on record as a death due to ether anesthesia. I had looked at the child's throat, but not in the nose, when examining to determine the need for operation. No evidence of any blood clot was observed, and even if I had been told about the nose bleed I would not have thought it necessary to examine post-nasally for a clot.

Such experiences as these are of course very trying and are worth recording, I think, as illustrating some of the many possible ways in which unexpected trouble may arise in surgical work.

Instances of sudden edema or closure of the obstructed larynx occur fairly often in cases of tumor developing in this part. We are told that the taking of iodide of potassium has a tendency to provoke this danger. In the face of such experiences as the one here given it seems likely that medication may have little to do with it, the fact being that a very slight local irritation may start a coughing or choking attack which will do the trick. If the touch of an instrument on the epiglottis can do this, it is reasonable to believe that inspissated mucus, or food particles, lodging on a sensitive part of the throat, or even a swallow of fluid "passing the wrong way" while drinking, may provoke the congestion, edema, spasm, or all combined, which proves to be the fatal "last straw."

I have operated in a great many cases of mastoiditis and have had my share of odd experiences with them, as every operator must have in time, but the one detailed above was unique with me and may be of worth to others.

A third case of somewhat different type which was under my care recently may be of interest also.

Case III.—Mrs. J. G., æt. 32; the wife of a minister in Trenton, N. J., was brought to me for dyspnea due to a very unusual cause. Troubled with faulty nasal breathing for several years, she had submitted to an operation on the turbinates of the right side some months before I saw her. The operation was done under local anesthesia and for some unexplained reason was very long-drawn out—over two hours, she said—the operation being excision of part of the middle and of the inferior turbinates. There was a great deal of hemorrhage, and the patient became much exhausted by her long siege in the operating chair.

From time to time she coughed out the blood which passed from the nose into the throat. Some of the coughing efforts were severe and of course accompanied by strong inspiratory movements. Although small pieces of tissue were secured by the operator the larger bony fragments escaped and were drawn into the larynx—eventually finding their way into the bronchi of the right side. From this time on she had a great deal of severe spasmodic coughing; pain, with harsh breathing and râles developed in the lower lobe of the right lung. She had a finely developed chest but any attempt to take a full breath showed limited expansion on the right side and caused sharp pain.

I have before me a letter written to me by her husband on February 11, 1914, from which I quote: "I am very glad to say that Mrs. G. has entirely recovered from the effects of her operation. The operation was performed on Dec. 7, 1912. Mrs. G. coughed up the first bone some seven weeks after the operation. After this her coughing was not so frequent, yet at times very violent. We had thought that all the bone was up, but we were mistaken, and in May, 1913, after our visit to you, and almost six months after the operation, she coughed up another bone somewhat smaller in size than the first one. From that time her cough abruptly ceased and she has not coughed since. The first bone was more than one-half inch long and three-eighths of an inch wide, and the second was a little smaller." She was brought to me for bronchoscopic examination in the interval between the expulsion of the two fragments. The symptoms detailed above were all in evidence at that time and she likewise had clinching proof in the bone fragment which was undoubtedly a piece of turbinate. It was clean and dry when shown to me. I decided to have an *x*-ray examination made as a possibly helpful agent in locating the foreign body in the lung and as circumstances prevented this being done for a few days I strapped the chest firmly with adhesive plaster over the affected side. It occurred to me that this would not only be a comfort to her but might aid her in the coughing efforts to expel the trouble-maker, and fortunately this worked out nicely for she coughed up the second bone within a few days.

Such an accident in any nasal operation must be very rare, and occurring in a case of turbinectomy under local anesthesia is certainly extraordinary. That this patient recovered without more serious results is no less so.

1125 Boston Road.

TWO CASES OF MONOCULAR OPTIC NEURITIS.*

By HOWARD F. HANSELL, M.D.,

PHILADELPHIA, PA.

The two patients whose affections are described below came for treatment about the same time to the Hospital of the Jefferson Medical College. Both presented indubitable signs of optic neuritis of moderate grade, limited to one eye. They were young women, aged seventeen and fifteen, respectively; apparently healthy, complaining of nothing but partial loss of vision in one eye. In the one case the vision was reduced to the perception of light, and in the other all objects had lost their individual colors and had become yellow. Both had been engaged in their daily occupation and neither could give any cause for the failure of the sight.

The problem that interested all the men working in the dispensary was the determination of the underlying cause. Orbital affections were unanimously ruled out because of the absence of paralysis of the muscles, of exophthalmus, of edema of the lids or conjunctiva, and of limitation of movement. It was agreed that a constitutional disorder was responsible, most probably nephritis or a brain tumor. Both from the character of the occupation pursued by the patients, one a sewing machine operator and the other a factory hand, and from the freedom from all indicating symptoms the diagnosis of an acute infection seemed to be excluded. In neither case could the assumption of disease of the brain or the membranes be accepted, because, aside from the optic neuritis, no sign pointed to that conclusion. And yet a brain affection in its incipiency cannot be positively excluded. Continued observation only can determine its presence. The same reflections apply to the assumption of nephritis.

Case I.—Girl, aged seventeen, white, single, sewing machine operator, was admitted to the hospital December 16, 1914. She stated that on November 23 severe pains on the left side of the face and head began, lasting two days. Shortly afterward she became conscious that the sight of the left eye was blurred and since then it has been growing worse until now it is reduced to the perception of light. There has been, since the first two days, no headache, nor has she suffered from nausea or vomiting. Her father died at the age of forty-seven from nephritis. Her mother, a brother and a sister are living and in good health. Three other children died in infancy, one of membranous laryngitis, and the others from unknown causes. The patient has had the ordinary diseases of childhood and is a fairly robust, healthy looking girl.

*Read before the Section on Ophthalmology, College of Physicians, Philadelphia, January 21, 1915.

Vision of right equals 20/20 and the eye is normal in every respect. The pupils are equal, the right reacting normally to light and convergence; the left reacts but sluggishly and to less extent. Consensual reaction is marked from right to left, but only faintly present from left to right. The extraocular muscles are in balance. Tension is normal.

In the left eye the media are clear. The disc margins are obliterated and the adjoining retina edematous and elevated. The veins are full and tortuous and the arteries diminished in caliber. There are no hemorrhages or other changes in the fovea or in the retinal periphery.

Physical examination disclosed no organic lesion. Repeated examinations of the urine were negative; Wassermann test negative; von Pirquet test negative; complete blood count negative. The sinuses accessory to the orbit are clear; "atrophic" rhinitis and pharyngitis sicca is the report from the Laryngological Department. Roentgen-ray plates showed the sella turcica to be normal in size and the clinoid processes prominent but smooth.

The visual field of the left eye is slightly contracted concentrically with enlargement of the blind spot. No scotoma; occasional and transient blindness for red and blue.

From December 16 to December 23 she has received inunctions of mercury, iodide of potassium, and a daily sweat bath. On the last date vision equaled 20/100. The swelling of the nerve head and the retinal edema are less, the veins also more nearly approach their normal caliber and course. The improvement continued until the day of the last ophthalmoscopic examination, January 13, when vision equaled 20/50. The disc had become pale and its margins were hazy, the physiological cup was filled in and the veins were only slightly tortuous.

Case II.—White girl, aged fifteen, a factory hand, was admitted to the Jefferson Hospital December 10, 1914. She stated that for ten days all objects perceived by the right eye appeared yellow and she had difficulty in seeing small objects and reading. She had no ocular pain, headache, vertigo, or other symptoms. The family and personal history are irrelevant.

Right vision equals 20/100; left 20/50, improved to 20/20 by — 1.50 ax. 90°. The media are clear. The disc margin of right is entirely obscured by a glistening white snowbank deposit, which extends well into the retina. The disc itself is swollen from edema. In the macular region is a perfectly formed, star-shaped figure of whitish spicules radiating from the fovea. There are no hemorrhages and the fundus otherwise shows no lesions. The veins are quite distended, but are not tortuous.

The left eye is free from disease of any description. The pupils are equal and react normally to light and convergence, the left more slowly and less extensively than the right. The consensual reaction is diminished from right to left and normal from left to right. The muscles are in balance; the rotations and tension normal.

Physical examination showed no bodily lesion. Twelve analyses of the urine revealed no sugar, albumin or casts, and the urea was of average percentage; Wassermann test negative; radiograph negative. The nasal septum was deflected to the left and pressed upon the middle turbinate bone. The sinuses were clear and the blood count normal.

The right field is slightly concentrically contracted and the blind spot is enlarged. The color fields are not limited.

December 22.—Right vision equals 20/70. The disc is less edematous and the star-shaped figure in the macula is disappearing, only the tips of the spicules remaining.

January 8, 1915.—Right vision equals 20/50. Macular region is almost entirely clear and objects no longer appear yellow. The nerve head is still edematous. The treatment was identical with that given to the first patient, namely: sweats, mercurial inunctions, and potassium iodide.

Groenouw and Uhthoff say that the ophthalmoscopic picture of albuminuria retinitis is typical when white plaques are present in the fundus and the star-shaped figure in the macula. The same findings exactly are, however, found in brain tumor. Schmidt and Wegner (*Arch. f. Ophth.*, XV., 3, 253) observed them, together with choked disc in a patient with glioma of the brain, but sound kidneys. De Schweinitz and Thomson (*Arch. of Ophth.*, 24, 2) make the same observation in a patient with occipital tumor. Moreover, these changes are not always present in nephritis. Mauthner believes that a poorly marked macular figure in the absence of other retinal changes speaks against the diagnosis of nephritis.

As a rule, retinitis of nephritis involves both eyes, although months or even a year or more may pass during which time one eye remains entirely free from the ophthalmoscopic changes characteristic of the disease. Weeks mentions a case in which the right eye was blinded by retinitis albuminuria followed by glaucoma, and the left eye remained sound for fifteen months. Schlesinger (Inaug. Dissert., Berlin, 1884) observed a patient where one eye remained free for two and a half years. The retention of the health of one eye is not attributed to the greater resisting power of that eye or to any predilection of the disease for one eye more than for the other, but has been ascribed by Cheatham (*J. A. M. A.*, 1885) to the presence of one diseased kidney only and that on the side of the diseased eye, or by Yoest (*Rec. f. Ophthal.*, 1883, p. 145) to the presence of only one kidney in the patient.

That the so-called typical picture of the retinal changes in nephritis may be present as an indication of disturbances of circulation and alteration in the tissues of the retina called forth by a primary disease of the arteries and veins—endarteritis and endophlebitis and their consequences—and due to other and entirely different diseases has been repeatedly demonstrated. For example, congenital lues, Lawson and Sutherland (*Oph. Rev.*, 1899, p. 89). Scarlet fever (*Phila. Med. Surg. Ref.*, 1873). Measles, Sotvio (Jahr. f. Kinderh., Bd. 50, p. 1). Erysipelas, Vossius (*Klin. Monatsb. für Augenh.*, XVIII, 410). Lead poisoning, Despres (*Gaz. des. Hop.*, 1872, p. 1180), and Lehman (Inaug. Dissert. Halle, 1890); also Galezowski (*Rec. d'Ophthal.*, 1878, p. 104). Ankylostoma infection, Nieden (*Centralb. f. prak.*, August, 1903). Carcinoma Ventriculi, Pick (*Klin. Monatsb. f. Augenh.*, XXXIX, 177). Brain tumor, Williams (*British Med. and Surg. J.*, May, 1901). Chlorosis, Mackenzie (*British Med. Journal*, I, p. 328), and Riegel (*Münch. med. Wochens*, p. 1138, 1899). Diabetes, Anderson (*Ophth. Rev.*, 1889, p. 33); Desmarres, Traité des Maladies des Yeux, 11 Ed., Vol. III, 521); Noyes (Trans. Am. Ophthal. Soc., 1869-71); Urne (*Arch. Med. Belges*, Nov., 1875); Tany (*Berl. klin. Wochens.*, Nov., 1878). Scorbutus, Mackenzie (*Lancet*, II., 25, 1880). Malaria, Koslonski (Ref. Jahrb. f. Ophth., 1878); Richard (*Gaz. des. Hop.*, 1863).

The resumption of normal appearances in the macular region is possible also in nephritis. In especially favorable cases the previously observed changes disappear without leaving a trace and the vision may reach its former acuity.

In the first case—moderate optic neuritis without retinal changes—the improvement in vision and diminution in the swelling under treatment by mercury and iodides suggests a luetic cause. It seems to me we should go farther in our investigations and not accept a diagnosis based on therapy. It is well known that these remedies, especially when their administration is combined with that most effective adjunct, excessive diaphoresis, tend to absorb any exudation irrespective of its cause. Moreover, the patient exhibited none of the vascular or retinal changes associated with syphilitic optic neuritis.

Wilbrand and Saenger (Bd. 5, p. 7) say "Nearly all inflammations of the optic nerve may be favorably influenced by therapeutic measures. Since in the majority of cases the etiological moment is an infection or intoxication so the course and prognosis depend largely on the influence of treatment upon the primary condition. Certain forms, for example acute axial neuritis, which for the most part are monocular, must in the absence of assignable cause, be attributed to repeated exposure to cold and they offer a favorable prognosis for the vision but not for the general condition. They are often precursors of multiple sclerosis or myelitis." The affection originates in and is confined to the optic nerve; it is generally monocular and confined to young individuals, particularly females between twelve and twenty-four years of age.

1528 Walnut Street.

NON-BACTERIAL URETHRITIS.

By P. I. NIXON, M.D.,

San Antonio, Texas.

Ordinarily in the conception and experience of most of us a purulent urethritis is synonymous with gonorrhoeal urethritis; and in the great majority of instances such a conclusion will be justified by the bacterial findings. However, one is surprised to find in the exceptional case not the gonococcus but some of the other pyogenic organisms, notably the staphylococcus and streptococcus; and very exceptionally one will find the causative organism to be the *Micrococcus catarrhalis*, a diplococcus that is very closely akin in its morphology and staining qualities to the gonococcus. It is true, then, that the gonococcus overshadows all other causes of urethritis in frequency, persistence, and importance, but it is well always to establish microscopically that this bacterium is or is not present in each individual case.

What has been said in reference to non-specific pyogenic urethritis is applicable to traumatic urethritis from instrumentation and irritative urethritis following the ingestion of certain drugs by the mouth; these too are the exceptional finding. It is fairly well established also that venereal contact may be followed by a urethral discharge, in the pus of which the gonococcus and oftentimes other bacteria cannot be demonstrated. The classical case of Neisser is cited, in which he "failed to find any bacteria in the pus from the urethra of a man who, a few days after returning to his wife from a long absence, developed purulent urethritis, and brought suit for divorce, offering his disease as evidence."

Briefly in this paper I want to call attention to a small group of cases illustrative of another type of purulent urethritis, namely, that following prophylactic or curative injections into the urethra. I have chosen to call this type non-bacterial urethritis, but chemical or irritative urethritis would perhaps be more appropriate, as cultures were not made from the discharge of these cases.

A urethral discharge following the injection of a chemical antiseptic is inseparably bound up with the question of aborting a urethral infection. All of us have occasionally had the happy fortune to cut short an early urethral discharge by using strong solutions of the various silver salts. Prophylaxis of venereal infection has long been advocated and is now extensively practised in the army and navy of the United States; this consists in the injection of a 2 or 3 per cent. solution of protargol in glycerine or a 10 to 20 per cent. aqueous solution of argyrol and the use locally of a 30 to 50 per cent. calomel ointment, the latter, of course, being directed against the possible development of syphilis. These measures, rigidly enforced, have reduced markedly the incidence of venereal disease in both branches of the service; it is the consensus of opinion among medical officers that if this treatment is administered within 8 hours of exposure, protection is almost certain and that it should be practised even up to 48 hours after exposure. It is obvious how many prophylactic treatments would follow as a natural result of the curbed sexual propensities of soldiers and sailors. In one report of about 6,000 treatments, there followed only 105 cases of venereal disease, but there is no mention of cases of urethritis resulting from the injected solution.

So it will be seen that a non-bacterial or irritative urethritis of the type mentioned above is exceptional. It appears plausible that such a result would ensue only in those who have an abnormally irritable or non-resistant urethral mucosa or possibly an idiosyncrasy to the drug used. In passing it is worth while mentioning that all my cases occurred in blonds. It has been said that the physician who gives the treatment for gonorrhea to all cases with urethral discharge is doing no wrong to the patient's anatomy at least. Such an opinion, however, is not confirmed by the cases comprising this report, as in every instance cessation of discharge was simultaneous with the cessation of all treatment.

The diagnosis, then, is of no little importance in that the treatment is totally different from that to be advised in true gonorrhea; on the one hand the treatment is aggressive and persistent, general and local; on the other it is entirely negative. The importance of diagnosis is to be emphasized, also, in those cases where the moral status of an individual might be affected by proving the specificity or non-specificity of a urethral discharge.

Briefly there follow abstracts of four cases. The first two were the results of therapeutic injections, whereas the last two followed prophylactic measures.

Case I.—J. F., age 28; an unmarried man; developed a purulent discharge on April 1, 1914. He was seen three days later when large numbers of gonococci were present in the discharge. An unsuccessful attempt to abort the infection was made, daily injections of 3 per cent. protargol being given at the office together with injections by the patient of ½ of 1 per cent. protargol and hexamethylenamine in large doses by mouth. The posterior urethra became involved and the chronicity of the case was most troublesome. On May 28, 2 months after the onset, the patient was discharged apparently cured, although he still had a few shreds in the first glass of urine. Contrary to my knowledge, he continued to use the protargol injection. Six weeks later he returned with a profuse discharge which to the naked eye had all the earmarks of gonorrhea. He related that the discharge reappeared soon after his dismissal and had been constantly present ever since. A prolonged search failed to reveal either gonococci or other bacteria in the pus. The patient was advised to leave off the treatment. The following day the discharge was much lessened and by the second day it had disappeared and the patient has remained well.

Case II.—R. J., age 21; unmarried; was seen April 4, 1914, with a discharge of four days' duration. In the discharge were found gonococci. The abortive treatment used in Case I was employed here for about a week. Then permangate of potassium irrigations were instituted and given fairly regularly till April 23, fourteen days after the beginning of the treatment. On this date and on several previous visits, no gonococci could be found. After this date the patient suddenly

quit coming. A week later he showed up again and gave as explanation of his absence the fact that he had been in jail. After reviewing his experiences and indulging at some length in remarks not altogether complimentary to the hygienic condition of our city jail, he consoled himself by saying, "One good thing: I got rid of my gonorrhea over there and I didn't have my medicine with me." The discharge had ceased a day or so after his arrest, and when I saw him there was no sign of it and his urine was perfectly clear. He was seen two months later and had had no further trouble.

Case III.—R. W.; a married man of thirty; was seen August 1, 1914. The circumstances preceding the development of his discharge were as follows: his family along with that of one of his friends (a man of 35), was spending the summer in the mountains. Each week end these two men would visit with their families. The latter part of August they had as a visitor a young widow who returned to the city with them. The following Monday the friend of my patient spent the night with the widow in question; on Tuesday night my patient had a similar experience, although ignorant of the happenings of the previous night. The first man developed a urethral discharge on Wednesday of the same week and obtained from his physician an injection of 10 per cent. argyrol. My patient hoping to take time by the forelock, when he learned of his friend's condition began the use of the same injection on Thursday. On Friday he developed a discharge and was seen Saturday in a state of great alarm and uneasiness. A profuse purulent discharge was to be seen exuding from the urethral meatus; one was surprised, however, to find no bacteria in stained smears. The injection was discontinued and the discharge ceased two days later and has not recurred.

Case IV.—Mr. A., age 38; single, was seen October 13, 1914. One week before he had intercourse with a woman about whom he knew nothing. Three days later he consulted a physician who prescribed a 20 per cent. argyrol solution as a prophylactic injection. A urethral discharge developed 5 days after exposure and 2 days after beginning the use of the injection. On examination the meatus was found to be red and swollen, and a purulent discharge was present. Repeated examinations of the pus failed to reveal the presence of gonococci or other bacteria. The discharge ceased immediately after the injection was withheld.

205 Hicks Building.

THE CAUSES OF PERSISTENCY AND INCURABILITY OF CERTAIN AFFECTIONS OF THE GENITOURINARY TRACT.

By A. STRACHSTEIN, M.D.,

NEW YORK.

ATTENDING GENITO-URINARY SURGEON, HAR MARIAH HOSPITAL, ATTENDING ADJUNT GENITO-URINARY SURGEON AND CHIEF OF CLINIC, BRONX HOSPITAL.

The urologist is frequently called upon to answer the question whether infections of the genitourinary tract are at all curable. This is particularly aimed at gonorrhea and its complications.

The interrogator is not only the patient, but frequently also a colleague, the general practitioner. And why does this cry of despair come from both? It is justified from their point of view, because here is a given case apparently of a trivial nature and yet persists for many months and even years in spite of treatment. I know of one prominent colleague who expressed himself that so far as therapeutic results are concerned, "I would rather have syphilis than gonorrhea." Yet, in spite of this despondency, the urologist is in a position to state most emphatically that these so-called incurable cases remain uncured for the want of a correct and proper diagnosis as to the cause of the persistency. I venture to say that each one of these incurable cases has some hidden focus which has been overlooked and naturally failed to bring forth the rational treatment for that particular case.

The intelligent use of the urethroscope combined with the true microscopic interpretation of the expressed secretions from the various glands that empty their products into the genitourinary tract, are such powerful guides in the hands of the urologist that at no time need the hidden enemy remain undetected and beyond the range of successful attack.

I shall quote some cases of my own practice and some from Prof. Wossidlo's clinic (Berlin) that will illustrate many of these points.

Case I.—J. B., 34 years; salesman; contracted specific urethritis two years ago. Was variously treated for over one year, but could not rid himself of his inconstant morning drop and particularly from shreds in his urine. For some months he dropped treatment as useless. Contemplating marriage, he consulted me on October 28, 1914, about his condition. Following were the findings: First urine clear with many curled up shreds; second urine clear with a number of wedge shaped pieces and debris. Prostate normal in size and consistency; seminal vesicles not palpable. Microscopic examination of the expressed prostatic secretion shows a few leucocytes, no genococci. Urethroscopic examination of the posterior urethra with the Wossidlo irrigation urethroscope revealed floating plugs of pus attached to the openings of the prostatic glandular openings on the floor of the prostatic urethra. Anterior urethra showed the presence of a soft infiltration, and nearly all the lacunae of Morgagni were enlarged and chocked with plugs of matter.

Treatment.—The patient was started on methodical gradual dilation of the entire urethra once a week, using the Oberländer-Kolliman irrigation dilator. Twice a week the prostate was massaged and soon followed by deep irrigation of silver-nitrate 1-4000 by the Dididay method. This *modus operandi* was carried out for seven weeks with the following results: His morning drop disappeared, the second urine portion became clear, but the first urine still contained small curled shreds. Anterior urethroscopic examination showed the lacunae still covered with plugs of matter. These were then cauterized through the urethroscope once every four days in three sittings until the anterior urethra assumed a normal aspect, and he became free from shreds. Prostatic secretion showed only an occasional leucocyte.

Case II.—L. K., age 35; tailor; married; denies any previous venereal disease. He assured me that since marriage, he had no relations with any other woman but his wife. Six months ago he developed slight burning upon urination, his external meatus somewhat pasted together, but no free urethral discharge. He consulted his family physician who diagnosed the malady as gonorrhea. No smear was made. After treating him for four months with the silver salts, practically no progress was made and he developed an occasional morning drop and complained of the shreds in both urines. His physician gave him up in despair and advised him to consult a specialist. Thereupon, the patient went to a busy hospital clinic where he was treated for nearly two months making but little headway. On November 2, 1914, he consulted me and upon my suggestion he brought his wife for examination, but smears from her urethra and cervix were negative. She had had no previous treatment. His own examination showed first urine clear with long heavy filaments; second urine portion clear with considerable debris. Prostate small, upper part of right lobe is soft, boggy, and tender. Seminal vesicles not palpable. Prostatic expressed secretion revealed numerous leucocytes some micrococci, and some short thick rod-shaped bacilli, no genococci. The anterior urethra showed a moderate soft infiltration; microscopic findings were similar to those of the prostate.

Treatment.—Patient was at once started on prostatic massage twice a week, having filled his bladder previous to each massage with a solution of oxycyanide of mercury 1-5000 and instructed him to empty his bladder immediately after the massage. Once a week he was also gradually dilated with the Oberländer-Kollman irrigation dilator, using same solution for the entire urethra. Internally he used one of the formaldehyde group of urinary antiseptics. After continuing in this mode of treatment for eight weeks, his urine became free from filaments or debris, and the prostatic

expressed secretion showed only two to three leucocytes to each field of vision.

Case III.—(From Prof. Wossidlo's Clinic.) Man of 36, conductor, had gonorrhea seven years ago from which he recovered without any complications. From fear of reinfection he abstained from sexual intercourse but was in the habit of practising masturbation to a moderate extent. Six to eight weeks ago he developed painful and frequent urination occasionally accompanied by terminal hematuria. No urethral discharge. Was treated by his family physician for some time for cystitis, but without improvement. Upon examination his urine was clear, but contained many shreds. Posterior urethroscopy revealed an enlarged and engorged colliculus covered by many minute polypaid vegetations. This was painted with silver nitrate 20 per cent. in three successive sittings and while there was a marked reaction each time, his urine finally cleared up and he was relieved from his symptoms.

Conclusions.—1. The persistency of symptoms for a long time, in spite of treatment, is usually due to failure of localization of the focus of disease.

2. Case I was rebellious to treatment because of his mild prostatic involvement as well as the lacunitis which was overlooked.

3. Case II was undoubtedly a bacterial nonspecific urethritis from the outset. The use of the silver salts added a chemical irritation of the mucosa and favored the growth of the invading germ.

4. Symptoms arising from the involvement of the colliculus are frequently mistaken for those of cystitis, but can be diagnosed with fair ease by resorting to posterior urethroscopy.

17 East Thirty-eighth Street.

AN ELECTRICAL MOUTH LIGHT.

By ALFRED KAHN, M.D.,

NEW YORK.

The instrument herewith illustrated represents an electrical mouth light, which I have found of marked utility in my practice, as an ear, nose, and throat specialist. Its advantages are many. I offer this reason for presenting it to you. Its essential features follow:

The cuts make the mechanism and appearance of the instrument clear. The illustration shows the light as being made up of an electrical flashlight mounted on a system of hinges (universal joints), the hinges connecting the light with a fiber mouthpiece, which is grooved to receive the teeth. The instrument, which is extremely light, may thus be

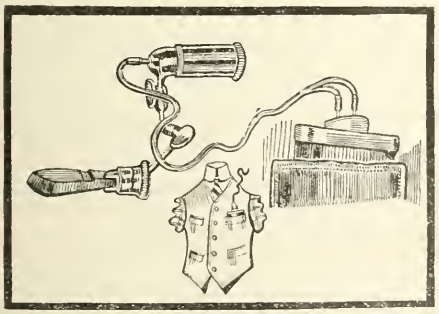


Fig. 1.

held firmly in the mouth. The universal joints enable the light to be manipulated quickly in any direction where it remains firmly in position. The hands are left entirely free for any operative or other procedure. The light receives its power by means of a dry battery (which can conveniently be placed in the coat or vest pocket); or if desired the instrument can be connected to the regular street current, reducing the voltage by means of a rheostat.

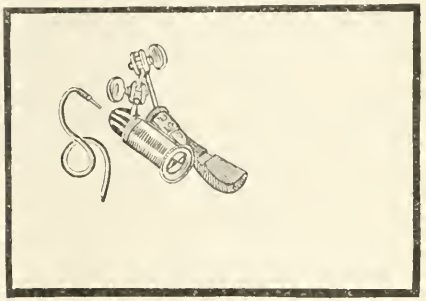


Fig. 2.

The light is strong and regular. The instrument can be used for any purpose for which our present headlight is used (eye, ear, nose, throat, rectal diseases, vaginal examinations, etc.).

Figure 1 shows the light connected to a dry battery; placed in the vest pocket. Figure 2 shows its compactness; in what small compass it can be folded and tucked away. The battery will burn this light about four hours continuously, long enough for most operations.

The battery and light are regular stock articles and can be secured at any electrical store. This light is of special utility at the bedside or where an operative procedure is to be done in a private home. The instrument can be easily sterilized. Its cost is most reasonable.

34 East Fortieth Street.

Medicolegal Notes.

Who Are Itinerant Physicians.—In proceedings in the Texas courts, where it was charged that the defendant had engaged in and pursued the occupation of a physician, traveling from place to place, without having paid the tax levied on that occupation, it was held, on appeal, that the evidence did not sustain a conviction. It showed that the defendant had been a resident of Vernon, in the county of Wilbarger, for more than a year at the date of the institution of these proceedings, and would show him guilty of violating that provision of the Texas Code prohibiting any one from practicing medicine without having obtained a license from the medical board and registering it, and not the article preventing one from practicing medicine as an itinerant physician without having paid an occupation tax. Had he paid the occupation tax, under the evidence he would not have been authorized to practice medicine, and, as the evidence clearly showed that his fixed residence since he had come to the state had been at Vernon, he would not be liable for the tax levied on traveling physicians.—Rutherford v. State, Texas Criminal Appeals, 169 S. W. 1157.

Instituting Baseless Actions for Injuries.—A physician conspired with certain attorneys to obstruct justice by inducing a person to believe that he had been injured, and to institute suit for injuries alleged to have been sustained in a collision with a vehicle driven by the defendant's servant, when in fact no injury whatever resulted from the collision. In an action for contempt of court the Kentucky Court of Appeals holds that the physician's acts being wholly accomplished before any suit was instituted he was not guilty of a contempt of court nor punishable summarily therefor, but he was guilty of obstructing justice, a common-law misdemeanor, and was punishable therefor by ordinary proceedings.—Melton vs. Commonwealth, Kentucky Court of Apeals 170, S. W. 37.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 10, 1915.

AN ATTACK ON THE HEALTH LAW OF NEW YORK STATE.

LAST week we commented briefly upon the first annual report of the New York State Public Health Council, congratulating our fellow citizens upon the results of the council's activities and upon the framing of a new sanitary code for the State. And even as we were penning the lines several bills were being introduced into the State Legislature which, if adopted, would seriously cripple the work of the commissioner of health and nullify the new sanitary code.

These bills, fathered by Assemblyman Hinman of Albany, five in number, are in the shape of amendments to the public health law. The first (Int. 1561) is directed against the commissioner of health and instead of the present injunction that he "shall not engage in any occupation which would conflict with the performance of his official duties," orders that he "shall devote his entire time to the duties of his office." This is perhaps the least objectionable of the proposed amendments, apart from the insulting innuendo concealed in it, for the duties of the commissioner of health are so exacting as practically to demand his entire time in any case. The second bill (Int. 1600) will, if it becomes a law, seriously interfere with the sanitary work in the State, for it reduces the number of sanitary districts from a minimum of twenty to a maximum of ten, and at the same time fixes the salary of the sanitary supervisor of each district at a maximum of $2,500. In other words, it doubles the labors of the sanitary supervisor and reduces his salary about 20 per cent. The third amendment (Int. 1601) makes permissive, instead of mandatory, the establishment of divisions in the State Department of Health and gives the commissioner the power to increase or decrease the number of these divisions, to consolidate them, or to change the name of any division at his pleasure. This is an altogether unnecessary interference with the existing law, and if it had any effect it would be in the line of decreased efficiency as making the divisions impermanent and liable to change at the whim of any one in power for the time being. The fourth amendment (Int. 1602) strips the Public Health Council of its power to define the qualifications of directors of divisions, sanitary supervisors, local health officers, and public health nurses hereafter appointed. The introducer's object in this amendment is not apparent, but the result of its enactment would inevitably be to open these appointments to unqualified persons and to create a number of jobs to be given in reward for political services. The fifth and worst of this series of bad bills (Int. 1603) would deprive the Public Health Council of the power to establish sanitary regulations, would delegate this to the Legislature, and would even abolish the present sanitary code unless it shall be approved by the present Legislature—and how much chance it would have of being approved by a legislature which had already adopted these amendments one can well imagine.

These, briefly stated, are the bills by the enactment of which it is proposed to impair the efficiency of the Health Department and to vitiate the work it has already accomplished. What may be the reason for the introduction of these bills it is difficult to understand. Their passage would not be in the interests of economy, for the worst of them, if passed, would not save the State a dollar, and others would rather increase the expenses of health administration by reducing the efficiency of the department, by putting the formulation of a new code in the hands of inexperts and of men ignorant of sanitary science, and by opening many of the most responsible positions to incompetents. No business can save money in that way. The entire appropriation asked for by the Health Department is only about $400,000—a paltry sum in comparison with the saving of lives and of dollars as well, which it is certain will result if the present law is let alone.

As a direct result of the work of the Department during the past year there are two thousand persons, one thousand of them children, alive to-day in this State, outside of New York City, who would have been in their graves but for the efforts of Dr. Biggs and the Health Council. Are Mr. Hinman and his colleagues in the Legislature willing to let these and three or four thousand others (for the life saving in public health work is cumulative) die next year in order to save thirty-five thousand dollars in the salaries of the sanitary supervisors who are to be dropped?

We can not believe the Legislature will pass these reactionary amendments or, if it does, that the Governor will sign them. But it will be better to spare both the Legislature and the Governor trouble by killing the bills in committee. This would doubtless be their fate if every physician would at once file his protest with the chairmen of the committees which now have the bills under consideration. In such protest the bills should be referred to by their introductory numbers and the protest should be addressed to the chairman of the respective committee as follows: Introduction Number 1561 (the first one above mentioned), Judiciary Committee, Assemblyman Frank B. Thorn, Chairman; Int. 1600, Ways and Means Committee, Assemblyman Alexander Macdonald, Chairman; Int. 1601, 1602, and 1603, Public Health Committee, Assemblyman Gilbert T. Seelye, Chairman. We need not add that prompt action is needed to save the State from this threatened calamity.

NEWER CONCEPTIONS OF MENINGITIS.

THE recent occurrence of this disease in England in epidemic form has stimulated the investigation of many important problems in connection with the distribution of the disease, its prophylaxis, and the recognition of the early stages of meningococcus infection. A number of papers dealing with these aspects appear in the *British Medical Journal*, March 13 and 20, 1915. A. Lundie, D. J. Thomas, and S. Fleming, medical officers attached to the Aldershot command of the British Army, have evolved a novel conception of this disease in its clinical phases. According to this conception cerebrospinal meningitis is more prevalent than is generally known. There are three stages: the catarrhal, the septicemic, and the meningeal. The first of these is regarded as very prevalent, and is characterized by the presence of a pharyngitis alone or in conjunction with a laryngitis. There are no constitutional symptoms and the only objective sign may be a simple redness of the pharynx. Careful bacteriological examination of the secretion of the latter shows the presence of meningococci. These are regarded as responsible for the pharyngitis for the following reasons: The meningococcus resembles the gonococcus in having great vitality in a favorable nidus. The organism has a tendency to enter wandering cells and eventually to travel into the blood stream where it may cause no symptoms other than a toxic headache usually attributed to influenza. Instead of the disease progressing to this stage, it may remain local, and then it spreads over a greater area, including the larynx. Instead of the living cells entering the blood stream there arises a condition of perimucosal induration which causes considerable tenderness and difficulty in swallowing. The symptoms are aggravated by the association of other organisms such as the *streptococcus maximus*. The meningococcus like the gonococcus has a tendency to enter the leucocytes which protect it from the action of the antibodies. Considerable importance is attached to the early recognition of the catarrhal stage of meningitis, for only by this means can one gauge the extent of an epidemic. Practically all meningococcus carriers suffer from nasopharyngeal catarrh, so that in dealing with the large aggregations of individuals in an army, it is a simple matter to pick out as suspects all those who give evidence of this catarrh and to isolate them for bacteriological examination.

The septicemie stage of meningitis is generally not diagnosed. The palate is red and spotted and covered with minute vesicles. The pharynx is inflamed. The voice is often husky and there may be a dry harsh cough. There may also be a profuse nasal discharge. Herpes labialis is common. The temperature is elevated, the face is flushed, and the conjunctivæ are injected. There is some degree of mental confusion, and the reflexes are greatly exaggerated. During this stage the meningococci are probably present in the blood. They have been isolated from the urine and from the cerebrospinal fluid.

The third or meningeal stage comes on after varying intervals and is the stage which presents the clinical picture generally recognized as meningitis. The fact is emphasized that at this stage the disease is already far advanced and in a large percentage of cases fatal. The diagnosis of the condition during the catarrhal stage enables one to carry out an efficient treatment by spraying the throat and the administration of autogenous vaccines.

J. A. Arkwright in discussing the epidemiology of meningitis in the light of bacteriological knowledge, points out that the large number and the widespread distribution of carriers and the small number of cases of meningitis compared to the population force upon one the conclusion that the total number of persons who harbor the meningococcus should be looked upon as constituting the true epidemic. This is a conception of vast importance in preventive medicine.

TREATMENT OF LOCALIZED TUBERCULOUS LESIONS.

THE treatment of surgical tuberculosis by heliotherapy was first put upon a sound basis by Dr. A. Rollier in 1903. His three hospitals are situated in the Vaudois Alps, Switzerland, and have an altitude which varies from 3,800 to 4,500 feet. Owing to the fact that mountain air is pure and dry the luminous and caloric radiation of the sun suffers but slight loss. It is for this reason that the best results from heliotherapy are obtained at high altitudes. Although the brilliant work of Rollier and his associates have stimulated interest in his method in many parts of this country it is naturally to be expected that the mountainous and plateau region of Colorado with an altitude which seldom falls below a mile above sea level would be the place from which we should get the most promising results.

In an advance report concerning heliotherapy and ionic medication as employed at Las Animas, Colorado, C. J. Holeman, passed assistant surgeon, U. S. Navy, speaks very favorably of heliotherapy as applied to cases of tuberculous bones, joints, and sinuses (U. S. Naval Bulletin, January, 1915). The method of application consists in first exposing the feet and ankles to the sun for a period of five minutes during the hours of sunshine of the first day, then the legs and knees for periods of ten minutes on the second day, gradually increasing both the area and the time of exposure until the patient is uncovered to the solar activity during the entire day. The pigmentation is the important element, inasmuch as it produces in the skin a remarkable resistance, favors cicatrization of wounds, and confers a local immunity to microbic infection. In Rollier's paper presented to the XVII International Medical Congress at London in 1913, all his cases for eleven years were tabulated and out of the 1,129 patients 951 were reported as cured. Holeman's advance report mentions the details of five cases (one knee joint, two hip joint, one Pott's disease, and one empyema), all of which showed remarkable improvement in both the local conditions and the general health under the application of heliotherapy.

Perhaps of even more interest than the successful

application of heliotherapy to cases of surgical tuberculosis is the new method described for the treatment of laryngeal lesions incident to the disease. This consists in an application of the principles underlying the ionization of metals. Iodine ions are directed to the diseased larynx in the following manner: A few minutes after the internal administration of 20 grains of potassium iodide a felt pad soaked in a 2 per cent. solution of zinc sulphate is placed in immediate continuity with the positive metal electrode. A large wet negative pole is then placed in an indifferent position near the back of the neck and a current of from 75 to 150 milliampères is applied for from 10 to 20 minutes. The ionizing current passing through the throat at the time that the drug is being eliminated by the mucous membranes directs the iodine directly to the diseased tissues. That this actually occurs is proven by the fact that the patient will experience the taste of iodine while the current is passing. The details of seven cases with marked involvement of the upper air passages are described, and Holeman concludes his report with the statement that "every case treated has been relieved and all have been made quite comfortable."

A NEW TYPE OF INDUSTRIAL POISONING.

THE greatly increased activity in aeroplane and seaplane factories occasioned by the European war has brought to light a new type of poisoning. This has been observed in an outbreak of toxic jaundice among the workers in the Hendon Aeroplane Factory in England and reported by W. H. Willcox in the *Lancet* March 13, 1915. The poisoning is attributed to the use of "dope," or cellulose varnish, which consists of a solution of acetate of cellulose in a mixture of benzine, acetone, methyl alcohol, and tetrachlorethane. Several coats of this varnish are applied to the calico stretched on the framework of the aeroplane wings, forming a firm, airtight, and waterproof coating. The symptoms of poisoning have been found to be due to the tetrachlorethane, which is a powerful liver poison, causing a jaundice of the toxemic type. The symptoms are of insidious onset and consist of general malaise, drowsiness, anorexia, nausea, retching in the morning, unpleasant taste in the throat, constipation usually, and headache. Abdominal discomfort is present in some cases. After a few days or a few weeks jaundice develops in association with the characteristic stools and urine. The vomiting now becomes more marked. There may arise mental confusion, stupor or delirium, and finally coma. Purpura and hematemesis may be present, and in the severe cases death results. If the patient is removed from the influence of the poison in the early stage of the disease the symptoms clear up, although it may take several weeks before the jaundice disappears.

There are a number of interesting clinical features characterizing the action of tetrachlorethane upon the liver in aeroplane workers. The onset is insidious. The acute stage is of comparatively long duration as distinguishable from that of acute yellow atrophy of the liver. The disease is to be differentiated from Weil's disease or infectious jaundice by the absence of pyrexia. There is no anemia such as occurs in the case of hemolytic poisons like arseniureted hydrogen. The jaundice is deeper than that usually seen in delayed chloroform poisoning. Aeroplane workers differ in their susceptibility to the influence of tetrachlorethane, which is a powerful narcotic poison expending its effects chiefly upon the liver and kidneys.

TYPHUS FEVER SIMULATED BY CEREBRO-SPINAL MENINGITIS.

THAT when some pestilence threatens a locality false diagnoses are bound to be made among ordinary disease material is a fact well known, although the bearing is not always the same. Expectant attention may cause a physician to believe that the epidemic is already at hand; while on the contrary, the sharpened knowledge and zeal of a practitioner may cause him to recognize a sporadic case, even if the latter did not arrive from without. Well authenticated cases of clinical cholera have been described in communities in which quarantine had stayed an approaching epidemic. Without the menace of an epidemic, these cases would have been overlooked as cholera and the condition would have been given another name—some form of ptomaine poisoning, very probably.

It is, of course, obvious that in recent years a bacteriological diagnosis or a serum diagnosis suffices to clear up many doubtful cases, notably the various enterogenous infections. In the following instance, however, no such aid could be employed. It was reported by Umber at one of the military medical evenings in Berlin (*Berliner medizinische Wochenschrift*, February 8). A recruit who had not yet been ordered to the Eastern frontier was seized with colic, diarrhea, vomiting, and a feeling of severe malaise with fever of 38° C. (102.4° F.). This picture was followed by severe chills and general myalgia, which caused a provisional diagnosis of pneumonia. The symptoms now invaded the upper air and food passages. A general catarrhal process attacked the conjunctivæ, nasal fossæ, throat, mouth, and bronchi. The tongue and throat became swollen. The sputum contained streptococci. The patient, his mind clear, was on the borderline of collapse. On the next morning his temperature was 40° C. (104° F.), and the mind was confused. An eruption had appeared on the upper abdomen and back, which at first suggested a typhoid roseola, but the spots very quickly became petechial and extended over most of the surface. Typical roseola was, however, always present, and the spleen had become enlarged. The mental state had become one of apathy. Widal test and blood cultures were negative. The diagnosis was therefore true typhus, concurred in by experts. The patient, isolated, died in a little over twenty-four hours from the first chill. Autopsy showed cerebrospinal meningitis due to the *Diplococcus intracellularis*. It is to be remembered that cerebrospinal meningitis has always been recognized largely through its petechial eruption.

Iodized Carbon in the Treatment of Infected Wounds.

An apparently effective method of employing iodine as a surgical dressing has been devised by L. Lemaire (*Presse Médicale*, February 18, 1915). This method consists in the use of a true solid solution of iodine in animal charcoal. In 1857 Warington discovered that if animal charcoal is mixed with iodine, the latter enters into a peculiar physical combination with the former. The phenomenon is one of absorption, in which there is a condensation of the iodine on the surface of the carbon molecules with the result that both substances acquire new physical and chemical properties. Lemaire used an iodized carbon containing ten per cent. by weight of iodine. This was dusted upon infected wounds in the same manner as surgical powders are ordinarily used. The results are said to have been excellent. The antiseptic action of the iodine in its altered state was supplemented by the absorptive property of the carbon, a property that has long been recognized. One advantage over tincture of iodine is the fact that iodized carbon releases its iodine quite slowly and is therefore devoid of any caustic action.

News of the Week.

Belgian Relief.—Dr. J. Riddle Goff of the Committee of American Physicians for the Aid of the Belgian Profession, writes: "In ye ancient times there was a cry from Macedonia 'Come and help us.' St. Paul took that as the voice of God and responded with spiritual and mental pabulum. To-day there is a cry from Belgium, 'Send us food or we perish.' This is just as much the voice of God as the cry that reached St. Paul—and the response is even more necessitous. The pictures of wretchedness in that pitiful land grow more and more appalling from day to day. Miss Winifred Holt, secretary of the New York Association for the Blind, has just returned from Europe where she went in the interest of the blind Belgian refugees. She says there are no exact data, but it is estimated that one person in every 1,200 in Belgium was either partially or totally blind, or a total of about 8,000. When Belgium became the hotbed of war there were thirteen institutions for the blind, and deaf and dumb. These were all wrecked and their sorry inhabitants poured forth in a mad rush of surging masses of blind men and women and children, seeking such guidance as they could get, groping for places of safety. They must now be scattered among the helpless, starving, unfortunate refugees standing in the breadline that stretches all over Belgium. The president of the National Relief Commission of Brussels asserted on March 25 that before the next harvest 2,500,000 Belgians will be in the breadline. Foodstuffs must be continued to be provided in the fairly regular way in which they have been supplied heretofore. Belgium has been saved from the intermittent periods of starvation by the personal sacrifices of the directors of the American Commission, who have at these times pledged their personal credit for as much as $10,000,000. All honor to them. We of the medical profession of America must see to it that our Belgian colleagues and their families are saved from such intermittent periods of starvation by keeping the stream of food and supplies pouring into them in a steady flow."

The treasurer, Dr. F. F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, reports the following contributions for the week ending April 3, 1915:

Dr. John Lewis Stevens, Mansfield, Ohio	$5.00
Hoquiam Surgical Club, Hoquiam, Wash	10.00
Dr. J. D. Griffith, Kansas City, Mo	5.00
Dr. Philip F. Williams, Philadelphia, Pa	5.00
Visiting Nurse Association of Chicago, Chicago, Ill.	12.00
Dr. Burnley Lankford, Norfolk, Va	5.00
Dr. Irene M. Morse, Clinton, Mass	3.00
The Homochitto Valley Medical Society, Natchez, Miss.	14.25
Dr. T. L. Macdonald, Washington, D. C.	10.00
The Yankton District Medical Society, Yankton, S. Dakota	50.00
Dr. James D. Voorhees, New York, N. Y.	25.00
Receipts for week ending April 3rd	$144.25
Previously reported receipts	5,752.25
Total receipts	$5,896.50
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20	$3,575.00
945 Standard boxes of food at $2.30	2,173.50
Disbursements for the week ending April 3:	
64 Standard boxes of food at $2.30	147.20
Total disbursements	$5,895.70
Balance	$0.80

To Control Typhus in Serbia.—A party of American physicians sailed from New York last Saturday on the *Duca d'Aosta* for Naples, where they will porceed to Serbia to stamp out the typhus epidemic from which that country is suffering. In the party were Dr. Thomas Wright Jackson, chief sanitary inspector; Dr. Hans Zinsser, professor of bacteriology at Columbia; Dr. B. W. Caldwell of the Canal Zone; Drs. A. W. Sellards, George C. Shattuck, and F. B. Grinnell of Harvard, and W. S. Standifer and Luis de la Peña. The last two were members of General Gorgas's staff in the sanitary campaign that rid the Isthmus of Panama of yellow fever. With Dr. Richard P. Strong of Harvard, who is already in Europe, these men compose the membership of the American Red Cross Sanitary Commission, organized to clean up Serbia. The expenses of the commission will be borne jointly by the Red Cross and the Rockefeller Foundation. The commission will work in harmony with others sent by England and France, under the general direction of an executive committee composed of Dr. Strong, Sir Ralph Paget, and Dr. Joubert of Paris. Of the American Red Cross units sent to Serbia, four physicians and twelve nurses have had the fever and one physician, Dr. Donnelly, has died of it. Of the Serbian army and volunteer surgeons nearly two hundred have died of typhus.

American Surgeons Thanked by the French Government.—At the opening of the eye department of the military hospital in Paris on April 2 Dr. Louis Borsch of Philadelphia, in charge of the department, was formally thanked by Surgeon-General Fevrier for the services of himself and other American surgeons in caring for French wounded. The surgeon-general said that the work of the Americans was highly esteemed by both the Government and the people of France.

Smallpox in Vienna.—During the week ending March 13, 73 cases of smallpox were reported in Vienna, and from the first of August to the middle of March there were 1,041 cases of the disease with 229 deaths.

A Potent Pediculicide.—At a meeting of the Vienna Medical Society on March 14 Prof. Sigmund Fraenkel announced that he had accidentally discovered in anisol a substance which would absolutely kill the body louse which is the carrier of the typhus germ. He was experimenting with oil of anise, which seemed to have some effect, and wrote

to his laboratory "diener" to send him another bottle. The servant misread the order and sent anisol instead of oil of anise (anisöl), and Professor Fraenkel was astonished to find that he had stumbled upon a certain destroyer of the insect.

The Limit in Movies.—A license has been refused a movie theater in New York to run films illustrating the advantages of twilight sleep in childbirth. We do not know how much of the process is illustrated in the show, but, much or little, it hardly seems to be a fit subject for public exhibition. The moving pictures were to have been explained in a lecture by a disciple of Kroenig and Gauss, who has lately come to this country from Freiburg.

Automobile Accidents.—Twenty-one persons were killed by automobiles in the streets of this city during March, 1915, as compared with twelve during the same month last year. In the State outside the city nine were killed, as against two a year ago.

Testimonial Banquet to Dr. Jacobi.—A testimonial banquet will be tendered Dr. A. Jacobi by his friends and admirers under the auspices of the Bronx Hospital and Dispensary on the occasion of the eighty-fifth anniversary of his birthday, on May 6, at the Hotel Astor. The medical men on the Committee of Arrangements are: William J. Robinson, chairman; Arpad G. Gerster, Willy Meyer, S. W. Lambert, J. Brettauer, Francis Huber, A. A. Berg, M. Rehling, H. Edwin Lewis, M. Arouson, Otto Schirmer, Max Rosenthal, Henry Heiman, A. L. Goodman, A. Hymanson, Alex. Goldman, A. A. Brill, A. L. Goldwater, H. Schumer, H. J. Epstein. The price per cover will be $3. Reservations for seats should be sent to Dr. A. L. Goldwater, treasurer, 141 West 121st street.

The Missouri Valley Medical Society, which met in Omaha the last week in March, will hold its autumn meeting in Des Moines on September 16 and 17. At the meeting just closed Dr. F. H. Albee of this city delivered the roation in surgery, taking as his subject "The Future of the Bone Graft."

Dr. Frank H. Holt, assistant superintendent of the Boston City Hospital, has resigned to become superintendent of the Michael Reese Hospital, Chicago.

Increased Pay for Medical Examiners.—A bill is before the Minnesota Legislature raising the pay of members of the State Board of Medical Examiners from $10 to $20 a day during the time the board is in session.

Obituary Notes.—Dr. Henry Smith Noble, for fourteen years superintendent of the Connecticut Hospital for the Insane, Middletown, a graduate of Tufts College in 1869 and of the College of Physicians and Surgeons, New York, in 1871, and a member of the American Medical Association, the Connecticut State and Middlesex County Medical Societies, the New York Neurological Society, the American Medico-Psychological Association, and the American Academy of Medicine, died at his home in Watertown, Conn., on March 16, aged 69 years.

Dr. Lyman S. Reber of St. Louis, Mo., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1870, died suddenly at his home, on February 28, aged 68 years.

Dr. Raynor S. Freund of Butte, Mont., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1899, and a member of the Michigan State Medical Association and the Silverbow County Medical Society, died at his home from uremic poisoning, on February 26, aged 42 years.

Dr. Alexander F. Gillis of Carbondale, Pa., a graduate of the Bellevue Hospital Medical College, New York, in 1876, formerly chief surgeon at the Emergency Hospital, surgeon to the City Private Hospital, and a member of the Medical Society of the State of Pennsylvania and the Lackawanna County Medical Society, died at his home, after a long illness, on February 28, aged 66 years.

Dr. George Davidson Carl of Greencastle, Pa., a graduate of the Pennsylvania Medical College, Gettysburg, in 1855, died at his home on March 5, aged 84 years.

Dr. Thomas Elliott of Sharon, Pa., a graduate of the Jefferson Medical College, Philadelphia, in 1877, founder of the Elliott Hospital, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Mercer County Medical Society, died at the Elliott Hospital, from septic poisoning following a scratch on the thumb, on February 28, aged 59 years.

Dr. Morse L. Able of St. Matthews, S. C., a graduate of the University of Georgia, College of Medicine, Augusta, in 1890, died suddenly on February 27, aged 46 years.

Dr. James C. Hull of Providence, R. I., died at his home on March 2, aged 71 years.

Dr. Joseph Howard Raymond of Brooklyn, N. Y., professor of hygiene at the Long Island College Hospital, Brooklyn, and secretary of the Hoagland Memorial Laboratory and the Polhemus Memorial Clinic, died at the hospital after a brief illness, on March 7, aged 69 years. Dr. Raymond was graduated from the Long Island College Hospital in 1868 and from the College of Physicians and Surgeons, New York, in 1869, had served as assistant sanitary superintendent of the Departmentof Health of New York, as a member of the Brooklyn Board of Education, and from 1888 to 1903 as editor of the *Brooklyn Medical Journal,* and was the author of a textbook on physiology and of a "History of the Long Island College Hospital and Its Graduates."

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

MILITARY SURGERY AND MEDICINE—SIR R. GODLEE ON ANTISEPTICS IN WAR—BOND ON GERMICIDES TO FRESH WOUNDS—HOSPITALS' FINANCES—OBITUARY.

London, March 19, 1915.

Military surgery and medicine claim our chief attention as to medical matters during the war and may possibly prove as interesting a branch of our science to you. Another hospital has been established at the front to be worked on a somewhat novel plan. Wounded or sick patients may find their way there but it is not designed for their maintenance and treatment. All such as require a considerable time of hospital care will be passed on to the base as rapidly as possible. It is to be a rest hospital for men broken down by the strain of war but who may hope that a period of complete rest and fresh air will soon render them fit to return to duty. A number of such cases are delighted to hear from the doctor that they are fit for the front again in about a fortnight. Yet there is no accommodation there for them during that time and

so they have hitherto had to be passed on to the base and some are lost for the position where they are needed and desire to be. So the rest hospital has been organized by Lt.-Col. A. L. F. Bate, R. A. M. C., commanding the Fourth Stationary Hospital. Patients are only received for fourteen days and if by that time they are not fit for duty they will be passed on. That the new hospital meets a need seems to be proved by its work in the first three months of its existence in which there were 5,852 admissions and of these 2,713 were returned to duty after an average of much less than the fortnight.

A huge factory, 150 yards long, with a glass roof and also electric lights, and heated by pipes in mid-air, close to a railway station, was taken and fitted for the hospital. The patients, as they arrive, very often in a state of exhaustion from the immediate front, requiring washing, cleaning of clothing, rest in bed, and perhaps isolation, although coming in troops at times, present difficulties to doctors and nurses which must appear insuperable to those who have only seen civil practice. A day or two may pass without much pressure but everything has to be ready to meet a sudden rush at any time.

Sir Rickman Godlee lectured at the Royal Institution on Friday last. His subject was the importance of antiseptics in war and the lesson he urged was "Back to Lister." He said many of Lister's faithful adherents had been afraid that war would bring out in relief the weak points of those who had departed from his methods. At the outset of hostilities reports reached us from the front of an almost general state of sepsis—enough to make us fear some abandonment of antiseptics must be at least in part responsible. But this was shown not to have been so, as they had been largely employed but with most disappointing results. We should not forget that military surgery was exceptional and in particular that this war was being fought under very unusual circumstances. Trenches were being dug and monster shells were being exploded in highly cultivated soil. Should they therefore throw up their hands in despair, exclaiming that it was useless to attempt to disinfect wounds to which all sorts of organisms could easily gain access? By no means, replied Sir Rickman. All Lister's work he declared cried out against such a conclusion. He still held that Lister's original method of purification by means of undiluted carbolic acid was according to our present lights the one most likely to be practically useful in the rough-and-tumble practice of the battlefield.

Mr. C. J. Bond of Leicester Royal Infirmary determined to ascertain the exact effect of strong germicides such as carbolic acid or iodine on the tissues concerned in wounds and organisms affecting them. He began some interesting observations on wounds which it seemed could not possibly be infected. For this he took advantage of post-operative wounds inflicted for the removal of varicose veins in the legs. The wound in one leg was well rubbed over with pure carbolic acid until the tissues assumed the dirty white look thus produced. In the other leg of the same patient the corresponding incision was treated with tincture of iodine B. P. In other patients out of a number of incisions on the same limb one was treated with carbolic, one with iodine, one with hydrarg. perchloride (1 in 1,000), one with carbolic acid lotion (1 in 20), others with no antiseptics. The edges of all wounds were wrapped, and all were dressed with plain white sterilized gauze, wool, and bandages.

The only difference felt by the patient on recovery from anesthesia was that the parts treated by carbolic acid smarted less than those with iodine. On changing the dressing on the second day it was not possible to decide by the appearance which way a wound had been treated. This corroborates the view of those who say that a strong antiseptic applied to an unpoisoned wound will not increase the danger, and the fact is of greater importance if, as seems reasonable, a single application of such a disinfectant has a better opportunity of dealing with invading germs than repeated washings with lotions of weaker strength.

But as soon as a pathogenic organism gains admission the conditions may be considered changed. Surgeons are repeating their testimony of the rapid improvement which follows removal of foreign bodies carried into the wound. Free drainage no doubt owes much of its efficacy to its washing away impurities which are themselves contaminated with germs. Where there is not sufficient exit the walls of a passage give shelter to organisms with the discharge, and in such circumstances it is easy to understand the benefit derived from a free dressing with a powerful antiseptic—such as will kill the germs, and if at the same time it injures or destroys portions of the tissues involved, it is worth the price. We cannot say how long after infection this treatment will be effective and as a rule we have not the opportunity of seeing the wound very soon after its infliction; nor does its appearance help us to decide whether it is too late. When in doubt apply it—it may, perhaps, be the best guide. Carbolic acid, iodine, and mercury are thought to be of about the same value, and any one at hand should be preferred to any which would take time to obtain. I do not suggest that Mr. Bond's practical teaching favors the routine use of antiseptics. What he teaches is that as we know their proper application does not affect the healing process of certain aseptic wounds, this fact should encourage the more extensive use of germicides in infected wounds at the earliest opportunity possible in suitable conditions.

The hospitals are being seriously affected by the great rise in the prices of foodstuffs occasioned by the war, amounting in some cases to from 20 to 30 per cent. A tender lately called for by St. Bartholomew's for a number of eatables was accepted for none except for milk. For this a tender for twelve months' supply was accepted but the price involves an addition to the annual average cost of £650. Other provisions will probably be bought from time to time at the market terms. It is estimated that at the prices now ruling a year's provisions would exceed the average by £4,000 to £5,000.

Sir George Turner, whose good work on leprosy and on rinderpest is well known, died on the 12th inst. in his 70th year. He entered the civil service of South Africa in 1895 and continued Koch's work. In the South African war he supervised the military hospitals and concentration camps. He devoted much time to the leper asylum at Pretoria. On returning to England he continued his studies of the bacteriology of leprosy. After several years of work in this country he contracted leprosy in the hand but continued his investigations.

Dr. Samuel Herbert Habershon, F. R. C. P., died on Feb. 26, aged 57. He was Senior Physician to the Brompton Consumptive Hospital. His father, Dr. S. O. Habershon, you may remember, was senior at Guy's Hospital. The son who has just died

was A. M. and M. D. Cantab., and elected in due course to the F. R. C. P. He has served as casualty physician at Barts' and the Royal Hospital for Diseases of the Chest. He wrote a volume on "Diseases of the Stomach" and was a contributor of many papers to the societies and journals.

Progress of Medical Science.

Boston Medical and Surgical Journal.

March 25, 1915.

1. The Rôle of the State Sanatorium in the Tuberculosis Problem. E. Washburn.
2. Remarks on the Diagnosis and Treatment of Pulmonary Tuberculosis. B. T. Crane.
3. Mortality After Prostatectomy Based on a Study of 229 Fatal Results. B. Tenney and H. M. Chase.
4. A Study of the Efficiency of Mixed Toxins (Coley) in Inoperable Sarcoma. A Critical Analysis of 134 Microscopically Proven Cases. T. W. Harmer.

1. The Rôle of the State Sanatorium.—E. Washburn points out that the rôle of the State sanatorium is of a three-fold nature—the care and arrest of favorable cases, the education of its patients to the end that they may disseminate their knowledge of the methods necessary to prevent the spread of the disease, and the care of advanced cases, which makes possible their removal as foci of disease in their homes and communities.

2. Treatment of Pulmonary Tuberculosis.—B. T. Crane details the advantages of sanatorium treatment as follows: The disease is subtle and insidious and is not accompanied with marked bodily distress. Hence the patient is apt to overlook a backsliding in his health until it has become marked and serious, but if he is in an institution he is under the frequent observation of nurses or physicians who are trained to detect slight variations of symptoms. Regularity of routine seems to be a valuable element of treatment, and it is quite apparent that a home can rarely be systematized to operate with the precision of an institution. There is a large element of effort and task about the treatment when properly pursued. It is apparent that with the family at hand, the patient may be often excused from the effort when an institution would insist upon it. At home the patient is bound to be brought in contact with petty cares and annoyances of which he would probably be ignorant if he were away. The treatment is a tedious, long continued process, during which the fund of moral support, wise counsel and patience of a family may give out. The treatment is progressive and requires frequent alterations of orders by the physician, but if at home the patient, when feeling well, is apt to consider a visit from the physician as an unnecessary expense. Education about the disease by observation of other patients is to be had in an institution and not when taking treatment alone.

3. Mortality After Prostatectomy.—B. Tenney and H. M. Chase conclude that the greatest danger in the operation of prostatectomy is death from uremia or from conditions closely associated with it. After examining a patient one should be able to say that he is a good, fair, or poor risk with reference to this condition. If he is not put in the first class, one should try to put him there before operation, or at least get him as near there as possible. The percentage of deaths from uremia among the cases operated upon within two days was 37 per cent., while the percentage of deaths from the same cause among patients who were observed long enough to have functional tests made was 19 per cent. The second great danger in this operation is death from hemorrhage and shock. It is possible that in one's desire to avoid shock by doing a rapid operation, one may sometimes produce shock and hemorrhage by doing a needlessly rough operation. It is fair to say that a patient whose hemorrhage has been thoroughly controlled seldom starts bleeding again unless the gauze or other means of control is removed too soon. Possibly some operators have been disappointed at nature's failure to stop a leaking vessel which they had failed to close before the patient left the table. The third serious fatality is embolism, which may also be the cause for some pulmonary complications. How can one avoid at least a portion of this risk? Blood vessels are necessarily torn and left untied. The wound is in an infected region and constantly bathed in a septic fluid. A larger raw area is left exposed to this contamination than in almost any other operation. Constant irrigation does not prevent embolism. It occurs when perineal, urethral, and suprapubic drainage tubes are used and after both operations. It is possible that one's well-meant drains are responsible for some of these emboli.

New York Medical Journal.

March 27, 1915.

1. Sex Gland Implantation. G. Frank Lydston.
2. Static Dislocation of the Hip. D. D. Ashley.
3. Immunization in a Typhoid Outbreak in the Sloane Hospital for Women. M. L. Ogan.
4. An Improved Technique for Blood Counts. H. J. Hartz.
5. Recent Applications of Radium Emanations and Radium Water. S. G. Tracy.
6. Diseases of the Ear and Upper Respiratory Tract Among American Factory Workers. O. Glogau.
7. The Extraction of the Cataractous Lens in Its Capsule. H. F. Hansell.
8. Continuous Drop Irrigation from a Thermos Bottle. N. G. Bogeman.
9. The Nature and Pathogenesis of Epilepsy. L. Pierce Clark.

1. Sex Gland Implantation.—G. Frank Lydston reviews his various contributions to this subject as follows: For hormone therapy purposes, successful total or partial implantation of human sex glands in both male and female is practicable. The prospect of success from anastomotic implantation—with resulting generative functioning—at present is not brilliant, although by no means hopeless. Glands taken from the living subject are most desirable, though rarely obtainable. Glands taken from the healthy dead body at any time prior to the beginning of decomposition are of therapeutic value equal to that of those taken from the living, if implantation succeeds. In human beings the gland of the female may be successfully implanted upon the male, and probably the reverse obtains. The hormone of the one possibly is useful to the other. The tissues of the female apparently are more hospitable to the implanted male sex glands than are the tissues of the male. The physiological and therapeutic results occur independently of the site of the implantation, but the vicinity of the peritoneum (extraabdominal) and the canal of Nuck in the female, and of the tunica vaginalis in the male, are the sites of election. Blood pressure apparently is modified, suggesting improved nutrition of the heart and vessels. The development of senility possibly can be retarded and longevity increased by internal sex secretions derived from implantation. That arteriosclerosis in its early stages will be benefited by sex gland implantation is probable. Inferentially, senile dementia, if taken early, possibly may show beneficial results. The climacteric may be postponed or at least the disagreeable features of the climacteric relieved. Defective and aberrant psychical or physical sex development and differentiation—inversions and perversions—are definite indications for sex gland implantation. Certain cases of cryptorchidism and imperfect testicular development are an especially promising field. Certain psychopathies, such as dementia præcox, possibly may be benefited by implantation. Chronic diseases of the skin, due to or modified by nutritional disturbances—notably certain types of chronic eczema, psoriasis, and ichthyosis—in a certain proportion of cases are likely to be benefited, possibly cured, by sex gland implanta-

tion. All conditions incidental to sex gland mutilations in either sex afford a positive indication for sex gland implantation, the probability of benefit being inversely as the length of time that has elapsed since the mutilation, and dependent on the age at which it occurred.

2. **Static Dislocation of the Hip.**—D. D. Ashley reports a case of this condition in a girl aged seven years secondary to extensive third degree burns which covered most of the surfaces of the lower extremities. The condition was analogous to that described by some writers in the professional beggars of India, who by holding themselves in distorted positions effect dislocations and become permanently crippled. The forces at work in such instances approach more nearly those which operated in the case described in which there was a joint capsule not weakened by disease. There was no dislocation at the time of the burn; the dislocation occurred before the child was permitted to get out of bed; one may exclude any febrile influence, as there was no considerable fever after the second week. The forces were entirely mechanical, the head being levered out of the acetabulum.

Journal of the American Medical Association.

March 27, 1915.

1. A Consideration of the Relative Frequency of the Various Forms of Coma, with Special Reference to Uremia. W. W. Bissell and E. R. LeCount.
2. The Therapeutic Use of Cold, with Especial Reference to the Climatic Treatment of Tuberculosis. B. F. Howard.
3. The Probable Cause and Logical Treatment of Epilepsy. A Preliminary Report. C. A. L. Reed.
4. Fulguration Treatment of Tumors of the Bladder. H. L. Kretschmer.
5. The Effect of Various Procedures on the Passage of Liquids from the Stomach. C. H. Neilson and S. T. Lipsitz.
6. A Study of Streptococci from Pyorrhea Alveolaris and from Apical Abscesses. T. B. Hartzell and A. T. Henrici.
7. A Simplified Technique for Vaginal Hysterectomy. J. H. Outland.
8. Ideopathic Megacecum. A Bassler.
9. An Unusual Clinical Variety of Lichen Planus (Lichen Planus Hypertrophicus Retiformis). R. L. Sutton.
10. A Case of Intussusception Caused by an Inverted Meckel's Diverticulum. C. R. Hancock.
11. Intubation Apparatus and Tubes for Treatment of Chronic Stenosis of the Larynx. H. L. Lynah.
12. New Instrument for the Removal of Adenoids. M. McT. Cullom.
13. An Improved Pessary and Tampon Holder. W. Norton.
14. An Electric-Heated Water-Jacketed Infant Incubator and Bed for Use in the Care of Premature and Poorly Nourished Infants. J. H. Hess.
15. Nichrome as a Substitute for Platinum Wire in Bacteriologic Inoculators. M. W. Lyon, Jr.
16. A New Atomizer Bracket. I. W. Voorhees.

1. **Relative Frequency of Various Forms of Coma.**—W. W. Bissell and E. R. LeCount report the result of an analysis of 200 cases in which death from coma occurred in the hospital. The clinical diagnosis of skull fracture was made with relatively greater accuracy than the diagnoses of the various other causes of coma, and the greatest accuracy of diagnosis was obtained in those instances of skull fracture in which the patients died within twenty-four hours of admission. One of the noteworthy features was the frequency of the diagnosis of uremic coma. Of the fifty-three instances of cerebral hemorrhage, sixteen, or 30 per cent., were called uremia; or, to state it in another way, of the twenty-six mistaken diagnoses of cerebral hemorrhage, uremia was the clinician's conclusion in 61.5 per cent. of these errors. It has long been recognized by persons with extensive experience in the making of postmorten examinations that the diagnosis of uremia is frequently made by clinicians and rarely verified by the necropsy. Cabot has commented especally on this defect in clinical diagnosis.

3. **Cause and Treatment of Epilepsy.**—C. A. L. Reed believes that epilepsy is caused by a specific infection, probably a bacillus of the gas-forming series. The infection is located in the intestinal canal, probably primarily in the duodenum, always finally in the colon, and may be superficial, intrafollicular or interstitial; or may, and in certain cases probably does, involve the blood as a propagating medium. The infection seems to be made effective primarily through constipation of mechanical origin. The relief of the mechanical cause of the constipation with restoration of bowel function results in the cure of epilepsy in cases in which the infection is probably superficial The principle of immunization holds good in the treatment of cases in which the infection obviously lies deeper, in all of which autogenous vaccination may well be applied as a matter of routine.

5. **The Passage of Liquids from the Stomach.**—C. H. Neilson and S. T. Lipsitz find that water is emptied from the stomach somewhat more rapidly during exercise than when the subject remains quiet. Posture seems to have a direct influence on the emptying power of the stomach. Lying on the right side causes a more rapid evacuation than in any other position, and lying on the left side has the opposite effect. Lying on the back causes a somewhat more rapid emptlying than in the upright position. At 45° C. water leaves the stomach somewhat more rapidly than at 10° C. Normal acidity causes a more rapid emptying than hyperacidity produced artificially by adding hydrochloric acid to the stomach contents. Artificial alkalinity produced by adding sodium bicarbonate to the stomach contents causes the stomach to empty itself slightly less rapidly than under normal conditions, but more so than during hyperacidity. All of these factors may have considerable significance in their bearing on clinical experience.

6. **Streptococci from Pyorrhea Alveolaris.**—T. B. Hartzell and A. T. Henrici have shown that streptococci of the viridans group are constantly present in peridental suppurative lesions. This is not surprising, since such streptococci are normally present in the saliva and on the buccal mucous membranes. These streptococci are normally of low virulence, but are at times able to produce lesions of the heart, aorta, kidneys, and joints, some of which closely resemble the lesions of rheumatism; that they are potentially of high virulence is shown by the experiment in which they were grown in the anterior chamber of the eye. One cannot claim, from the evidence so far obtained, that these streptococci bear an etiologic relationship to dental abscesses and pyorrhea, but from the point of view of metastatic infections it is important to know that such organisms are constantly present in lesions presenting a large ulcerated surface, through which they may, and probably do, frequently pass into the deeper tissues and the blood stream.

The Lancet.

March 13, 1915.

1. The Operative Treatment of Cleft Palate. H. Blakeway.
2. An Outbreak of Toxic Jaundice due to Tetrachlorethane Poisoning. A New Type Amongst Aeroplane Workers. W. H. Willcox.
3. Surgical Notes on Serious Head Injuries. (From an Evacuation Hospital, British Expeditionary Force, France.) A. G. Whitehorn-Cole.
4. An Unusual Rupture of the Mitral Valve. A. M. Kennedy and J. B. McDougall.

1. **Operative Treatment of Cleft Palate.**—H. Blakeway concludes that Langenbeck's operation is still the best for routine use. The question as to the best age for its performance does not admit of precise answer. It is doubtful if any great advantage results from performing it during the first year of life, and it is certain that the prospect of success during the second or third year will often be better. Further delay is not usually necessary, but may in bad cases be advisable. Surgeons who a few years ago were content to operate in the third year or later now often perform median suture on children one or two years old. The experience of the

operator, the width of the cleft, together with the height of the palatal arch and the general health of the child, have all to be considered before a decision is reached. If the condition is complicated by the presence of a harelip, closure of the latter during the first few weeks of life has a valuable effect in causing obliteration of the most anterior part of the cleft.

2. **Toxic Jaundice among Aeroplane Workers.**—By W. H. Wilcox. (See page 612.)

3. **Serious Head Injuries.**—A. G. Whitehorn-Cole reports a series of cases from one of the British base hospitals. These cases illustrate the large amount of injury sustained by the bony skull and underlying brain tissues; also the enormous amount of brain injury and destruction which can take place, and yet the patient may recover to an almost normal condition of life and intelligence, and in a compaartively short time. The author has had the opportunity of seeing a very large number of head injuries, the results of rifle and shrapnel bullets, and the procedure which he invariably adopted was that of carrying out the minimum amount of surgical interference compatible with the injuries. In those cases in which the bullet was deeply lodged in the brain substance it was considered inadvisable to search for it, since the further laceration of the tissues engendered by the process would be more injurious to the patient than the foreign body itself. Before proceeding to operate the head was entirely shaved, under the anesthetic, then thoroughly cleansed with ether soap, then washed with alcohol, and finally painted with iodine. All these cases took the anesthetic remarkably well, never showing any bad after-effects, viz., vomiting, etc. The anesthetic usually employed was chloroform and ether.

4. **Rupture of the Mitral Valve.**—A. M. Kennedy and J. B. McDougall report a case of malignant endocarditis occurring in a man sixty-one years of age. The process was not valvular but mural, in which the inflammatory reaction in the cardiac tissue at the base of the mitral valve was so acute that necrosis occurred and the cusps were torn off from their attachments to the wall.

The Lancet.

March 20, 1915.

1. The New Psychiatry. W. H. B. Stoddart.
2. Frosthite in the Present War. C. Max Page.
3. On the Treatment of Acute Emphysematous Gangrene During the Present War; Experiences in a Clearing Hospital J. B. Haycraft.
4. Inclusion Dermoids of the Pharynx. F. J. Poynton, T. N Higgins, and G. R. Pirie.
5. On Bacillus Proteus Infection, More Especially in Relation to a Case of Proteus Septicemia Associated with Femoral Thrombosis, Pulmonary Embolism, and Recovery. By C. S. Wallace and Leonard S. Dudgeon.
6. A Simple Method of Treating Gunshot Wounds of the Humerus. (Suppurating Compound Comminuted Fracture.) P. Bernard Roth.

1. **The New Psychiatry.**—W. H. B. Stoddart devotes the first of the Morison Lectures to the theme of fundamental psychical mechanisms. In order to understand the principles of abnormal psychology it is necessary to gain a clear conception of human instincts. To those of self-preservation, nutrition, and sex there has recently been added a fourth instinct—that of gregariousness, the herd instinct of Trotter. There is a constant play between the instincts, one giving place to another as occasion arises; but when a herd impulse becomes displaced by the driving force of some other instinct mental conflict ensues; there is a situation to be faced, and a way out of the difficulty must be found. The conflict may be resolved in one of four ways: First, the influence of the herd instinct may be recognized and its influence voluntarily ignored, the delinquent avowing to himself that he has a perfect right to do as he likes. Secondly, the offense may be condoned by "rationalization." Thirdly, the emotional tone or effect of worry may gradually pass off as years roll by. Lastly, the incident may refuse to become assimilated to the existing content of consciousness, and is repressed into a department of mentation from which it can never again enter phenomenal consciousness and disturb the normal stream of associative thought. The conception of the unconsciousness is one of the fundamental bases of the Freudian psychology. Another fundamental doctrine is that of "psychical determinism." A complex is defined as a repressed system of ideas having a constant conative trend or emotional tone and directed toward determinate actions and thoughts. When there develop in the mind two complexes which are out of harmony with each other conflict ensues. The majority of conflicts are between a sexual and a herd complex.

3. **Treatment of Emphysematous Gangrene.**—J. B. Haycraft believes from the nature of the disease that most hope is to be expected from prophylactic rather than curative treatment. Unfortunately it is impossible, for military reasons, to "get at" these wounds within an hour or two of their reception, but much may be done by vigorous treatment at the earliest possible moment, followed by a careful watch on each case. Strong antiseptics should be used in wounds unless obviously infected, when hydrogen peroxide will prove most beneficial. Conservative methods should be tried as much as possible, more especially where baths can be employed; if, however, they are not possible, as in bad infected compound fractures of the thigh, then amputation should be resorted to without delay.

British Medical Journal.

March 13, 1915.

1. Oral Sepsis in Relation to General Disease. H. L. McKisack.
2. On the Treatment of Diabetes Mellitus with Casein and Cream. R. T. Williamson.
3. The Early Administration of Vaccine in Pneumonia. W. H. Wynn.
4. The Action of Calcium Salts. C. O. Jones.
5. An Apparatus for X-ray Localization. W. Cotton.
6. Sanitation of Camps (Sand and Water). T. Forrest.
7. Epidemic Cerebrospinal Meningitis. J. C. G. Ledingham.
8. Cerebrospinal Meningitis; Diagnosis and Prophylaxis. A Lundie, D. J. Thomas and S. Fleming.

1. **Oral Sepsis.**—H. L. McKisack states that this condition is sometimes tolerated by the patient for many years with little apparent injury. It is always a possible source of danger. It may give rise to disease in the vicinity of the mouth; disease in situations which come directly in contact with the unhealthy secretions of the mouth, such as the stomach and the intestines; disease in distant parts of the body not in direct communication with the morbid secretion, and a state of ill health and lowered vitality without obvious involvement of any organ. It may thus be said to aid and abet disease arising from some other source. It is commonly the result of imperfectly cleansed teeth. It does not necessarily involve the extraction of teeth.

2. **Treatment of Diabetes with Casein and Cream.**—R. T. Williamson, in carrying out this treatment, gives casein and cream in small quantities every two hours. The patient is kept at rest in bed, or on the sofa, and every two hours, from 8 A. M. to 10 P. M., receives a glass of artificial milk prepared from casein, cream, and water. One tablespoonful of casein is well mixed in a tumbler with one tablespoonful of cream until a paste is formed; then hot water (or cold if preferred) is added gradually until the tumbler is full, the mixture being well stirred with a teaspoon whilst the water is being added. A white fluid is thus prepared which has the appearance of milk. It contains milk albumin and fat, but only a very small percentage of milk sugar derived from the cream. The fluid may be sweetened with saccharine if desired, or a pinch of salt may be

added, or it may be flavored with nutmeg, according to the patient's taste. Most patients prefer the fluid warm. Usually the patient takes this artificial milk quite well, and likes the taste; some take it well, but do not find the taste quite satisfactory; but a few patients complain that it causes nausea, and in such cases it should be at once discontinued. The fluid may be taken well when it is hot, but may cause nausea when lukewarm or cold. When it produces nausea, or is distasteful even when the fluid is warm, another preparation of casein should be tried. 1. This method will often remove the sugar from the urine when the ordinary rigid diabetic diet has been unsuccessful, and this is its great value. 2. The results are often prompt, the urine being free from sugar after two or three days. 3. After a period of treatment with casein and cream the patient is often able to take ordinary diabetic diet, or even a less rigid diet, without the appearance of sugar in the urine, whilst previous to the casein treatment the most rigid diabetic diet did not remove the sugar from the urine. 4. Though the sugar will return in the urine in course of time in most cases after the patient's diet has been relaxed, the return is much less rapid than when the sugar has been removed from the urine by an ordinary rigid diabetic diet. 5. The casein method is not expensive and is easily carried out. 6. In most cases of the very severe forms of diabetes in which the urine contains much diacetic acid the casein treatment is of little value, and sometimes may be very unsuitable; still in certain cases it is of much service, and may remove the diacetic acid and even the sugar from the urine for a short time, and on returning to a less rigid diet the sugar excretion may be very small for a long time and the diacetic acid may not return for a long period. Such cases form only a minority of the cases of this class.

3. **Vaccine Treatment of Pneumonia.**—W. H. Wynn regards 100 million killed pneumococci as a suitable initial dose in an average adult man. In women and the less robust 50 to 75 million may suffice; 25 million is certainly too small a dose, and even when given during the first twenty-four hours rarely has that definite effect in cutting short the fever which is seen with larger doses. When a dose of 100 millions has no effect upon the symptoms the next dose should be increased, injections being given every day until an effect is obtained. When a definite improvement has followed the first dose, the next should be given in forty-eight hours. It is advisable to continue the injections until the lungs have completely resolved. Sir A. E. Wright, in his recent work on the use of vaccines in pneumonia, found that inoculation in the form of small doses frequently repeated was absolutely ineffective, and that, on the other hand, inoculation in the form of a single large dose, administered in the incubation period, often arrested the disease and averted death. He thinks it reasonable that the results obtained during the incubation stage with doses of 250 to 1,000 million would repeat themselves if this treatment were applied in the early stages of pneumonia.

4. **The Action of Calcium Salts.**—C. O. Jones concludes that: 1. Calcium salts, when injected into the blood in small quantities, are excreted by the kidneys as phosphates, carbonates, and oxalates. 2. In larger quantities the bowel also takes part in the excretion, and the calcium is excreted as inorganic salt. 3. At a fixed concentration of calcium in the blood greater than the above, the kidneys are thrown out of action and all the excretion is performed by the intestine, until a point is reached where the quantity in the blood is again brought below the "toleration point," when the kidney again takes on its excreting function. 4. If the concentration in the blood is greater still, the calcium is excreted also as calcium soap by the intestine. 5. The excretion of large quantities of calcium through the intestinal walls has an astringent action, and causes diminished action and paresis of the intestinal movements. The feces cease to be excreted so freely, and if more calcium arrives in the blood the increased concentration of the calcium ion produces spontaneous intravascular clotting and death. 6. The calcium "toleration point," or the point of concentration of calcium in the blood above which the kidneys are unable to act, can be raised by injecting increasing doses of calcium chloride into the blood, provided time is given for the animal to complete the excretion of one injection before the next is given. This action appears to extend the theory of immunity into the inorganic world, and shows that the body can react to calcium salts much in the same way that it reacts to an organic toxin.

8. **Cerebrospinal Meningitis.**—By A. Lundie, D. J. Thomas, and S. Fleming. (See page 611.)

British Medical Journal.

March 20, 1915.

1. Cerebrospinal Meningitis: Diagnosis and Prophylaxis. A. Lundie, D. J. Thomas and S. Fleming.
2. Cerebrospinal Meningitis. The Interpretation of Epidemiological Observations by the Light of Bacteriological Knowledge. J. A. Arkwright.
3. Some Simple Anaerobic Methods. P. P. Laidlaw.
4. The Theory and Technique of Treatment by Radium Emanation Needles. W. C. Stevensin.
5. Smoke as a Factor Complicating Carbonic-Oxide Poisoning in Colliery Disasters. E. Emrys-Roberts.
6. Serious Injury to an Eye from a Bursting Golf Ball. R. H. Elliot.

1. **Cerebrospinal Meningitis.** — By A. Lundie, D. J. Thomas, and S. Fleming. (See page 611.)

2. **Cerebrospinal Meningitis.**—By J. A. Arkwright. (See page 611.)

6. **Eye Injury from Bursting Golf Ball.**—R. H. Elliot and W. S. Inman note that the accidents of this nature that have been reported have all been due to the balls being cut open. The dangerous balls are the fluid core balls containing a mixture of barium sulphate, soap, and a free alkali. The core is surrounded by machine-wound indiarubber ribbons and is thereby subjected to great pressure. When the ball bursts or is cut open the contained fluid is expelled with explosive force. A review of the recorded cases shows the following points of interest: 1. The damage done is of a very serious nature; thus of the four cases reported on at length by Lowell three lost the use of one eye; Crigler's case only retained the power of counting fingers at one foot; the final vision in Thomason's case was 2/3, in Jessop's only 6/60, and in Gravely's case perception of light, and even that doubtful. In the present case it is limited to the power to distinguish hand movements only. 2. The seriousness of the loss is more fully appreciated when one takes into account that a large percentage of the cases are in children or young people. 3. In at least two of the recorded cases the victim of the eye injury was not the person who was opening the ball, but an unfortunate child who was looking on.

Berliner klinische Wochenschrift.

February 22, 1915.

Color Analysis of Bread.—Posner showed as far back as 1898 that various kinds of nutriment are susceptible to tinctorial analysis, even with the naked eye. Thus with certain stains starch granules were not colored, bran took one stain while gluten took another. These finds remained unnoticed and passed into obscurity, although similar efforts by subsequent writers received a perfunctory mention in the text books of the period. Since the war began the author has resumed his studies by reason of the opportunities for falsification

over and above permissible requirements. Thus, given the opportunity for mixing wheat flour, rye meal and potato meal in certain proportions dealers could readily vary the limits allotted. Naturally there sprang into existence an independent effort on the part of the Governmental authorities to check abuses, and wheat flour, potato flour, etc., have received separate microscopic study, with and without staining methods. The results agree quite closely with those of the author. Thus if a little rye meal is shaken up with water, colored with Giemsa stain, repeatedly sedimented or centrifuzed and then washed clean the sediment, enlarged 90 fold, shows for each field a certain count of starch granules, bran cells and masses of gluten; while fine wheat flour shows much smaller starch granules in a similar count, a slight residue of bran and rather more gluten. If a section of potato is magnified we see bran cells closely stratified on the periphery and beneath these starch cells in abundance, some filled with starch granules. In all cooked starch the cells undergo the characteristic change to starch paste, undergoing enlargement and denaturization. In all starches and cereals, flours or meals are made of both raw and cooked products, and we therefore have two species of potato flour readily distinguished under the microscope without staining. However, difficulties arise chiefly after bread is baked. The so-called "war bread" can be cut in sections, stained and studied under dark field illumination and the relative proportions of starch, brans, and gluten can be made out. In addition it is possible to distinguish between rye starch and potato starch. The cells of the latter are larger, especially after boiling. The mistake, however, must not be made that bran is necessarily digestible. The larger cells not only are rich in indigestible cellulose but the latter also prevents some of the gluten from attack by the digestive fluids. In certain subjects this cellulose antagonizes constipation, while in others it is an irritant.

Individual Observations on Tetanus in Peace and War.—Grundmann has seen numerous cases of tetanus in the Rudolf-Virchow Hospital, Berlin, in past times, and since the outbreak of the war has seen 25 military cases. He finds it a law that the nearer the wound site to the central nervous system the shorter the incubation period. In figures the incubation period lasts from 3 to 14 days. His initial symptoms comprised spasm of the esophagus; marked sweats; slight shock from noises, light and air draughts; vertigo; twitching, rigidity, and overexcitability of muscles (especally upon percussion. In regard to prophylaxis, immunizing injections have to be renewed every two weeks. It is stated on authority that under the preventive use of antitoxin not a German soldier developed the disease in the Boxer campaign in China. Under treatment the author lays the greatest stress on nutriment. Patients should be fed hourly with addition of concentrated nourishment. The intense, persistent muscular contractions load the blood with katabolic products, which cannot be completely excreted; and the older narcotics, which were curative at times, antagonized this excretion. The newer magnesium sulphate does not possess this disadvantage. This salt is antagonized physiologically by calcium chloride and physostymin. In regard to prognosis and treatment: anticipating the statement as authenticated that in all cases with less than eight days' incubation the mortality is 90 per cent., the author in saving several lives in this class, has reduced the mortality to 80 per cent. The author's total mortality was 65 per cent.—or after deduction of moribund cases 55 per cent. Before the author had assumed charge of his field hospital the mortality had been 100 per cent.

Münchener medizinische Wochenschrift.

February 23, 1915.

War-Medicine Experiences in England and France.—Professor Madelung attempts a study of the surgery of the allied armies, with a view in part of dealing with the effects of German projectiles. He asks what are the effects of the German small arms projectiles as to course of healing, development of tetanus, and gas phlegmous? What of the spread of typhoid and dysentery and of the value of prophylactic medication? The German military surgeon would like to read the experiences of his French colleague, and *vice versa*, but this is of course out of the question. As far back as July 1, 1914, all interchange of experience of this character has been abrogated; and since August 1 any comity among medical men has entirely ceased. Therefore the Germans have had to depend largely upon the medical publications of neutral countries for details of medical advance which result from the war. But here we find the same difficulties. For the Boston *Medical and Surgical Journal* in September, 1914, and the *Policlinico* of Rome in the following October complain that all their foreign news service is greatly curtailed. The author has been forced to make use of various North American medical journals which publish European letters. Naturally he uses only the actual data, stripped of their partisan (to him) coloring. From the current reports of the Department of Health of New York he extracts statistics of birth rates which tend to show why Germany can put so many young men in the field.

Healing Processes in Natural Pneumothorax.—Rieder has studied these with the aid of *x*-rays. Our knowledge of natural pneumothorax has increased owing to the study of artificial pneumothorax. We can understand how apparently healthy subpjects can go about with pneumothorax and seldom consult physicians for it. The condition comes about from increase of intrathoracic pressure, most commonly from expiratory spasms, as in violent sneezing, laughing and coughing; and less frequently from inspiratory efforts, as in rapid cycling, lifting a heavy load, etc. Forced breathing, however, is unable to rupture a sound lung in animal experiment. As a rule the pneumothorax causes sharp pain and dyspnea. But in certain cases these symptoms are not marked and may even be absent. These cases of natural pneumothorax are usually dry and then may heal spontaneously, even in a tuberculous lung. As a matter of fact tuberculosis is almost always suspected in these cases, even if the subject seems in perfect health. In other cases asthma and emphysema are in evidence. In pneumothorax with slight exudation the latter may become absorbed. The secondary formation of an exudate, such as is so commonly seen in artificial pneumothorax, is usually a good prognostic for spontaneous recovery. Whenever large inflammatory exudates form, the question of recovery is more problematical and this holds good for extensive seropneumothorax. A pulmonary fistula forms in some cases of rupture of a cavity into the pleura and the air is spontaneously absorbed. Most commonly spontaneous recovery is due to closure of a small tear, either by ordinary repair or by adhesion formation. In a closed pneumothorax in which absorption is delayed, aspiration of the thorax stimulates the process. It is naturally of great importance to know if we are dealing with an open or closed pneumothorax. The latter can be present only if the following symptoms are *absent:* fistula sounds on auscultation; inconstant radiograms; overpressure in the pleural space (there is usually slight negative pressure); positive symptoms of any kind. Closed pneumothorax is also rare.

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN"

BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 582.)

LIFE insurance medicine grasps with the eye the person of the applicant as a whole and judges in the first place according to the general impression. But it never relies on the bare judgment of the examining physician, and demands an exact appreciation of the habitus through the most careful body measurements. Not the subjective impression, but measure and figure are the cornerstones upon which life insurance erects its conception of the constitution; and these must in all cases supply the frame within which the medical examiner records the knowledge acquired by clinical investigation and transmits to the medical director the picture of the complete somatic constitution.

But little as life insurance medicine is able to unveil the ultimate foundation of things, or to succeed even in the empirical establishment of the existence of definite facts, just so little can it solve by the aid of statistics the second of its principal tasks, viz., the correct estimation of heredity in its biological sense. The confines are even narrower here than in the first problem. It pursues neither breeding experiments nor embryological studies, and can therefore contribute nothing to the question which occupies the first rank in biology, "how and through what is anything inherited?" It can only show by comparison that in a definite family with definite stigmata, a morbid event appears more frequently than in another family without such stigmata. But with this proof it is perfectly satisfied. It is not necessary to bother about the why, and least of all to throw oneself into the arms of theories; for with proof of the fact of the existence of hereditary relationship, the question of inheritance, as far as life insurance is concerned, has been practically decided.

Naturally life insurance does not for an instant undervalue the extraordinary importance which the biological achievements of recent times possess in themselves, and takes account of them as far as possible in its investigations. The main point, however, remains always for life insurance, that it so sharply grasps the characteristics which lie at the base of its investigations that in the final result only the hereditary influence actually remains, and not other factors which come to expression, which would render the entire investigation illusory.

Life insurance rests here quite upon the standpoint of Cornet, when he allows only such statistics to hold good as proof of the heredity of tuberculosis as proceed from a material in which the possibility of an infection has been excluded. For as tuberculosis can doubtless appear cumulatively in a family, not because it is inherited but because it is contagious and the family lives in unfavorable hygienic conditions which favor infection, so also in other investigations, other factors could place in question the correctness of the results. If, however, the investigations have been carried out after strict sifting of material and have led to a positive result, life insurance is also justified in regarding the matter of inheritance as settled and in including heredity as a certain factor in its prognostic calculations, even if the biological delving is not yet so advanced as to demonstrate *ad oculos* the why and wherefore of heredity.

Now, indeed, one no longer regards statistical investigations as of little value, since through Lorenz the catch-word "mass of inheritance" has come into use and one believes it possible to explain or understand posterity only through massed observations of numerous generations. Life insurance has therefore been reproached as being quite without authority in questions of inheritance because, as a rule, the data of certainty obtained from applicants for insurance do not go beyond the parents. But this reproach hits all statisticians who in the make up of their material must rely upon the memory of mankind, which, as a matter of fact, seldom goes back with accuracy to the grandparents. Life insurance companies, however, are not in this class, especially the longest established among them, for to-day they often insure the third generation of the same family and hence control a material than which nothing can be more certain for heredity investigations. Equally baseless is the further objection that has been raised against heredity investigation by life insurance companies that in young applicants whose parents are likewise still young the companies cannot state the actual degree of hereditary taint, because they do not know whether the parents will die of inherited disease, especially when the latter belongs to those affections which appear only in advanced age. This objection would be justified if the companies used such cases as their investigations; but, fortunately, their material is so great that they can throw these out entirely.

What results have the investigations by life insurance companies thus far established? Among all life insurance statistics in Germany none have been more frequently used or are regarded as more reliable than the jubilee statistics of the Gotha Life Insurance Bank from the year 1879. We extract therefrom the following table, which gives information as to the course of the mortality from tuberculosis, chronic diseases of the brain and cord, mental affections, heart disease, and cancer, with a history of the same diseases as causes of death in the families of the deceased.

During the period 1829-1878, inclusive, there died the following insured in whose families the same cause of death had been in evidence:

Percentage of Deaths From	Risks with Family History of				Percentage of All Insured Who Died of these Diseases
	Tuberculosis	Chronic Brain, Cord and Mental Disease	Heart Disease	Cancer	
Tuberculosis	23.7	10.3	10	10.5	11.63
Chronic brain, cord, and mental disease	4	11.3	6.4	3.4	4.15
Heart disease	5	6.2	12.9	5.1	5.81
Cancer	4.1	7.2	4.2	9.3	5.01

The table teaches that the mortality from tuberculosis among the insured who were tainted hereditarily with tuberculosis was twice as large as the average mortality of all the insured from tuberculosis; and that, measured with the same measure, the outlook for death from mental diseases for those tainted therewith was almost thrice as large; for those tainted with heart disease, twice as large. Hence, there must have been something which con-

ditions among the tainted a cumulation of deaths from the same cause. This "something" we term, in brief, heredity. That the diseases are not inherited *per se*, but only in the form of a predisposition, has been determined beyond doubt by biology. Certain qualities of the body, a special type of somatic constitution, must be inherited, which as a predisposition exposes posterity to the expectancy of the same diseases from which the forefathers perished. Whether this preparedness for disease is to be regarded as a general affection of the protoplasm (Ebstein) or as a functional inferiority of definite organs and organ systems (Martius) may be left undecided. For us the one important question is "Can we recognize this predisposition so surely before the appearance of manifest symptoms of disease that we can reject the endangered applicant, or according to the degree of hazard accept him as a substandard and at a higher risk?

And here the same statistics give a very distinct hint. They show further that while the tuberculosis mortality in the tainted had been doubled, it jumped up to threefold (34.9 per cent.) if one isolated for examination such risks as had shown upon acceptance a more or less pronounced habitus phthisicus. This result must surprise us the more because special attention had always been paid to this habitus on acceptance and it had always been believed that in rejecting the classical cases due heed had been paid to the principle of selection. Yet errors must have been made and therein lay the reason for the so notably increased mortality from phthisis.

What these errors were cannot be told off-hand, but it is certain that only through recognition and rejection could a reduction of tuberculosis mortality be expected. My own investigations soon taught me that one could have drawn the conception of the habitus phthisicus too finely; that is, one had believed it to be quite sufficient to reject only those characterized by abnormally long, narrow, and shallow thoraces, with acute epigastric angle, great width of intercostal spaces, and slight diameter.

At the Second International Congress of Insurance Physicians, held at Amsterdam in 1901, I first reported on my investigations. Laying emphasis on the then still strongly opposed viewpoint that the disease substratum is the sole conception about which all revolves in the question of insuring the tuberculous, I indicated the emaciation, the undernourishment of the organism as the disease substratum of tuberculosis, because the organism is thereby deprived of its resistance against the exciting causes of disease.

A "something" which cannot be strictly defined is lacking in this organism, and because of this lack the organism becomes an excellent culture medium for the tubercle bacillus. It is not our task to probe the nature of this "something," for we need only to recognize betimes this insufficiency in the individual; but this task is especially difficult, for not all thin subjects can be regarded as lacking simply because they are thin. We have to consider here, above all, the family habitus, occupation, mode of life, athletic training, all of which may co-operate strongly. Nevertheless a threatening emaciation can be recognized through the fact that advancing years do not improve conditions in the least, although an increase in weight is physiological.

I continued my investigations in the following years, and first of all imposed upon myself the task of seeking for a procedure which would enable one to comprehend and express objectively the inferiority of these organisms; for only in this manner would I expect to obtain an unobjectionable basis for investigation. In this procedure I depended upon the measurements of the individual, and under the "constitution" of an applicant I understood in every case such quality as could be expressed objectively by taking the height, chest measure, abdominal girth, and by recording the weight. Upon this foundation I built further and laid out in detail the course which the investigation has taken.

(To be continued.)

The Relation of Sickness Insurance to Public Health and the Common Welfare.—"The object of sickness insurance is to distribute the loss due to sickness and death over the community according to responsibility. This will automatically make those responsible search for and enforce measures to prevent sickness and death." These were the opening words of a paper read before the American Public Health Association by Dr. B. S. Warren, surgeon, U. S. Public Health Service. The paper points out that at present, in the United States, the burden of this loss is borne by the individual who, in many instances, is broken by the extra load and is added to the number of impoverished or destitute to be cared for by the community. Experience in the field of sickness insurance shows that the following provisions are necessary to the success of any plan: (1) It must be compulsory, especially for those with small incomes. (2) Cash benefits not to exceed 66 2/3 per cent. of the wages for a period of not more than 26 weeks in one calendar year. (3) Invalidity benefits elastic in character. (4) A small death benefit sufficient to meet the ordinary expenses of burial and other immediate necessities. (5) Medical benefits to include medical and surgical relief in home, hospital, or sanatorium, as necessary, and medicine, appliances, and specialist service, including denistry. The following plan relative to contributions, is believed by many to be the most equitable: (1) The funds to be provided by contributions as follows: Insured persons, 50 to 66 2/3 per cent. Employers 33 1/3 to 50 per cent. Community or State 10 to 25 per cent. (2) The amount of weekly contributions has not been very definitely determined but it is believed that a total of 50 cents per person per week from all sources will provide the following: (*a*) $1 per day for disability due to sickness and nonindustrial accidents, to begin on the fourth day and not to exceed 26 weeks in one calendar year. (*b*) $200 death benefit for deaths due to sickness and non-industrial accidents. (*c*) Adequate medical and surgical relief. (3) Provisions must be made for changing the amount of contributions from year to year to adjust the funds to the hazards of the industry and prevent the accumulation of an unusual surplus or deficit in any fund. On questions of administration there does not seem to be much difference of opinion as to the following provisions: (1) The administration must be democratic, and employees must have a voice in the control in proportion to their contributions. (2) The insured persons must have a feeling of ownership and responsibility for the proper conservation of the funds. (3) An efficient medical service must be provided and closely related to the public health authorities, so that the clinical and preventive medical benefits may yield the best results.

Book Reviews.

Operative Surgery of the Nose, Throat, and Ear for Laryngologists, Rhinologists, Otologists, and Surgeons. By Hanau W. Loeb, A.M., M.D., Professor of Ear, Nose, and Throat Diseases in St. Louis University. In Collaboration with Joseph C. Beck, M.D., R. Bishop Canfield, M.D., George W. Crile, M.D., Eugene A. Crockett, M.D., William H. Haskin, M.D., Robert Levy, M.D., Harris P. Mosher, M.D., George L. Richards, M.D., George E. Shambaugh, M.D., and George B. Wood, M.D. In Two Volumes. Volume I. Four Hundred and Nine Illustrations. Price, $6.00. St. Louis: C. V. Mosby Company, 1914.

The title of this work accurately describes its scope, which includes strictly the operative surgery of the nose, throat, and ear without any discussion of pathology, etiology, or symptomatology. The first volume deals with the surgical anatomy of the nose, throat, and ear; the external surgery of the throat; the direct examination of the larynx, trachea, bronchi, esophagus, and stomach, and the operations made possible through its agency; and the plastic surgery of the nose and ear. The illustrations constitute a conspicuous feature of this work, both in their artistic excellence and in their clear elucidation of the text. As an up-to-date treatise in its special field this work is perhaps unique in the English language. In its mechanical features it stands for the best in the publisher's art.

Orthopædics Indispensable to Practitioners: by F. Calot, Head Surgeon at the "Hôpital Rothschild, Hôpital Gazin, Hôpital de l'Oise et des departements, Dispensaire, Institut orthopédique of Berck," etc., with 1252 Original Figures and 8 Colored Plates. Translated from the 6th Edition in French by A. H. Robinson, M.D., M.R.C.S., and Louis Nicole. Price, 21 Shillings. London: Bailliére, Tindall and Cox, 1914.

In one large volume of 1132 pages of reading matter the writer sets forth, largely by means of questions and answers, his views on some of the more common orthopedic affections, and urges the necessity of early treatment by the general practitioner. He advocates strongly the use of injections, of sea air, and of plaster of Paris in joint tuberculosis, and warns strenuously of the dangers of converting by operation a closed tuberculosis into an open one. In young or old his treatment is always conservative. His plaster of Paris technique is very beautiful. A comparison of the chapter on joint tuberculosis with the recent books of Rollier and Fraser on the same subject is very instructive. All set forth different conclusions. Each author reaches his conclusions from clinical experience.

Calot's book includes chapters also on tuberculosis of the lymph nodes, skin, testis, etc., and a chapter on certain fractures. The treatment recommended for tuberculous adenitis is also conservative. The book is illustrated profusely and well, and contains an excellent index. Its style is somewhat colloquial, its English is at times peculiar, and it bears the ear-marks of French printing and publication. Although the author is perhaps somewhat over-enthusiastic along certain lines, he has put into his book much practical information, and the reader can derive instruction from it on many technical points. It is doubtful, however, if the large amount of knowledge it contains is really indispensable to the general practitioner.

Laboratory Manual for the Detection of Poisons and Powerful Drugs. By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg i. Br. Authorized Translation of the Completely Revised Fourth German Edition by William H. Warren, Ph. D., Professor of Chemistry in Wheaton College. With 25 illustrations. Price, $2. Philadelphia: P. Blakiston's Son & Co.

This volume is not intended for a medical textbook. Perhaps a third or more of its contents deal with this one aspect of medical toxicology, but these pages are practically all in fine print. The bulk of the volume deals with the detection of toxic food adulterations, the detection of minute amounts of poisons as natural or accidental impurities, and with other conditions of purely chemical significance.

The translator has incorporated into the work the very latest methods for the detection of certain poisons. Although intended as a laboratory guide the book should be of value to the physician for reference purposes.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by C. M. Jackson, M.S., M.D. Eleven Hundred and Eighty-two Illustrations. Three Hundred and Fifty-Eight Printed in Colors. Fifth Edition, Revised and Largely Rewritten. Price, $6. Philadelphia: P. Blakiston's Son & Co.

This volume maintains the arrangement of the preceding edition, consisting of thirteen sections. The personnel of the contributors has undergone great changes. The editor has personally revised the section on Morphology; F. Wood Jones has revised that on Articulations; H. D. Senior has performed the same service for the Blood vascular System, and Eliot R. Clark for the Lymphatic System. Others who have revised sections for the present edition are as follows: D. Waterston, Special Sense Organs; the Editor, Digestive System; A. T. Kerr the Skin, Mammary Gland, and Ductless Glands. Clinical and Topographical Anatomy is handled by John Morley. In other words eight sections have been thoroughly revised and some largely rewritten by the new contributors. In the other sections the contributors are those of the preceding edition. Not one of the contributors of the third edition (1902) remains. The American contributors to the fifth edition are Jackson (the editor), Bardeen, Senior, Clark, Hardesty, Terry, and Kerr. If to these we add the Canadian contributor McMurrich, we note that eight of the twelve contributors are from the Western Hemisphere. Contributors to the earlier editions have been overwhelmingly British.

Another no less striking departure is in the personnel of the contributors. In the earlier editions (and this holds good for most anatomies) the contributors were chiefly prominent surgeons. In the present volume every man is a professed anatomist and histologist and member of his National British or American Anatomical Society. It may perhaps suffice to say that such a work is admirably conceived and executed.

Local and Regional Anesthesia. With Chapters on Spinal, Epidural, Paravertebral, and Parasacral Analgesia, and on other Applications of Local and Regional Anesthesia to the Surgery of the Eye, Ear, Nose and Throat, and to Dental Practice. By Carroll W. Allen, M.D., Instructor in Clinical Surgery at the Tulane University of New Orleans; Lecturer and Instructor in Genito-Urinary and Rectal Diseases at the New Orleans Polyclinic; Visiting Surgeon to the Charity Hospital. With an Introduction by Rudolph Matas, M.D., Professor of General and Clinical Surgery at the Tulane University of Louisiana, New Orleans, etc. Octavo of 625 pages with 225 illustrations. Price, cloth, $6.00 net; half morocco, $7.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

This is the largest and most pretentious of the many books on this subject that have appeared during the past few months. From the preface and elsewhere we learn that Matas had originally intended to write a book on local anesthesia, but found that he could not devote sufficient time to the preparation of the work and had practically given up the idea when his assistant, Dr. Allen, offered his collaboration. Matas soon found, however, that he had no time to assist in editing the mass of material collected by Allen, so turned over his own material to Allen, who has thus proceeded alone in the compilation of the book. We say compilation advisedly, for the book consists of a curious mélange of original observations and far more extensive quotations from the writings of Matas, Crile, Cushing, Braun, Härtel, Fischer and a host of others. Quotations often cover many consecutive pages, while short quotations are found so frequently that Allen's original work is almost lost sight of altogether in some portions of the book. It must be said, however, that by pursuing the policy of direct quotation the work assumes an authoritative character that it could not have otherwise and also that about every phase of the subject is covered with a wealth of detail.—so much so as to be almost bewildering at times, and to suggest the wisdom of considerable condensation when the demand arises for a second edition.

Among the special features of this book, in addition to those enumerated on the title page, are: chapters on the nerves and their sensations, toxicology, shock, anoci-association, and a most complete consideration of the various agents that have been used in the production of local anesthesia and the methods of using them, including intra-arterial and intravenous injection.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held February 18, 1915.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Medicine. The program was furnished by the staff of the Rockefeller Institute of Medical Research.

Numerical Laws Governing the Rate of Excretion of Urea and Sodium Chloride in Health and Disease.—Dr. FRANKLIN C. MCLEAN read this paper. He stated that the laws governing the rate of excretion of urea and sodium chloride in the normal individual, as formulated by Ambard and Weill (*Jour. de Phys. et Path. Gen.*, 1912, V, XIV) had been confirmed by numerous observations on healthy subjects. (See also, McLean and Selling, *Jour. of Biol. Chem.*, September, 1914.) To express the relative ability of the abnormal individual to carry on the function of urea excretion an "Index of Urea Excretion" had been formulated, based on the concentration of urea in the blood and the rate of its excretion. The average normal index was expressed as 1.00 or 100 per cent., and deviations from the normal were expressed in their percentage relationship to the normal. An index of 0.25 or 25 per cent. for example, indicated that the individual was excreting urea at a rate that was 25 per cent. of the normal, when the actual rate of excretion was compared with the concentration in the blood. The excretion of sodium chloride was similarly measured, by comparing the concentration of chlorides in the plasma with the concentration calculated from the rate of excretion. In normal individuals the actual amount found did not vary more than 1 per cent. from the calculated amount, while considerable variations might be found in the abnormal individual. The two important functions, which might be quite independent of one another, were thus measured simultaneously, without requiring the ingestion or injection of any foreign substance, and without requiring any control of the intake of nitrogen or chlorides. Rapid and accurate methods were now in use for all of the estimations, and the calculations necessary had been rendered simple by the use of a calculating device in the form of a modified slide rule.

Epidemiology of Pneumonia.—Dr. DOCHEZ presented this paper in which he said that a study of pneumococci isolated from individuals suffering from lobar pneumonia had shown that the majority of these organisms fell into definite biological groups. These groups had been arbitrarily numbered from I to IV. An analysis of 150 cases of pneumonia showed that Type I of the organism was found in 57, or 38 per cent. of the cases; Type II was found in 44, or 30 per cent. of the series; Type III (mucosus) was found in 17 or 11 per cent., and Type IV (heterogenous) was found in 32 or 21 per cent. The first three groups consisted of organisms which within the group were closely related to each other by certain immunological reactions, namely, protection and agglutination. Extensive study had failed to reveal crossing in either of these reactions between members of separate groups. The fourth group was formed of a series of independent varieties which could not be definitely related to one another by the immune reactions employed. Up to the present time they had observed no tendency of these organisms to lose their specific characters, nor had they observed a change of one type into another. These groups varied in their pathogenicity for human beings, and in the order of their virulence were as follows: Group III, Group II, Group I, and Group IV. In a series of 103 cases there were 28 cases belonging to Group I of which seven, or 25 per cent., died: of Group II there were 25 cases of which nine died, or 36 per cent.; of Group III, there were 17 cases of which eight died, or 47 per cent.; of Group IV, there were 33 cases of which two, or 6 per cent., died. In view of these constant differential characters of the pneumococcus, it was deemed advisable to study the pneumococcus occurring in normal sputum. It had been commonly assumed that infection in pneumonia was autogenic, and occurred from the invasion of the lungs by a pneumococcus habitually carried in the mouth. If this was so, one should find the same types in the normal mouth as occurred during the disease. Examination of a series of normal individuals showed that this was not the case. In no instance was an organism found which could be grouped with any of the fixed types of pneumococcus. All exhibited the same characters as those organisms obtained from lobar pneumonia which belong to group IV. Inasmuch as organisms belonging to this group were of low virulence, and were responsible in their experience for only 20 per cent. of the cases of pneumonia, it was at once manifest that the majority and more virulent cases of pneumonia were due to organisms which were not found in normal mouths. To gain further evidence of this difference, a study had been made of convalescents from pneumonia who had been infected by typical organisms. During the period of recovery these typical organisms were supplanted by the type which occurred in normal mouths. The period of disappearance of the typical varieties had varied. The shortest time in which disappearance had occurred had been twelve days, and the longest period in which typical organisms had been carried had been ninety days. He had said that the virulent types did not occur in normal mouths. There are exceptions to this observation. In a number of instances organisms belonging to the typical groups had been isolated from the mouth sputum of healthy individuals. A study of the mouth flora of individuals closely associated with twenty cases of pneumonia had shown the presence of a typical disease-producing pneumococcus belonging either to Group I, II, or III in eight instances, or 40 per cent. So far this had occurred only in individuals intimately in contact with cases of lobar pneumonia. Wherever typical organisms had been obtained under such circumstances, the type had always corresponded to that with which the case of pneumonia was infected. Such individuals, therefore, became infected with virulent types of the pneumococcus by contact, and might be regarded as healthy carriers of disease-producing types. This study made it probable that the majority of cases of pneumonia were dependent upon either direct or indirect contact with a previous case. Mere infection of the mouth by virulent types was by no means sufficient to cause the disease. In order to invade the lungs, these virulent types must find the circumstances favorable, or a suitable condition must arise during the period when they were harbored in the mouth.

Varieties of Meningococci.—Dr. SIMON FLEXNER presented this paper in which he stated that two aspects of the specific treatment of epidemic meningitis stood to-day in the foreground. The first related to the question of the varieties of meningococci, the second to the effects of antiseptic agents carried into the cerebrospinal membranes with the antimeningococcic serum. The second question would be dealt with by Dr. Auer. He would confine his remarks to the first. It was originally supposed that all meningococci were alike and constituted a uniform group of microorganisms. As variation among bacterial groups was now quite a common finding, it did not arouse either surprise or misgiving to find that similar variations existed among meningococci. The subject was important, especially as it affected the value of the antimeningococcic serum. The fact was early recognized that certain cases of epidemic meningitis failed to respond to serum treatment. While in the great majority of cases, which did respond, the immediate effect of the serum was to inhibit the multiplication of the meningococci and bring about more active phagocytosis, in the exceptional cases which did not respond the multiplication was unaffected and phagocytosis remained minimal. It was customary to speak of the diplococci in the latter instance as fast to the serum. Dopter was the first to isolate a form of the meningococcus which, while agreeing culturally with the common variety, differed from it in immunological reaction; and this variety to which he gave the name of parameningococcus had now been found in a number of instances in cases of epidemic meningitis. It had been present also in those exceptional cases of meningococcus septicemia without meningitis. The question arose as to whether the parameningococcus occurred also in this country and constituted the serum-fast variety of the meningococcus previously referred to. Having failed to obtain living cultures of Dopter's parameningococcus through the mails, Dr. Louise Pearce of the Rockefeller Institute volunteered to make a quick journey to Paris to secure them. She devised an ingenious method for cultivations on the return journey by employing an electric pad connected with the electric outlet in her stateroom. The two cultures obtained survived the journey. They were studied by Dr. Wollstein and compared with many strains isolated in this country. The two cultures were found to differ considerably from the normal strains of meningococci and, indeed, to differ somewhat from each other. More-

over, two similar and closely corresponding strains were found among the series of cultures employed by the Department of Health of New York City, in immunizing horses for the preparations of the antimeningococcic serum. The properties which distinguish the "para" from the normal strains of meningococci proved not to be absolute but merely differences of degree. But the differences were sufficiently great to account for the lack of power of antisera prepared with normal strains to influence the "para" strains. Hence he recommended the employment for immunization purposes, in the production of antimeningococcic serum, of the "para" strains, which could either be added to the other strains or could be used to immunize particular horses whose serum was mixed with the serum desired from other horses treated with the normal strains. The latter was Dopter's method employed at the Pasteur Institute. Looking toward this end, the Rockefeller Institute had distributed parameningococcus cultures to the several manufacturers of antimeningococcic serum in this country. The war in Europe had brought a considerable demand for antimeningococcic serum which was being supplied in large quantities from this country.

Some of the Effects of Antimeningitis Serum When Injected Intraspinally.—Dr. JOHN AUER made this presentation, which consisted of a series of lantern slides, which illustrated the effect of massive intraspinal doses of antimeningitis serum upon the blood pressure and respiration of monkeys and dogs. The sera employed were antimeningitis serum preserved by 0.3 per cent. tricresol (New York Board of Health), or by 0.3 per cent. chloroform (Massachusetts Board of Health) or normal horse serum preserved by 0.3 per cent. ether. The series of curves demonstrated in general the following points: In monkeys tremendous doses of 0.3 per cent. tricresol serum might be injected intraspinally with only slight effects on the respiration, and with only a transitory lowering of the blood pressure. Thus, for example, a monkey weighing 3,455 grams received intraspinally on one day 5+ c.c. of tricresol antimeningitis serum; on the next day 6 c.c. per kilo, and was in excellent condition at the end of the experiment. Dogs on the other hand were quite sensitive to the intraspinal injection of tricresol serum and both the respiration and blood pressure were markedly affected. Artificial respiration was necessary to keep this species of animal alive when more than about 2 c.c. of tricresol serum per kilo were injected intraspinally. This effect of tricresol serum in the dog was not attributable to a paralysis of the medullary centers, but to a stimulation of the excitatory and inhibitory functions of these centers. For example, after larger doses of 0.3 per cent. tricresol serum, intraspinal injection of this serum might cause a marked slowing of the heart rate (stimulation of the vagus center), a strong rise of the blood pressure in spite of this slowing of the cardiac rate (stimulation of the vasomotor center), and an initial stimulation of the rate and amplitude of the respiration, followed by a stoppage in passive expiration (inhibition of inspiration), this in turn being succeeded by slow respirations with inspiratory pauses (stimulation of inspiration). That the dog's medullary centers were not damaged was also shown by the promptness with which recovery of the normal blood pressure and respiration occurred provided that artificial respiration was maintained for some time. When the blood pressure and respiration both were profoundly affected by the intraspinal injection of 0.3 per cent. tricresol serum, increased cerebrospinal pressure played an important causative rôle. This was demonstrated by showing curves where the mere withdrawal of spinal fluid in a *monkey* whose blood pressure was less than 30 m.m. and whose respiration was feeble and gasping sufficed in a few minutes to restore the blood pressure and respiration to normal. In the *dog* it was shown that the local application of tricresol serum to the medulla (a procedure which practically excluded pressure) did not cause the same effect as its intraspinal injection; by a local application the blood pressure was hardly affected and only very occasionally did the respiration show a transitory stoppage. For these reasons it was recommended that all intraspinal injections in the human subject be given by the gravity method, for this method permitted a slow introduction which reduced the pressure factor and at the same time a quantity of the injected fluid could readily be withdrawn should a reduction or failure of the respiration or blood pressure demand this. In addition it seemed advisable to be prepared to administer efficient artificial respiration if necessary; Meltzer's pharyngeal insufflation apparatus might be recommended for this purpose. The gravity method, however, was no guarantee against raising the intraspinal pressure, for the pressure in the gravity system must be greater than the intraspinal pressure or otherwise no serum would enter, unless the absorption of the injected serum was as rapid as its inflow, a condition which probably did not occur in practice. Serum preserved by 0.3 per cent. chloroform or ether produced in general a less marked effect on the blood pressure and respiration of dogs than 0.3 per cent. tricresol. Nevertheless, dangerous alterations of these functions were also observed in the dog, but not in the monkey, with these preservatives (which were not removed before injection) as well as with normal sera containing no preservatives at all. The best preservative for therapeutic sera was theoretically a volatile one which could be driven off by warming the serum container before the serum was incorporated. Ether was better in this respect than chloroform. Finally, it must be emphatically pointed out that antimeningitis serum was the only remedy they possessed against epidemic cerebrospinal meningitis and that its rational employment had changed the former mortality of about 70 per cent. to less than 30 per cent. With the aid of antimeningitis serum the patient had not only 70 chances out of a 100 for recovery, where he formerly had only 30, but he had also the additional advantage that the use of the serum markedly reduced the frequency and severity of those distressing sequelæ which characterized epidemic cerebrospinal meningitis.

Studies on the Therapeutic Action of Digitalis.—Dr. ALFRED E. COHN read this paper, in which he said that the administration of digitalis to patients had been difficult because there had been no specific criterion telling when the drug was effective. In the course of other studies it was found that a change in the electrocardiogram occurred, which could be used for the purpose indicated. It consisted in an alteration, sometimes an inversion, of the *T* wave. The change might occur as early as twenty-four hours after the administration had commenced. It might persist as long as twenty-two days after the use of the drug had been discontinued. The electrocardiogram had been seen to return to normal after five days. By the use of this sign, two actions on the heart were detected, when digitalis was given. The rhythm of the heart might be changed and the *T* wave of the electrocardiogram was altered. If atropine, which acted on the vagus terminals, was injected, the rhythm of the heart was restored to normal, but the change in the *T* wave persisted. The alteration in rhythm indicated an effect of digitalis on the nervous system; the alteration in the *T* wave, an effect on the heart muscle. There was, therefore, evidence to show that the action of digitalis on the heart was twofold, nervous and muscular.

Dr. A. JACOBI asked Dr. Cohn how long were the intervals between the doses he gave.

Dr. COHN replied that the dose given was equivalent to 0.1 gram of the powdered leaves of digitalis given four times a day. The following day he gave the same dose, so that the patient under discussion received 0.4 grams each day. This amount was given for three days and then 0.3 was given on the fourth day.

Dr. A. JACOBI said that he wished to learn what practical results had been obtained from such experiments as Dr. Cohn had carried out and what practical value they had for the general practitioner. Practitioners wished to apply what the experimenters taught them. Dr. Jacobi said that what Dr. Cohn had stated reminded him of what he had seen in his practice and particularly with the doses of digitalis he had given, sometimes small and sometimes large. He considered that the dose of digitalis Dr. Cohn had given was a sufficiently large dose if continued long enough. Smaller doses of this drug were demanded for certain purposes. The question whether digitalis was a nerve or a muscle remedy had been decided some time ago. When digitalis produced early vomiting, this should be considered the result of nerve influence. At the same time, they all knew that it acted as a muscle stimulus. He recalled a desperate case of meningitis in the President's service occurring in a child of 13 years; this patient had a high temperature and a pulse of 150 to 160. He suggested that digitalis be given and was asked how much at a dose. He said that the patient should be given one drachm of the good tincture of digitalis as a first dose. This was given and the patient did not die the same day, but about three weeks

afterward. The dose was repeated in one-half this amount several times that day. Such doses he had frequently given and had preached about. In adults with pneumonia, when on the second or third day there was beginning edema of the lungs with cyanosis and where in a number of cases only large venesections would give results, he had given 10 grains of digitalis and in one dose. He had found that such cases of pneumonia would not get well unless 10 minims of the fluid extract of digitalis was administered with, or at the time of, a venesection. Such cases required within three or four hours another dose of digitalis, and sometimes a third dose, three, four, or five hours afterward. A number of such cases might get well with this treatment subcutaneously or internally which would not recover under other treatment. Dr. Jacobi said that when he wanted to give digitalis when he was dealing with a weak heart in tuberculosis, chlorosis, etc., he gave it for a long time, three or four months or more, but he could not give the dose Dr. Cohn gave. He could give three, or at most, five grains a day, day after day, and he never had any cumulative effects and no arrhythmia. What he had just offered was the result of practical experience and he thought that possibly it might be a guide to those gentlemen who were experimenting with digitalis.

The Rôle of Lymphocytes in Experimental Tuberculosis in Mice.—Dr. James B. Murphy presented this communication. He stated that the fact that in the reaction to tuberculosis infection the part played by the endothelioid cell or endothelial leucocyte had received so much attention in recent years was probably due to the early appearance of these cells in the process of formation of the tubercle and because of their well known phagocytic activities. The lymphoid cell, probably because of its later appearance and its lack of phagocytic power, had been almost neglected. Observers, however, had noted that in rapidly fatal miliary tuberculosis the lymphocytes fell often to below 10 per cent. of the circulating white cells, whereas in patients with early healed or healing tuberculous lesions these cells were increased, sometimes forming more than 50 per cent. of the total leucocytes. Moreover, it was well known that while in acute rapidly fatal miliary tuberculosis relatively few lymphocytes occurred in the tubercles, in the subacute form, where a higher resistance of the individual might be assumed, the tubercles contained large numbers of lymphoid cells. These facts had a close analogy in the reaction of the polynuclear leucocytes in certain infections against which they were presumed to form the chief resisting factor. Until recently the round-celled infiltration occurring about slowly growing or healing cancer, about cancer grafts in immunized animals, and about failing tissue grafts, had been assigned, as in tuberculosis, a secondary rôle. The lymphoid elements in both instances were supposed to be present as the result of tissue disintegration. Recently it had been shown that in the case of tissue grafts, the lymphocytes in all probability were the chief agents in causing destruction of the introduced tissue. Hence, it seemed probable that the lymphoid cell might play a more important rôle in the resistance to certain infections than had hitherto been supposed. In differential counts made on the blood of mice before and at intervals after splenectomy they found that 80 per cent. of the animals showed a marked reduction in the circulating lymphocytes during the first week, while those counted 19 to 21 days after splenectomy, 75 per cent., showed an average increase of over 11,000 lymphocytes per c.mm., a gain of more than 100 per cent. The remaining 25 per cent. which had not gained showed a count slightly below normal, averaging a loss of less than 8 per cent. In experimenting with reference to the effect of the *x*-ray on lymphoid tissue they had found that by carefully regulated doses of *x*-ray, repeated at intervals, a gradual atrophy of the lymphoid tissue might be accomplished without any appreciable effect on the other tissues, or the general health of the animal. In a series of experiments planned with the idea of testing the resistance of animals to tuberculosis when the amount of lymphoid tissue was varied, the *x*-rayed animals, having a system greatly depleted, should be the first to die of the disease. Next came those splenectomized shortly after the inoculation, and they might be considered as having a reduced amount of lymphoid tissue. The animals inoculated eight to ten days after splenectomy, with an active proliferation of the lymphoid cells in the glands and elsewhere at this stage, should be more resistant than the above. Among the animals, however, splenectomized three or more weeks before inoculation, a certain per cent. should outlive the normals. Dr. Murphy exhibited charts showing the death rate of the various groups after inoculation with the tubercle bacillus. Animals splenectomized and given a series of treatments with the *x*-ray and animals simply given the same dosage of *x*-ray survived on an average of about seven days after inoculation. The animals splenectomized a short time before inoculation survived on an average about nine days. The animals splenectomized ten days before inoculation survived on an average 19 days, which was one day longer than the normal animals. Animals splenectomized 3½ weeks previous to inoculation survived about 26 days, but some of the animals in this group lived considerably longer than any of the animals in the other groups. The question naturally arose whether these treatments caused variations in factors other than the lymphocyte which might play a part in the resistance to tuberculosis. The author considered the other factors that might enter into the problem and showed that they might be excluded. The well known association of the lymphocytes with tuberculous lesions tended to support the conclusion indicated by the experiments. It seemed, therefore, that the known facts in reference to the lymphocytes in tuberculosis taken in conjunction with these experiments suggested that the lymphocytes played an important rôle in the animals' resistance to tuberculosis.

Dr. Max Einhorn said that in 1884 he had made a study of the relation of the lymphocytes to the other white blood corpuscles and he found at that time that the lymphocytes in a normal individual amounted to 25 per cent., that was, the relation. In disease he found there was a great variation. In his dissertation he pointed out that the mononuclears were much diminished while the polymorphonuclears were much increased. In that paper he told of following up cases of septicemia where he had made a study of the relation of lymphocytes and the polymorphonuclears every day until the death of the patient. There was an increase in the polymorphonuclears and a decrease in the mononuclear elements. He pointed out at that time that this was of great prognostic importance. The mononuclears played an important part in the protection of the body. His paper was originally printed in German in 1884 and later on was translated and published in the *Post-Graduate*, 1906.

Philadelphia Pediatric Society.

At a stated meeting held February 9 Dr. Simon Flexner, of the Rockefeller Institute, delivered an address entitled "Etiology and Mode of Infection of Epidemic Poliomyelitis." He pointed out that the disease had been epidemic continuously on a large scale in the United States since 1907, although occasionally small epidemics had been recorded at other times, as for example one in Vermont in 1894. The most intensive studies of the disease in recent times had been made by Wickman, a Swedish observer. He it was who from the statistical standpoint, was the first to record the occurrence of so-called abortive cases in which there occurred fever and malaise, perhaps with slight transitory muscular weakness, but without permanent paralysis. Since that time the disease has been conclusively demonstrated to be dependent upon the activity of a filterable virus, which only within the most recent times has been cultivated upon artificial media and distinguished in stained preparatons with high powers of the microscope. That the disease is due to a specific cause has been shown by causing its development in monkeys by inoculating them with emulsions of nervous tissue from fatal cases of the disease. From animals thus infected the disease could be consecutively conveyed to other animals similarly inoculated. One attack of the disease appears to confer immunity to subsequent attack, and this fact was utilized in establishing the identity of the so-called abortive cases. It was found that when blood-serum of an individual who has had the disease, even many years previously, is added to active virus, no symptoms develop when the mixture is introduced into experimental animals, as had previously been demonstrated for classic types of the disease. Examination of cerebro-spinal fluid obtained by lumbar puncture affords a valuable means of diagnosis in the abortive cases and in the preparalytic stage of ordinary cases, an increased number of lymphocytes and an increased globulin-content being present under such

conditions. Recently, by inoculation of diseased tissue upon sterile, not sterilized, ascitic fluid, it has been possible, not without difficulty, to obtain a growth, under anaerobic conditions, and by means of staining with Giemsa's methylene blue, to recognize a minute globular body as the probable etiological factor. Then by inoculations of this growth the disease can be reproduced in monkeys and from the nervous tissues of these experimental animals the micro-organisms can in turn be recovered. The germ has been found in the central nervous system, the brain and the spinal cord, in the Gasserian ganglion, the intervertebral ganglia, the abdominal sympathetic ganglia, the secretions and tissues of the upper respiratory tract, especially of the nares, the contents and tissue of the gastrointestinal tract and the mesenteric lymph-nodes, but never in the blood or other viscera. The disease can be induced in lower animals most readily by direct introduction into the cerebrospinal fluid, or the nerve tissues, and with almost equal facility by introduction into the nasal passages. Accordingly, there is good reason for believing that this is the channel through which infection commonly takes place in human beings, although it has been shown in one set of experiments that a biting insect, the stable-fly, *Stomoxys calcitrans*, played the part of an intermediary agent. While, thus, the disease is usually transmitted from those suffering therefrom, it is sometimes, like other diseases, for example typhoid fever and diphtheria, conveyed through individuals who harbor the specific germ, but do not themselves present symptoms of the disease, namely carriers. These constitute an especial source of danger because they are likely to escape recognition, and the necessary prophylactic measures will accordingly not be instituted. Further, no distinction can be made, clinically, bacteriologically, or pathologically, between sporadic and epidemic cases of the disease.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF MARYLAND.

June, 1914.

(*Concluded from page* 546.)

OBSTETRICS.

1. What degree of pelvic contraction is compatible with delivery.
2. How do you measure the conjugate diameters?
3. How should uterine inertia be treated?
4. What is the treatment of placenta prævia when occurring before the full term?
5. What are the dangers in a breech presentation.
6. When should the forceps be applied and what preliminaries are necessary in their application?
7. What alternatives do we possess to the use of the forceps?
8. Describe the ligaments of the uterus.
9. Describe the operation of transfusion.
10. Give the treatment of caruncle.

SURGERY

1. Give the differential diagnosis between acute catarrheal conjunctivitis and gonorrheal ophthalmia, and the general principles of management of each.
2. Name the varieties of goitre and mention the indications for surgical interference.
3. Describe the fractures commonly designated as: (*a*) Colles' fracture. (*b*) Pott's fracture. Give treatment of each.
4. Give the differential diagnosis between a fracture of surgical neck of humerus and a dislocation of the shoulder joint.
5. Give diagnosis and treatment of epithelioma of the lower lip.
6. Name the varieties of tumor of the bladder, with symptoms of each.
7. Give the differential diagnosis between appendicitis, cholelithiasis and ulcer of the pylorus.
8. Give the symptoms, diagnosis and treatment of tuberculous disease of the hip joint.
9. Name the varieties of fistula-in-ano and give the treatment for same.
10. Give symptoms and treatment of acute osteomyelitis.

ANSWERS.

OBSTETRICS.

1. The following table (from King) is a safe guide:

When Conjugate Diameter of Brim measures:	The Mode of Delivery at Term is:
Between 4 and 3½ inches.	By Forceps.
Between 3½ and 2¾ inches	By Forceps, Version. Symphyseotomy. Cesarean section, or Craniotomy, *pro re nata*.
Between 2¾ and 2 inches.	Cesarean section, if child alive. Craniotomy, if child dead.
At 2 inches or less.....	Cesarean section always. Craniotomy excluded, whether child dead or alive.

2. "The *conjugata vera*, or true conjugata, is measured from the center of the promontory of the sacrum to that point on the posterior surface of the upper end of the symphysis pubis which is crossed by the iliopectineal line. This is the shortest diameter at the brim through which the head must pass. It cannot be accurately measured, but is estimated in the normal pelvis at 10.5 to 11 centimeters (4¼ to 4½ inches). The *diagonal conjugate* is measured from the summit of the subpubic arch, or the subpubic ligament, to the promontory of the sacrum; it is from this diameter that we estimate the true conjugate. To estimate the true conjugate from the diagonal, we deduct from ½ to ¾ of an inch (1.5 to 2 centimeters). The amount to be deducted depends (*a*) on the depth of the symphysis pubis—the greater the depth the greater must be the allowance; (*b*) on the thickness of the pubic symphysis, for increase in the thickness increases the allowance to be subtracted; (*c*) on the inclination of the symphysis and the inclination of the brim of the pelvis, for when the promontory is high a greater deduction must be made." (Polak's *Manual of Obstetrics*.)

3. "*Treatment of uterine inertia:* Endeavor to ascertain and remove the cause. Place the woman under the best hygienic conditions. If the source of reflex disturbances cannot be removed, we may quiet the nerve center by chloral, opium, or the bromide of potassium, after which the inertia is commonly relieved. When the patient is suffering from fatigue during a protracted labor, quinine is of great use. Massage and stroking of the uterus through the abdominal walls may be tried. If over-distention exists we should early rupture the membranes." (Landis' *Obstetrics*.)

4. "PLACENTA PRÆVIA. *Treatment before term:* Rest in bed, with or without a *tampon*, will arrest hemorrhage for the time; the sinuses are closed by thrombi, and the case may go on to term or another hemorrhage. The patient should be allowed cold drinks; opium may be used where pain is present. If the hemorrhage is great, it is safer to induce labor at once than to wait. Occasionally no hemorrhage occurs during pregnancy, not even in labor." (Landis' *Obstetrics*.)

5. The danger to mother and child in a case of breech presentation are: (1) Compression on the umbilical cord; (2) premature respiration; (3) asphyxiation of the child; (4) the child may suffer from fractures, dislocation, hemorrhage, or paralysis; (5) extension of the head, or of the arms over the head; (6) increased tendency to rupture of the perineum.

6. *Indications for the use of forceps* are: (1) *Forces at fault:* Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (a) Impending exhaustion; (*b*) arrest of head, from feeble pains. (2) *Passages at fault:* Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. (3) *Passenger at fault:* A. Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (c) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). (4) *Accidental complications:* Hemorrhage; prolapsed funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both (Jewett). *Conditions necessary for the use of forceps* are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must be ruptured; (4) the pelvis must be of sufficient size.

7. *Alternatives to the use of forceps*, are: Version; induction of premature labor; craniotomy, or some other mutilating operation on child; cesarean section or one of its modifications; symphyseotomy; pubiotomy.

8. The LIGAMENTS OF THE UTERUS are: (1) *Broad ligaments*, which extend outward on each side from the side of the uterus to the side of pelvis. (2) *Rectouterine ligaments*, which extend backward from the intraperitoneal portion of the cervix uteri to the peritoneal investment of the rectum. (3) *Round ligaments*, which extend from the uterus just below the Fallopian tubes, through the inguinal canal to the labia majora. (4) The *ovarian ligaments*, which extend from the superior part of the uterus, behind the Fallopian tubes, to the inner end of the ovary. (5) The *uterosacral ligaments*, which extend from the highest part of the cervix uteri to the sides of the sacrum opposite the lower border of the sacroiliac synchondrosis.

9. "*Transfusion* is the transmission of blood from an artery of one person to the vein or artery of another. It requires careful technique, involves the willingness of a second person to contribute blood, and is not free from danger. The dangers are: (1) Clotting; (2) the transmission of disease, such as syphilis; (3) the collapse of the donor of the blood, and (4) hemolysis. Before transfusion the blood of the donor should be tested with that of the patient for fear of hemolysis. This is especially likely to occur in infants or in the presence of a malignant tumor (Crile). By recent improved methods the clotting and technical difficulties have been much reduced, so that transfusion, which was at one time abandoned, has again come into general use. The artery of the donor is usually connected with a vein of the recipient by some apparatus, and the blood allowed to flow gently for fifteen or twenty minutes, or until the donor begins to show the effects of loss of blood. In some cases transfusion into an artery brings a more prompt response than into a vein. For in transfusion into a vein the transfused blood may merely increase the volume of the already excessive venous blood, and in any case must pass to the right heart and through the pulmonary circulation before the left heart can act upon it; while by transfusion into an artery the new blood, owing to the increased peripheral resistance, stimulates the heart and invigorates the coronary circulation." (Bastedo's *Materia Medica.*)

10. *Treatment of caruncle:* It should be excised or destroyed with the electric cautery.

SURGERY.

1. "ACUTE CATARRHAL CONJUNCTIVITIS. *Symptoms:* Hyperemia, profuse lacrymation, epiphora, a profuse discharge, sensation of sand in the eye, and sometimes photophobia. *Treatment:* Astringent and antiseptic washes are of value. Ascertain the underlying cause, if possible, and remove it. Anointing the lids with pure or medicated vaseline every evening is necessary. Alum, tannic acid, silver nitrate, and zinc sulphate are valuable as astringents. In intractable cases a 50 per cent. solution of boroglycerid in glycerin should be applied once daily."—(*Cyclopedia of Practical Medicine and Surgery.*)

2. GONORRHEAL OPHTHALMIA. *Symptoms:* Swelling and redness of the eyes, the presence of a discharge which soon becomes purulent, the conjunctiva of the lids becomes thickened, the eyelids are edematous, pain is severe, and there is some fever. *Dangers:* Ulceration and sloughing of the cornea, perforation of the anterior chamber, and blindness. *Management:* Protect the sound eye. Wash the eye carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a 2 per cent. solution of nitrate of silver must also be dropped onto the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt. In adults the irrigation must be frequent, about every half hour or hour.

2. *Parenchymatous goiter:* "Operative treatment is indicated when there are symptoms referable to pressure on the air-passages, esophagus, or blood-vessels, especially if there are signs of commencing cardiac disturbance; and in goiters which are steadily increasing in size. The evidence of a goiter becoming malignant is also a reason for removing it by operation. Kocher considers it advisable to operate if the patient becomes breathless by making pressure on the goiter from side to side."

Adenomatous goiter: "The only treatment is to enucleate the adenomata or cysts from the gland. The thyroid is exposed by a transverse curved incision, the tissue covering the nodule is incised, and the adenoma shelled out."

Malignant goiter: "It is only in the earliest stages that a malignant goiter can be successfully removed. In the later stages complete extirpation is not to be attempted, as it usually involves the removal of a portion of the trachea or esophagus, and the operation generally proves fatal. Operative interference is often called for, however, for the relief of respiratory embarrassment. Tracheotomy may prove a very difficult and dangerous procedure, owing to the trachea being buried under the goiter and displaced or narrowed by it, so that it is not easy to reach the trachea or to introduce an efficient tube beyond the point of obstruction. A more certain method consists in exposing the goiter by an incision as for thyroidectomy, rapidly removing sufficient of the growth to expose the trachea and admit of a tube being introduced. If there is a retrosternal prolongation compressing the trachea within the thorax, a long flexible lead tube may have to be passed beyond the site of the compression before the dyspnea is relieved."

Exophthalmic goiter: "Excision of one lobe of the thyroid together with the isthmus and the pyramidal lobe is indicated in all cases that do not present degeneration of the heart muscle, with irregular pulse and low blood pressure. The superior thyroid artery of the opposite side may be ligated with advantage." (Thomson and Miles' *Manual of Surgery.*)

3. *Colles' fracture* is a transverse fracture at lower end of radius; it is due to falls on the outstretched palm. The line of fracture is about an inch above the wrist, and runs obliquely downwards from behind. The lower fragment is driven backwards and upwards, and rotated to the radial side, carrying the hand with it into the position of abduction, and leaving the tip of the radius at the same level as, or higher than, the tip of the styloid process of the ulna. The internal lateral ligament of the wrist is ruptured or the styloid process torn off. The fracture is usually impacted, the upper fragment being driven into the lower. The deformity is characteristic, viz.: (1) the hand is abducted; (2) the styloid process is on the same level as, or lower than, the tip of the radius; (3) the upper end of the lower fragment projects above the back of the wrist; on the front is a corresponding depression, while above it the upper fragment projects forward. Union occurs readily, but it is common to get deformity and adhesions about the site of fracture. *Treatment:* Disimpaction and reduction are brought about by grasping the hand by the "shaking-hands" grip, extending and adducing the hand and lower fragment. The arm is then fixed on a splint. It is very important in this fracture to start massage and passive movement not later than the end of the first week, to prevent stiffness. Union is firm in three weeks.—(*Aids to Surgery.*)

Pott's fracture is very common, and is due to indirect violence, such as turning over on the inside of the foot. The strain tears through the internal lateral ligament of the ankle or tears off the tip of the malleolus; then the astragalus is pressed against the inner side of the external malleolus by the continuation of the violence. The fibula is overbent, and breaks about 3 inches above the tip of the malleolus. At the same time the foot is displaced outwards or outwards and backwards. *Treatment:* An anesthetic should always be given, and the fracture reduced by relaxing the calf muscles and applying traction to the foot. The limb must then be fixed on a back-splint, with side-splints in addition. The foot must be at right angles to the leg, the bony points in line, and the posterior displacement corrected. The surest way of maintaining the foot in good position is to at once apply plaster of Paris. Other splints used are Dupuytren's and Syme's horseshoe splint. Massage and passive movement at the end of ten days are advisable, the fragments being firmly grasped to prevent displacement.—(*Aids to Surgery.*)

4. In *fracture of the surgical neck of the humerus*, the head of the humerus will be found in the glenoid cavity, but it will not rotate with the shaft; the arm will appear shorter; and crepitus and abnormal mobility will be elicited unless there is impaction.

In *dislocation of the shoulder joint*, the glenoid cavity will be empty, and the head of the bone will be found in an abnormal position; the arm will appear longer; there will be no crepitus, and no abnormal mobility.

5. *Epithelioma of the lower lip.* "The ulceration spreads along the lip, chiefly towards the angle of the mouth, and downwards towards the chin, and the sub-

stance of the lip becomes swollen and indurated. The edges are characteristically raised and hard, and the raw surface is extremely painful, especially when irritated by hot food or fluids. The growth is liable to spread to the mucous membrane and gum, and to invade the lower jaw. The disease spreads early to the submental and submaxillary glands, which are best felt with one finger inside the mouth, under the tongue, and another outside below the jaw. The infected glands tend to become fixed to the jaw, and to soften, liquefy, and fungate. Metastasis to internal organs is rare. Unless removed by operation, the disease usually proves fatal in from three to three and a half years. The *treatment* consists in early and free removal of the affected portion of the lip and of the infected glands. In comparatively small growths which do not involve the angle of the mouth, a V-shaped incision is carried through the entire thickness of the lip so as to include the disease and an area of healthy tissue beyond it. In larger growths, particularly when situated at the angle of the mouth, it is necessary to carry an incision transversely into the cheek to enable the lip to be repaired without leaving deformity. When it is necessary to remove the greater part of the lower lip, the defect may be filled up by flaps of skin taken from below the jaw (Syme's operation). When the tumor is adherent to the lower jaw, it is necessary to resect a portion of that bone along with the lip. The frequency with which recurrence takes place in the lymphatic glands below the jaw renders it advisable to remove these in all cases, whether they are palpably enlarged or not. J. Hutchinson, Jr., recommends that the submaxillary and submental triangles on both sides should be cleared out as a routine procedure."—(Thomson and Miles' *Manual of Surgery.*)

6. Tumors of the bladder are benign, and malignant.

Benign tumors. "The only *symptom* in the early stage is hematuria, which lasts from a few hours to weeks. After an interval the bleeding recurs. No other symptoms occur till later, when pain and frequency of micturition, due to cystitis, make their appearance, while interference with the outflow may arise from blockage of the neck of the bladder by the growth. Portions of the tumor may be passed. On rectal examination or with the sound, nothing abnormal can be felt. With the cystoscope the tumors may be distinctly seen. If the ureteral orifice is affected, pain may occur early and be referred to the loin. Recurrence after removal is common."

Malignant tumors.—Symptoms.—"Hemorrhage appears later than in simple tumors, but is more persistent. Pain is a constant early symptom, accompanied by frequency of micturition, chiefly due to the quick onset of cystitis. In the harder forms of growth irritability of the bladder precedes the hematuria. Shreds of growth may be found in the urine. Interference with the flow of the urine is caused by involvement of the neck of the bladder, hydronephrosis by affection of the orifices of the ureters. With a sound, a tumor may be felt projecting into the bladder; *per rectum* a hard mass may be felt in the base of the bladder; while with the cystoscope the ulcerated surface may be seen. The vesical wall may become perforated, causing extravasation, cellulitis, or a recto-vesical fistula. Death occurs from exhaustion or spread of sepsis to the kidneys." (*Pocket Cyclopedia of Medicine and Surgery.*)

7. In *appendicitis*, there is pain of a severe type, colicky in character, and of sudden onset; nausea and vomiting; and localized tenderness and muscular rigidity in the right iliac region.

For *cholelithiasis*, see above, PRACTICE, question 6.

In *ulcer of the pylorus*, the pain is in the epigastric region, may radiate to the left shoulder, and is increased by taking food (usually about one to three hours after a meal); vomiting may occur from one to four hours after eating; hemorrhage may be present; the acidity of the gastric content is above normal, owing to excess of free hydrochloric acid.

8. TUBERCULOUS DISEASE OF THE HIP. "There are three stages of the disease: (1) That which extends from the beginning to the development of pus in the joint, and is characterized by localization of the disease, flexion, limping, pain, usually referred to the knee, slight induration about the joint, fixation and atrophy of the muscles, and enlargement of the neighboring glands. (2) The stage that extends from the end of the first stage until the development of pus outside of the joint, or the stage of joint involvement, and is characterized by abduction and apparent elongation, night cries, abscesses, joint crepitation, and failure of the general health, in addition to the symptoms of the first stage intensified. (3) The stage that extends from the end of the second stage to the termination of the disease or the stage of destruction of the capsule and external suppuration. Adduction, flexion and real shortening are present, and dislocation and ankylosis or suppuration, destruction of the joint, asthenic symptoms, and death result.

"The *cardinal symptoms* of the hip-joint disease are the spasm, wasting, lameness, deformity (real and apparent), pain, and swelling. Careful attention to these will make the diagnosis easy. The tendency of the disease is toward recovery, but the prognosis is greatly influenced by the age, type of disease, complications, and treatment. Death usually occurs from amyloid changes in the viscera.

"*Constitutional treatment* consists of improved hygiene, good food, fresh air, and the administration of tonics, such as iron and the hypophosphites, and alteratives, such as cod-liver oil, iodine, and its salts. A change of climate is sometimes beneficial. Locally, iodine, blisters, hot water bottles, or hot water dressing may be applied.

"The *special treatments* consist of the mechanical treatment, treatment of the complications, and the surgical treatment. The mechanical treatment consists of recumbency for two or three weeks in uncomplicated cases, with fixation and traction. Continuous traction may be first obtained by Buck's or Sayre's extension apparatus, made of adhesive plaster, later by means of a traction splint, with crutches, and still later by the traction splint alone, a high shoe being worn on the sound side, which in a year or two may be discarded. A modified traction splint may be made of plaster of Paris. Differences of opinion exist as to when the abscesses should be incised, but always the strictest asepsis or antisepsis is necessary. Irrigation of the cavities with sterile water, boric acid solution, or mercuric chloride solution, 1:4000, and the injection of sterile iodoform oil, 5 to 10 per cent., are commonly resorted to. Osteotomy and fixation may be required for the deformity arising as a complication. The surgical treatment consists of aspiration, incision, erasion, and excision."—(*Pocket Cyclopedia of Medicine and Surgery.*)

9. FISTULA IN ANO.—*Varieties.* 1. Complete.—Sinus opens into the rectum internally; on to the perineum externally. 2. Incomplete external—A perineal sinus not opening into the rectum. 3. Incomplete internal—A sinus opening into the rectum, but not externally.

Treatment. Preliminary.—Saline aperients for several days. Opium pill, gr. j. twelve hours before. Enema just before operation. *Operation.*—Pass a director up the fistula. Open it completely from end to end. Scrape out all granulations and cut out scar tissue. Cut through all tissue between rectum and the fistula, including the sphincter ani. Open up all secondary channels and sinuses. Pack deeply with oiled gauze. In cases in which the fistula is superficial to the sphincter, the latter should also be deeply incised as in the case of a fissure. *In chronic or complicated cases.*—Either excise in the lower end of the rectum, retaining the sphincter (Kraske's operation); or perform an inguinal colotomy."—(Grove's *Synopsis of Surgery.*)

10. ACUTE OSTEOMYELITIS. *Symptoms:* Sudden onset; pain, tenderness, fever, chills, swelling of soft parts; sometimes the joint can be moved gently without pain; septicemia or pyemia, may be present.

Treatment consists in relieving the constitutional symptoms and preventing the bone from necrosing. An incision down to the bone is made; if pus is beneath the periosteum, the latter is also incised; a piece of bone is removed by chisel or trephine, pus is removed, the endosteum is hurt as little as possible, the wound is irrigated with hot bichloride solution and packed with gauze; the soft parts are closed and the wound well drained. In case this fails, amputation may be necessary.

BULLETIN OF APPROACHING EXAMINATIONS

STATE	NAME AND ADDRESS OF SECRETARY	PLACE AND DATE OF NEXT EXAMINATION.†
Alabama*	W. H. Sanders, Montgomery	Montgomery...July 13
Arizona*	J. W. Thomas, Phoenix	Phoenix
Arkansas	W. S. Stewart, Pine Bluff	Little Rock...May 11
California	C. B. Pinkham, Sacramento	San Francisco .April 13
Colorado	David A. Strickler, Empire Building, Denver	Denver
Connecticut*	Chas. A. Tuttle, New Haven	New Haven...July 13
Delaware	J. H. Wilson, Dover	Dover...June 15
Dist. of Col'bia	Geo. C. Ober, Washington	Washington...April 13
Florida*	E. W. Warren, Palatka	Jacksonville...June 15

Georgia	C. T. Nolan, Mariette	Atlanta	June 2
Idaho*	J. F. Schmerhall, Jerome	Lewiston	
Illinois	C. S. Drake, Springfield	Chicago	May
Indiana	W. T. Gott, Crawfordsville	Indianapolis	July 13
Iowa	G. H. Sumner, Des Moines	Des Moines	June
Kansas	H. A. Dykee, Lehanon	Topeka	June 8
Kentucky	J. N. McCormack, Bowling Green	Louisville	
Louisiana	E. L. Leckert, New Orleans	New Orleans	June 3
Maine	F. W. Searle, Portland	Augusta	July 6
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 15
Massachusetts*†	W. P. Bowers, State House, Boston	Boston	May 11
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June 8
Minnesota	T. McDavitt, St. Paul	Minneapolis	
Mississippi	S. H. McLean, Jackson	Jackson	May 11
Missouri	J. A. B. Adcock, Jefferson City	St. Louis	June 21
Montana*	Wm. C. Riddell, Helena	Helena	
Nebraska	H. B. Cummins, Seward	Lincoln	May
Nevada	S. L. Lee, Carson City	Carson City	May 3
N. Hampshire	Henry C. Morrison, State Library, Concord	Concord	July 6
New Jersey	H. G. Norton, Trenton	Trenton	June 22
New Mexico	W. E. Kaser, East Las Vegas	Santa Fe	April 12
New York	H. H. Horner, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	May 25
N. Carolina	B. K. Hays, Oxford	Raleigh	
N. Dakota	G. M. Williameon, Grand Forks	Grand Forks	July 6
Ohio	Geo. H. Matson, Columbus	Columbus	June
Oklahoma	J. W. Duke, Guthrie	Oklahoma City	April 13
Oregon	B. E. Miller, Portland	Portland	July 6
Pennsylvania	N.C. Schaeffer, Harrisburgh	Philadelphia Pittsburgh Harrisburgh	June
Rhode Island	G. T. Swarts, Providence	Providence	July 6
S. Carolina	H. E. Boozer, Columbia	Columbia	June 8
S. Dakota	P. B. Jenkins, Waubay	Pierre	July 13
Tennessee	A. B. DeLoach, Memphis	Memphis Nashville Knoxville	May
Texas	W. L. Crosthwaite, Waco	Austin	June
Utah	R. W. Fisher, Salt Lake City	Salt Lake City	
Vermoot	W. Scott Nay, Uoderhill	Burlington	July 13
Virginia	J. N. Barney, Fredericksburg	Richmond	June 22
Washington*	C. N. Suttner, Walla Walla	Seattle	July 6
W. Virginia	S. L. Jepson, Wheeling	Charleston	April 13
Wisconsin	J. M. Beffel, Milwaukee	Milwaukee	June 29
Wyoming	H. E. McCollum, Laramie		

*No reciprocity recognized by these States.
†Applicants should in every case write to the secretary for all the details regarding the examination in any particular State.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

UNITED FRUIT COMPANY MEDICAL DEPARTMENT ANNUAL REPORT, 1914. Paper; 112 pages. Press of Geo. H. Ellis Co.

STATE BOARD OF HEALTH OF MASSACHUSETTS, 1913. Cloth; published by Wright & Potter Ptg. Co.; 790 pages.

NATURE AND NURTURE IN MENTAL DEVELOPMENT. By Dr. F. W. MOTT. Cloth; illustrated; price, $1.50 net; published by Paul B. Hoeber; 151 pages.

CANCER, ITS CAUSE AND TREATMENT. By Dr. L. DUNCAN BULKLEY. Cloth; published by Paul B. Hoeber; price, $1.50 net; 250 pages.

MEDICAL ELECTRICITY AND ROENTGEN RAYS. By Dr. SINCLAIR TOUSEY. Cloth; illustrated; 2nd edition; published by W. B. Saunders Co. Price, $7.50 net; 1219 pages.

AN INTRODUCTION TO THE STUDY OF THE ENDOCRINE GLANDS AND INTERNAL SECRETIONS. By Sir EDWARD SCHÄFER. Paper; price, $0.75 net; published by Stanford Univ. Cal.; 94 pages.

NERVOUS AND MENTAL DISEASES. By Drs. A. CHURCH, and F. PETERSON. Cloth; illustrated; 8th edition; published by W. B. Saunders Co. Price, $6.50 net; 940 pages.

PRINCIPLES OF HYGIENE. By D. H. BERGEY. Cloth; 5th edition; illustrated; published by W. B. Saunders Co. Price, $3.00 net; 531 pages.

CLINICAL DIAGNOSIS. By JAMES CAMPBELL TODD, M.D. Cloth; illustrated; 3rd edition; published by W. B. Saunders Co. Price, $2.50 net; 585 pages.

INTERNATIONAL CLINICS. By Various Authors. Cloth; illustrated; Vol. 1; 25th series; published by J. B. Lippincott Co.; Price, $2.00 net; 303 pages.

DIABETES MELLITUS. By NELLIS B. FOSTER, M.D. Cloth; published by J. B. Lippincott Co.; 243 pages.

PUBLIC HEALTH. By H. B. HEMENWAY, M.D. Cloth; published by T. H. Flood & Co.; 859 pages.

Therapeutic Hints.

Treatment of Motorists' Conjunctivitis.—G. S. Ryerson recommends the following:

℞ Solution of suprarenal extract (1-1000), ♏xx.
Boric acid, gr. v.
Sodium biborat, gr. x.
Peppermint water, ♏xx.
Distilled water, ad ℥j.

M. Sig.: Instil four or five drops into the eyes three times daily.—*Canadian Practitioner.*

Toothache Drops.—C. A. Ewald and A. Heffter cite the following formula:

℞ Oil of cajuput.
Oil of cloves, āā 1 gram.
Chloroform, 2 grams.

M. Sig.: One or two drops to be applied on a little cotton in the hollow tooth, and a few drops to be rubbed upon the cheek on the painful side.—"Handbuch der Arzneiverordnungslehre."

The Subcutaneous Administration of Quinine.—E. Müller notes that the addition of urethane or antipyrine to a solution of quinine hydrochloride makes the latter suitable for hypodermic administration. The formulæ are as follows:

℞ Quinine hydrochloride, 1 gram.
Urethane, 0.5 gram.
Distilled water, ad 10 c.c.

M. Sig.: For hypodermic injection, 1 c.c. containing 0.1 gram of quinine.

℞ Quinine hydrochloride, 2 grams.
Antipyrine, 2 grams.
Distilled water, ad 10 c.c.

M. Sig.: For hypodermic injection, 1 c.c. containing 0.2 gram of quinine.

—"Die Therapie des praktischen Arztes."

A Lotion for Urticaria.—Coughlin finds that the itching may be greatly relieved with the use of the following lotion:

℞ Phenol, 1.5 gram.
Glycerine, 30 grams.
Hot water, 120 grams.

—*Interstate Medical Journal.*

The Treatment of Flatulent Colic in Infants.—Leonard Williams accredits the following prescription to Widerhofer:

℞ Tincture of cascarilla. ♏x.
Tincture of krameria, ♏x.
Oil of anthemis, ♏j-ij.
Simple syrup, ℥ijss.
Water, ad ℥ij.

M. Sig.: One teaspoonful every two hours.

—"Minor Maladies."

A Laxative Powder.—Leube is said to recommend the following:

℞ Powdered rhubarb, 30 grams.
Desiccated sodium sulphate, 15 grams.
Sodium bicarbonate, 5 grams.
Oil of peppermint, 10 drops.

M. Sig.: One teaspoonful in a tumberful of water at night.

—*Paris Médical.*

Therapeutic Uses of Calcium Chloride.—Savill states that this drug is useful in the treatment of pruritus from any cause, as well as in the treatment of hemorrhage. A palatable solution is the following:

℞ Calcium chloride, gr. xx.
Tincture of orange, ℥ij.
Chloroform water, ad ℥j.

M. Sig.: To be given three times a day.

—"A System of Clinical Medicine."

307, SHERBOURNE ST
TORONTO.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 16.
Whole No. 2319.

NEW YORK, APRIL 17, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE ADVANTAGES OF MEDICAL ASSOCIATIONS.*

BY EDWARD C. REGISTER, M.D.,

CHARLOTTE, N. C.

GENTLEMEN of the Tri-State Medical Association:—You will allow me, I am sure, to say how happy was the choice that brings us together in this good city of Charleston. Here perhaps more than any other place in America one feels the fineness and charm of all that made the Old South illustrious in song and story, and also the quickening pulse and hope of the South that is to be. Surely Charleston wears the glory of both yesterday and to-morrow. We count ourselves happy to be within her gates, here where the chivalry of the South, in two historic wars, illumined the annals of our race; here where this city, the virgin daughter of our civilization, is still unfallen, having refused to bow down before the altars of the golden gods; here where the mellifluent voice of the sea, the grave sweet bells of St. Michaels, and the song of quickening industry unite in a harmony that charms our souls.

The eminent physicians and surgeons who through your trust and courtesy, through your personal preference and beneficence, have been permitted to occupy this position, have referred to its honor, to its responsibility, to its obligations, and most feelingly and appropriately to those who have preceded them. When I recall these beautiful references, when I think of the brilliant men who have preceded me as presidents of this association, I feel very deeply my inability to serve you as acceptably as they. Only with your sympathetic support and kindly advice can I hope to sustain the high traditions of this office. I am reassured by the knowledge that I have in you, as co-workers, the sustaining help of no insignificant body of men. After attending these meetings with almost perfect regularity since the Association was organized, I have often remarked that the papers read at your meetings and the discussions are equal, from a scientific standpoint, to those of any medical organization in the United States. The members, as a rule, are thoroughly familiar with the medical and surgical advancements of the day and the many facts and theories that are appearing with such rapidity in every department of our science. By these things I am led to hope that the day is not far distant when we will occupy a larger place among the creative and contributing scholars of our science, when our dependence upon the medical invesigators of other sections and other nations shall be greatly decreased, when out of our travail shall be born men worthy to lead the advancing hosts of medicine and surgery into the light of a more perfect day.

I have chosen to speak to you, gentlemen, upon "The Advantages of Medical Associations." And first I speak of that advantage for which I shall be compelled to coin a term, there being none in use which sufficiently defines my meaning. With your permission I shall call it the process of intellectual confluence. By this phrase I intend to convey an idea of that system of transportation in the kingdom of mind by which the ideas, discoveries and experience of the isolated and individual seeker after truth find their way into the thought and usage of our whole profession. This process is, of course, not confined to us alone. On examination of the journals of the learned scientific societies of Europe, one will see how large a place the process to which I refer has among the greatest scholars and savants of the world; and in proportion as our science is more vital to the physical weal of man, in that proportion should we feel a greater sense of consecration to the most approved scientific processes. An illustration will perhaps make most clear the meaning that I intend to convey by the term intellectual confluence. A raindrop, driven by the wind, falls in the mountain forest. Apparently it is lost, lost to the thirsty field, lost to the power of the waterfall, lost to the lordly river. But observe. The wisdom of the great and mysterious All-Mind has made a sure path by which that drop of rain finds its way at last into the river's fullness, to add to its power to quench the thirst of fruitful fields, and to bear the commerce of the world upon the broad bosom of confluent waters, such as the Ashley and Cooper rivers, upon whose historic banks we are met. There is need for a like process in the world of mind.

Into the mind of a physician who rides on his errand of mercy in his isolated and sometimes lonely country side, perhaps through that same mountain and silent forest an idea falls, an experience comes, and possibly a valuable discovery is made. How will that discovery become the valuable property of our whole profession? Shall it die with its discoverer, and let some fever still burn away the vital power of weary thousands until some other man shall stumble upon it? Clearly there should be an intellectual stream-path by which the truth or discovery can find its way to the universal medical mind. This is precisely one of the most vital functions of the wisely wrought chain of medical associations, by whose intricate and far-reaching ramifications, like the confluent rivers, such individual discoveries may be drained into the records of the central association. The physician of the mountain forest discusses his new treatment with a little group of local associates, and they in a larger

*President's Annual Address. Read before Tri-State Medical Association of the Carolinas and Virginia. Charleston, S. C., February 17, 1915.

group, until by a sure process, through state, tri-state and national associations, their ideas, if valuable, come at last to be the property of our entire medical profession. This particular advantage of the medical associations merits our deep consideration. We cannot overstress this function, this process of intellectual confluence, that drains into our intellectual profession all the valuable medical facts and investigations from all the individual workers in the world. It gives one very genuine sorrow to think how much has been lost through the long ages of the life of medical men upon this planet, because so many facts, truths, ideas, processes and discoveries have died with their discoverer. One cannot stand, as it has been my good privilege to do, among the bleak and sandswept ruins of the civilization of the Egyptians, without being touched by a knowledge that many of those things that made Egypt great have been lost, and some of them even yet undiscovered. And when we think by what a narrow margin of seeming accident most of our boasted medical science has been stumbled upon, our minds are filled with a sense of urgency to do everything to save, perpetuate and safeguard as a golden treasure all those sometimes seemingly small contributions of experiment and experience that go to make the glory of our science. If we had the records we could count thousands of valuable discoveries in our science which have died with their discoverer for lack of a system of intellectual drainage and confluence by which these things might have been taken up and perpetuated for the good of mankind. I know of no better illustration of this process of confluent thought than the circumstances attending the famous discovery of Tischendorf. This eminent German scholar came at night to the door of a monastery on the lonely and tradition-crowned summit of Mt. Sinai. He was admitted by the hospitable monks, and slept in the holy stillness of that mountain cloister. While sitting in the library, he noticed in a waste basket a fragment bearing the Greek words "kata Matthion." To his keen scholar's eye it was evident that this fragment was from an ancient Greek manuscript. By reporting this to various learned societies it was finally established that this manuscript was the oldest copy of the oldest and most valuable of books, and it rests to-day in the Imperial Library at St. Petersburg. The point is if Tischendorf had not reported to his learned society, if he had not formed the channel for the flowing of that knowledge to the world of scientific scholarship, this priceless treasure would still be hidden in the dusty alcoves of its lonely cloister.

Gentlemen, how truly this illustrates the probable loss of knowledge of untold medical value that sleeps to-day with the withered dust of some unknown physician or surgeon who allowed his knowledge to perish with his body. And how fortunate it is for mankind, the weary sufferer from many ills, that we have brought into existence that system of medical associations which seeks out and records for all time whatever may be of service to our science. No one can doubt the genuine benefit, in its service to mankind, of the humblest medical society.

To the end that our society may perform with utmost fidelity this vital function, may I be allowed to add that every member should feel a keen desire to preserve and transmit for discussion every idea which even promises to be of value to our fraternity. It is my deliberate judgment that we should not confine our reports or discussions merely to those things of which we have become certain and convinced. It is the scientific habit of mind to investigate those things which even have the merest promise of value. Otherwise, the individual and not the collective judgment of the society would be the standard. Many of the most learned scientific societies in the world will investigate minutely and discuss exhaustively anything out of which there is the faintest hope that they may get a valuable truth. Suffer an example. Rumor of the intelligence of the Elberfeldt horses and the strange concomitant phenomena came to the ears of the scientific world. Did they dismiss the subject as unworthy? I find that almost all of the learned psychological societies of the universities of Europe sent commissions to investigate. Even the great Maetterlinck thought the subject worthy of his lofty genius. To the humble stable of Elberfeld came the proudest sons of learning in the world, the immortals in the kingdom of the mind. This array of learning, these wise men of the West, seeking for light in a manger! What a lesson for us humbler searchers after knowledge! This is that rare virtue we call open-mindedness, the highest quality of those lofty men whose names shine like stars in the long and illustrious annals of scientific research.

There is an illustration, amounting almost to tragedy, of that temper of mind that rejects without debate a proposition which does not appeal to it individually. I have in mind the famous discovery of Galvani. No doubt you are all familiar with the circumstances that led to his astounding discovery. He reports the circumstances to his University faculty. Now here is the point. They scoff. They consider themselves above investigating froglegs, and by that attitude come dangerously near robbing the world of its most important physical discovery. But Galvani, though scoffed at on the street and called "Old Froglegs" by his learned associates, pursues his investigations, perfects the Galvanic battery and gave to the world of Science the wonders, mysteries and achievements of electricity.

I have spoken thus far in elucidation of the statement that our society finds one of its greatest uses as a system of intellectual confluence. Let us turn now to the value of discussion. In seeking to make definite the advantage of discussion we have a fine light thrown upon the subject by the etymology of the term itself. The word discussion is derived from the Latin word discutere, and therefore means to take apart, analyze, dissect, and criticise from every angle and every point of view. McCauley says of discussion: "Men are never so likely to settle a question rightly as when they discuss it freely." The reason for the great value of discussion is not far to seek. The view, or theory, or investigation of an individual is liable to many errors arising from his inability to investigate in all conditions and from every pont of view. For instance, a physician, noting an improvement in a patient after the giving of a certain treatment, may conclude that the value of the treatment is proven, when it is possible that the improvement results from climatic, physical or other conditions peculiar to the individual patient. Clearly the treatment must be tried in different circumstances, upon many different occasions and upon many different patients before we will be able to say that the wisdom of the treatment is finally established. Now, it is just at this point that the value of discussion comes. If a hundred men, from dif-

ferent parts of the world, examine, criticise, and fully and freely discuss the question from every angle, point of view, and personal experience, the truth is very apt to be established either for or against the theory. All errors arising from mere personal and local antagonism and local environment will be eliminated and the result may be confidently relied upon. It is well known to this body of intelligent men that Socrates practised discussion as the fundamental of his process of teaching, saying that thus is truth established. It is surely not necessary to call your attention to the rise in the last century of the process of literary criticism, which is nothing more than discriminating discussion, in the learned world, that has corrected, defined, and established truth in all departments of intellectual activities.

This much must be said in all honesty as a limitation to the statements just made: discussion is valuable only in a company of men who are capable of intellectual detachment, by which I mean freedom from personal interests, prejudices, personal antagonisms and any other quality that prevents the sanest, calmest and most disinterested judgment. The type of man who can discuss rightly is to me very beautiful and very wonderful. He only wants to find the truth. The desire for personal triumph in debate cannot influence his judgment; he cares nothing for being in the majority; he discusses the opinion of his greatest enemy with unwavering justice, as much so as the opinions of his dearest friend; he welcomes difference of opinion because he knows that out of difference of opinion the ultimate truth is born, and in his heart all personal feeling or prejudice or enmity is lost in the presence of the need to find the truth. In the presence of the man who allows personal feeling to enter into his association with his brother physicians, we can have nothing but contempt. In the presence of the calm and exalted man that loves and seeks the true knowledge we stand uncovered. Such a man was Hunter McGuire, and his name has a permanent place in the honorable records of our profession. Such were almost all those men whose names are a part of the heritage of our science. I looked once upon the clouds that wrapped the lesser Alpine hills that were hidden by this somber mantle, but far above them lifted the imperial front of Mount Blanc, king of mountains, undisturbed by the driven mists of the vale, unshaken by the winds, calm and resplendent in his ermine mantle of unmelting snow. There are parts of our nature that become swept by personal feeling and prejudice, by a dark mist; but surely in most of us the love of truth is as Mount Everest, high—exalted against all the winds that blow.

It is a most significant fact that in the world of literary genius, criticism and discussion are invited. Dante invited the criticism of his friends upon works that were to take their place among the immortal products of genius. Bacon, the marvel of information and expression, McCauley and Tolstoy, Hugo and Sue, all these sons of light invited the discussion and criticism of their friends. And Shakespeare, who shines among the sons of light as shines a star above the glowworms in the night, invited the keen edge of criticism from his illustrious tavern companions. In the field of art Reubens, Van Dyke, Leonardo, Rembrandt, and Raphael uncovered their immortal work before the cold scrutiny of those who could see the fault of line and color. And if these sensitive men bared the product of their toil, dearer to them than life, to the discriminating criticism of other eyes, surely we, though untouched by the flame of their genius, may still be their peers in sublimity of spirit. We, too, in the words of Tennyson, "May follow knowledge like a sinking star beyond the utmost bounds of human thought."

We turn now to that advantage of medical associations that I will call cooperation. No man here needs to be told the meaning of this term. The world of the twentieth century is a commentary upon it; the advancement of mankind is an illustration of it. Anthropology is in a way only the story of the evolution of cooperation in human history. The mysterious Maker of this material universe laid the pattern deep in the nature of all created things. A rose is countless myriads of individual cells, yet so perfect is their cooperation that to us it is one single deep red rose. And so throughout this stupendous miracle and mystery of being the law of cooperation runs in unbroken consistency. Gentlemen, the world has found that there are tasks which one man cannot do alone; the day of isolated individual labor is forever gone. There are also tasks in our world of medicine which no man can accomplish alone. Some of us know the sorrow of a failure, but what one cannot do, all can do; where one fails, many succeed; individual effort against the great tasks are as a stone tossed by a child against the barren cliffs of Mount Mitchell. But the united strength of men could clear man's path even of that giant mountain.

Let us be more specific. You cannot bring a nation to pass progressive laws for health and sanitation, nor can I. But united, the cooperative brotherhood of physicians can bring any reasonable legal status to pass. What is it we cannot do if we deliver the full strength of our united purpose at one point? We have but to tell over our achievements in the past to know what we may accomplish in the future if we perfect our co-operative strength.

This perfected cooperation must come out of our willingness to work sympathetically with one another. We cannot all be friends, we cannot understand one another fully. But we can prevent our personal feeling from entering into our association, we can work side by side, we can estimate each other in our points of strength and not our points of weakness. Our cooperative endeavor will remove many misunderstandings and we will come to know each other better and like each other more. I found in wandering about the world, by the Tiber, by the Ganges, by the Yangtse Kiang, by the Nile, and by the Canton, that all barriers break down at last when we have touched elbows even with an alien people. As I have said, sympathetic cooperation levels all barriers at last. Many friendships are born in our heart in these associations and some of us have found in such associations those friendships which Hugo says "Is one of the few pearls to be found in the shadowy folds of life."

Cooperation! What a word! Each working with all, and all working with each. Can any one doubt that we shall win our battle against low standards, indifferent laws and deadly disease, if all work as one.

Let us now consider the value of publicity as one of the advantages of medical associations. You will recall that in the beginning of this address I made use of the figure of the circulation of a drop of rain. I left the figure purposely incomplete.

That drop of rain must return to the forest, the flower, the field, the river, bearing in its arms the answer to Earth's parched lips. So, also, our task is not merely to gather knowledge but to distribute it, corrected, validated and certain, to all the needful world. How shall this be done? By leaving merely on our records here the results of our investigations? Clearly not. Medical truth must have some process of distribution by which our results may be known to those who have not the good fortune to attend our meetings. The medical journal is the bulletin board, the voice of your endeavors.

In general it may be said that the advantageous functions of the medical journal are two: distribution of medical knowledge, and a permanent archive of medical evolution. As a means of distribution of medical discoveries and advancement, the medical journal cannot be overestimated. By their combined interlacing and interlocking with associations the distribution of medical knowledge is greatly strengthened.

The second vital function of the medical journal is the preservation, as a record, of medical advancement. All literature has this function. In point of fact, we might define literature as the process by which the thought of all men is preserved for the use of each man, the thought of all generations preserved for the use of each generation. It is by the process of literature that one is able to know and associate with the great souls of all time. Through the gateway of your library, you can sail the seas with Jason, battle with Ulysses on the windy plains of Troy, walk with Virgil and Homer along the heights, sing with Dante and Burns, look at the morning skies with Turner, think with Emerson and Kant, and die at the stake with martyrs and the emancipators of all time. So, in our medical records, may we learn at the feet of the great seers of our science, and preserve the light with which they illumined the night of man's suffering until all shadows shall flee at last before the oncoming morning of man's full physical emancipation.

GONORRHEA IN WOMEN.

By WILLIAM J. ROBINSON, M.D.,

NEW YORK.

CHIEF OF THE DEPARTMENT OF GENITO-URINARY DISEASES AND DERMATOLOGY, BRONX HOSPITAL AND DISPENSARY; EDITOR OF THE "AMERICAN JOURNAL OF UROLOGY, VENEREAL AND SEXUAL DISEASES," "THE CRITIC AND GUIDE," ETC.

WHEN a man has gonorrhea he knows it. While (having learned long ago not to be dogmatic about anything in medicine) I do not deny the possibility of a symptomless or practically symptomless gonorrheal urethritis in the male, still such cases, if at all existent, must be extremely rare. This is not, however, the case with women. A woman may go through an acute gonorrhea from beginning to end, without knowing it, may have a chronic gonorrhea for years without being aware of its existence, often sincerely believing that she is perfectly well. A man is not used to having pains or burning in his urethra, nor is he used to having any discharge from it. At the least pain or scalding, or the least appearance of discharge, he knows there is something wrong with him. The urethra when infected in women does not give as severe symptoms as does inflammation of the urethra in men, and besides in many cases the female urethra escapes infection, the infection being limited to the cervix alone or to the cervix and Bartholin's glands.

A woman is used to pains, the premenstrual pains with which many of them suffer are severer than the pains caused by the gonorrheal infection; and they often have a leucorrheal discharge of greater or lesser degree. An increase in the amount of secretion or in its color and consistency does not attract their attention. It is for this reason that many women harbor the gonococcus for months before applying to a physician, and some of them never apply at all. It is as a rule when the discharge is very profuse, offensive and irritating, when urination is painful and burning, or when there is a sharp salpingeal attack, that the physician's aid is invoked.

I repeat that many women go through life with a chronic gonorrheal cervicitis, with an abundant discharge containing numerous gonococci, and use no treatment except an occasional douche, because they are under the impression that they are suffering from the ordinary leucorrhea or "whites" (just as if leucorrhea itself did not require intelligent medical treatment).

I do not wish to be understood as claiming that gonorrhea in the female is always of a mild character, pursuing a subacute or symptomless course. I mean to say that such are the vast majority of cases which present themselves to the physician who has a "respectable" practice. In the vast majority of cases of respectable married women the disease pursues such a subacute course. Why? Because in them the infection when it takes place is usually the result of *chronic* gonorrhea in the husband. No half-way respectable man will enter matrimony when suffering with an acute gonorrhea, and only an exceptionally brutal or weak-minded husband, who straying from the path of marital fidelity, has acquired an acute gonorrhea, will continue to have relations with his wife. And here is the point I wish to make. When the infecting man is suffering with a chronic gonorrhea, the infection in the woman *usually* pursues a subacute or chronic course. But when the man has an acute gonorrhea, then the infection in the woman may from the very beginning assume a superacute, even fulminant character. And the rapidity with which the infection may show itself is remarkable. While several days usually elapse between the infecting intercourse and the first symptoms, there are cases in which the latter show themselves in twenty-four hours, and I have had a case where the bride, a girl of twenty-one, had her first intercourse at midnight, and the following noon she began to complain of burning, irritation, scalding urination, etc. In short, the symptoms showed themselves in twelve hours after the infecting intercourse. In her case the gonorrhea proved of a virulent character; the contributing factors were the frequent repetition of the act during the night (five or six times) and the violence with which it was performed. The defloration, which leaves an open raw wound, was also a contributing factor in this case, as it is in many other cases.

While it usually takes months for a salpingitis to develop as a result of gonorrheal infection, there are cases in which distinct symptoms of inflammation of the Fallopian tubes may develop within a few days, or even *within a few hours* after an infecting intercourse. In such cases we are forced to believe in the suction action of the uterus. It is impossible to believe that the infection reached the Fallopian tubes by continuous extension, within such a short period. It is more plausible to believe

that the infection took place by the infecting, gonococci-containing material being sucked up into the uterus and into the Fallopian tubes. This appears to be more likely from the fact that a gonorrheal salpingitis may exist without an intervening endometritis or metritis.

The symptoms in an acute or superacute case of gonorrhea may be very severe. Within several days after an infecting intercourse, and sometimes within several hours, the latter particularly in young virgin brides, and still more particularly if the act is performed stormily and repeatedly, the woman begins to complain—or if not to complain, then to experience, because many of them do not complain until their condition becomes unbearable—of a burning and itching in the vulva and vaginal introitus, of frequent urination, accompanied by strangury, and a scalding sensation. A discharge soon makes its appearance, which according to the severity of the case may be creamy, cream-yellow or greenish. It may possess little odor or be extremely offensive. It is often very irritating, eroding the skin with which it comes in contact and causing pruritus and intertrigo around the genitals, anus, thighs, etc. If proper cleanliness is not observed, the infecting discharge may invade the anus and a gonorrheal proctitis be the result. There is usually an elevation of temperature, 100 to 102° F., there may also be a chill, and the feeling of general malaise may be quite pronounced. If the infection involves also the Fallopian tubes, then all the general symptoms may be greatly aggravated. The chill may be quite severe, the temperature may go up to 103° or even 104° F., the abdomen is tender, and the feeling of malaise may be so severe as to create apprehension of a general peritonitis.

The diagnosis of an acute or superacute case of gonorrhea in the female presents no difficulties. The history and the symptoms as related by the patient are alone sufficient. Inspection of the genitals, covered with pus, the introduction of a speculum, which shows us an inflamed eroded cervix, bleeding at the slightest touch, and bathed in pus which oozes from its external os, make the diagnosis certain. No bacteriological examination is necessary.

Treatment.—I know of no condition in medicine where *noli nocere* is more important that in treating gonorrhea of the female. It is just as important to know what not to do and not to do it as it is to know what to do and to do it. In other words, negative treatment is here as important as positive treatment. In fact, abstaining from doing certain things is often the most important part of the treatment.

The great, the paramount point in treating gonorrhea in women is to prevent the disease from passing the internal os and spreading through the endometrium into the tubes, and from there into the ovaries and peritoneum. As long as we can keep the gonorrheal process limited to the cervix and the external genitals, gonorrhea is not a terrible disease. We can handle it without great difficulty, and cure it eventually, though the time required for a cure may in some cases be exasperatingly long. It is when the gonorrheal process is extended above the internal os that we become helpless. For after the process has involved the endometrium and the Fallopian tubes there is no medical treatment; there is only expectant and surgical treatment, which is of course no treatment at all in the true sense of the word. Removing the tubes may be necessary to save the patient's life, but to cut out an organ is not to cure it.

Unfortunately, it is here that physicians have sinned most pitifully. I have no hesitation in saying—it is painful to say it, but nothing is gained by hiding the truth—that a large percentage of cases of endometritis and metritis, salpingitis, and peritonitis, that thousands and thousands of cases requiring surgical interference are due directly to the physician's well-meant energetic treatment. The introduction of syringes and probes into the cervix, the scraping and cauterizing with strong caustic solutions, are in many instances directly responsible for the extension of the inflammation and for the aggravation of the patient's condition. Those who know anything about the treatment of gonorrhea in women and are not obsessed by the *furor operandi*, know that we get the best results by the gentlest methods and mildest applications.

I consider these prefatory remarks of extreme importance, for until the physician is imbued with the feeling, saturated with the conviction, that brutality is not a necessary element in the treatment of gonorrhea, that too energetic treatment is often injurious instead of beneficial, that the uterine cavity must at all hazards be protected from an extension of the inflammation, and that he at least must not be the causative factor of that extension; until he is convinced of all these things he is not a safe person to undertake the treatment of a case of gonorrhea in a woman.

General Treatment.—The general treatment of acute gonorrhea in the female can be expressed in one word or phrase: rest, taking it easy. If we wish to avoid a salpingitis or extension of the inflammation above the internal os, this is a *conditio sine qua non.* It is unfortunate that many women, and respectable married women at that, still must keep on doing their household work or other heavy work. Where it is unavoidable it is unavoidable, and that is all there is to it, but the proper thing would be to put the woman to bed, or at least keep her in her room for a couple of weeks and have her take things very easy.

Where there is a considerable rise in temperature or symptoms of salpingitis seem to be threatening, then putting the patient to bed is imperative, and applying an ice-bag to the abdomen is very useful.

Coitus must be absolutely interdicted. One can think of nothing more harmful, more dangerous, than coitus for a woman affected with gonorrhea. Intercourse is bad for a male gonorrheic patient, but it is very much more dangerous for a female gonorrheic patient. It not only aggravates the existing condition, increasing the inflammation in the vulva, urethra, and cervix, but it is about the surest way to cause a salpingitis. I have known cases which were progressing very nicely, which were on the point of recovery, but which became suddenly aggravated and in which symptoms of salpingitis became evident immediately after coitus. So this must be forbidden absolutely in all acute and subacute cases of gonorrhea. No exceptions can be permitted. Whether this extension of the inflammation is due simply to the engorgement of the uterus and other genital parts induced by the coitus or to a certain suction and peristaltic action of the uterus is immaterial. Both may be causative factors. The fact remains that coitus is a dangerous procedure, which may lead to a fatal issue, for a woman suffering with acute or subacute gonorrhea.

A man who forces a woman in such condition to submit to intercourse is a criminal brute, and the woman who submits to it is a pitiful slave. And still the woman is often forced to submit to it, the husband thinking that if he uses a condom and is not too violent he has done everything necessary to protect himself and her.

As far as the diet is concerned, little or no change need be made in it if the urethra is not involved. Spices and alcohol, however, are best omitted, as they do perhaps cause congestion of the genitalia, and thus aggravate the condition. But where there is a urethritis practically the same restrictions are indicated as in gonorrhea of the male.

As far as internal treatment is concerned, none is necessary unless the urethra is involved. When the urethra is involved and urination is painful, then we may give the same balsams, hyoscyamus and alkalies as we do in urethritis of the male.

Local Treatment.—If the local treatment in male urethritis is important, it is much more so in gonorrhea of the female. In fact, it is the only part of the treatment from which definite results can be obtained, the internal treatment being merely occasional and auxiliary. The treatment to be successful must be of two kinds; one administered by the physician, the other administered by the patient, or to the patient, in her home. The home treatment consists in the use of injections and suppositories. The medical treatment, that is, the treatment on the part of the physician, consists in local applications, that is, in swabbing and painting the parts, and occasionally in cauterizing. Both parts of the treatment are necessary, as they supplement each other.

As stated before, the home treatment consists in the use of vaginal douches and suppositories. The injections that I prefer to all others are iodine, lactic acid, and a combination of alum, zinc sulphate, and copper sulphate. Where the discharge is very profuse the injections should be given as often as four times a day. After the discharge becomes less profuse, twice a day and then once a day is sufficient. The iodine injections are made by adding one tablespoonful of tincture of iodine to two quarts of hot water. In some cases this is too irritating, and we may commence with a teaspoonful to two quarts of water. The lactic acid is used in the strength of 1-500 to 1-1,000. The alum, zinc, copper combination has the following formula:

Aluminis,	℥iv
Zinci sulphatis,	℥i
Cupri sulphatis,	℥iv

Sig. Tablespoonful to 1 or 2 quarts of water.

The injections or douches should invariably be taken in the recumbent position, the patient lying flat on her back on a flat douche pan. It is better when the buttocks are raised, so that they are on a higher level than the rest of the body. The injection is given very slowly, the fountain syringe hanging but high enough to permit the liquid to run out. After each injection the patient should remain for half an hour, or at least fifteen minutes, flat on her back. This permits some of the liquid that remains in the vagina to bathe the vaginal walls and the cervix. In the average case I order two vaginal douches a day: in the morning, either the iodine or the lactic acid solution; in the evening the astringent powder. Where three or four injections a day are ordered they are used in alternation. There is no doubt as to the good effect of these injections. Not only do they keep the parts clean and mechanically remove the discharge, which is such a good nutrient medium for the various saprophytic bacteria, but they also have a gonocidal effect, heal erosions and congestions, and help materially the doctor's work.

In some severe cases I also order suppositories, one suppository to be introduced at night. The suppositories usually contain as their active constituent either protargol or the lactic acid bacillus. The formulas of these suppositories are as follows:

℞ Protargol,	gr. v
Olei Theobromatis,	℥i
M.f. suppos. ovale vel glob.,	No. i
D. Tal. Dos.,	No. xii

Sig. One at night, inserted high up in the vagina.

℞ Bac. Bulgaricus Tablets	gr. x
Ol. Theobromatis	gr. l
M.f. Suppos.	No. i
D. Tal. Dos.	No. xij

The tablets may also be inserted in substance.

The Doctor's Treatment.—The patient comes to the office always immediately after having taken a thorough douche. The only time the douche is left out is when the doctor wants to make a bacteriological examination of the secretions. He wipes off the vulva, examines carefully for any inflamed points or erosions, and if there are any he touches them with silver nitrate 10 to 50 per cent., or even with the silver nitrate stick. The ducts of Bartholin's glands are examined carefully, an attempt is made to express any pus, and if found necessary they are cauterized with a thin probe or a 10 per cent. silver nitrate solution is injected into them by means of a hypodermic syringe with a blunted needle. The urethra is next examined, and if affected is swabbed with a 5 to 10 per cent. silver nitrate solution. As a rule the urethra responds to treatment very readily. I have no use for any urethral bougies or suppositories in women any more than I have for them in men. The vagina is next examined with a speculum and a good light, and erosions, if any, are touched with silver nitrate solution, 10 per cent., or tincture of iodine full strength. Lactic acid, full strength, is also a good application.

We then come to the cervix, which is the most important part of the treatment. We wipe it off as carefully as we can, introduce several cotton-wound probes and try to remove the cervical plug. The entire cervix is then painted with tincture of iodine, and a thin cotton swab dipped into tincture of iodine is gently introduced into the os. Care is taken not to pass the internal os, though if it should pass the danger of extension of the infection would be nil, or practically nil. Iodine is one of the best agents we have in treating gonorrhea in the female, and while I still use silver nitrate applications to the vagina, vulva, and urethra, as far as the cervix is concerned I limit myself exclusively to iodine. My results have been much better since exchanging silver nitrate for iodine, because silver nitrate denudes the delicate surface of the cervix, and may perhaps be influential in causing an extension of the inflammation. Instead of a probe a thin, long uterine syringe may be used and a few drops of tincture of iodine may be deposited in the cervix.

When the infection has spread into the endometrium and the tubes then it really ceases to be

a genitourinary and becomes a gynecological case. But the gynecological surgeon can do medicinally no more than the ordinary physician unless it is a case which demands operation. The proper treatment of endometritis and salpingitis is rest, hot or cold applications by means of compresses or poultices to the abdomen, and tampons of gauze saturated in glycerite of boroglycerin or ichthyolglycerin or thigenol-glycerin. That is all we can do and that is all we should do. Injecting or swabbing the uterus with caustic or strong antiseptic applications, scraping, or curetting the uterus, all these are brutal and useless procedures; not only useless but injurious. They may do good in some cases, but the cases in which they do harm are so much in preponderance that no conscientious physician should employ them. We can never be sure of removing all the germs by these measures, while we are pretty sure to cause their further spread and development and to aggravate the inflammation. Curetting is not abused so much now as it was formerly, but it is still practised ten times more often than it should be. Hot baths, particularly pretty concentrated sea salt baths, are useful in aiding the absorption of exudates. And I repeat that unless the case is a distinctly surgical case, demanding surgical intervention, this is all the gynecologist, genitourinary surgeon, or general practitioner can do. An attempt to do more is not generally dictated by a desire to benefit the patient.

Vaccinotherapy.—The author is not an enthusiast about vaccine in gonorrheal conditions. In urethritis, for instance, male or female, he considers it useless; and in many other conditions in which it is being used very extensively he considers its value very doubtful. Careful investigators who can guard against the *post hoc propter hoc* fallacy are coming to the same conclusion. Nevertheless, in conditions which are not accessible to local treatment, such as salpingitis, we are justified in giving the antigonococcic vaccines and bacterins a thorough trial. In a small percentage of cases they seem to be useful.

12 Mount Morris Park West.

PHYSICAL BASIS FOR MORAL AND MENTAL DEFICIENCIES.

By HENRY M. FRIEDMAN, M.D., LL.M.,

NEW YORK.

ACTING ASSISTANT SURGEON, UNITED STATES PUBLIC HEALTH SERVICE.

It has long been understood that the extreme mental backwardness of the idiot and of the imbecile is not merely an abstract, obscure mental condition, but is most likely due directly to extensive physical changes in the brain tissue. In imbeciles the tissue changes often are very concrete in that they affect the motor areas of the brain and cause gross bodily defects. Likewise in such psychoses as are exemplified by paresis, senile dementia, epileptic insanity, etc., the most apparent causes are physical tissue changes. In the idiopathic psychoses and the lesser mental deficiencies no tissue lesions are found even with the microscope, and they are ascribed to inherent, obscure mental infirmities of the brain. On the other hand, among the backward population of schools and institutions there are a great many who have physical and sensory defects, not organic in nature, which when discovered and remedied clear up or improve a great many of them mentally. "Mental dullness may be caused by a variety of pathological conditions far removed from the immediate center of intelligence, and it is the imperative duty of the educators to locate these causes and when possible remove them, instead of shirking their responsibility by grouping all backward children together."[1, 2]

Physical and Sensory Causes.—Poor physical condition, malnutrition, anemia, and the intoxications interfere with brain nourishment and cause diminished brain action. Impairment of the special senses, diseases or disorders of the ductless glands, and certain other specific conditions are in more direct causal relation with mental deficiencies than the general conditions. The former act either by depriving the mind of the stimuli from without, necessary to brain fertilization, and without which even the richest brain soil must remain sterile; by the lack or the overabundance of certain so-called internal secretions vital to physical and mental well-being, or by the diverting influence, so to say, of other abnormal manifestations.

Ocular.—Of prime importance among the sensory causes of mental dulness are ocular defects of one kind or another. In most individuals visual memory is strongest and the first to appear, and defects in the visual channels do the greatest damage to the mind—and the auditory channels are not far behind. Children suffer a great deal from eyestrain due either to the effect on the eye muscle of general muscular underdevelopment, or to a local underdevelopment of the eye muscles alone, and which becomes manifest as soon as school work is commenced.[3] Unless the muscular defect of the eye is nervous or central in origin it is hardly likely to be purely a local muscular weakness. Indeed, eyestrain is commonly associated with the poorly developed physically and with the neurotic. In the larger muscles of the body variations in the strength or in the tone of the individual muscles, unless extreme, are not noticeable, but the muscles of the eye are so delicate that the slightest variation has a bad effect upon the adjustments of the eye. The constant strain of trying to overcome the muscular inequilibrium, especially when trying to focus for near work, causes the many neurotic manifestations of this type of backward child. At times the persistent attempts to continue the focus on reading matter results in many and apparently peculiar mental syndromes such as the omission of words in sequence and the substitution of words or letters not in that part of the text. It is caused by the wandering of the eye to other places when it can no longer maintain the focus, and in consequence, the attention. Under these difficulties it is not surprising that reading is shunned, learning is difficult, assimilation almost impossible, and mental dullness inevitable. The proper direction and easy adjustment of vision to the needs of the occasion are interpreted by the facial expression, and in eyestrain there is a blank expression of the face. Profound eyestrain has been found to accompany insanity and epilepsy, especially in those with a hereditarily unstable nervous system, and to clear up completely on correction.[4]

Pure errors of refraction are not only of themselves prolific causes of eyestrain, but they prevent the child from ever getting a true sharp image of the objects before it, and its world is in proportion untrue. The refractive errors of chief importance are hyperopia and astigmatism—and they are frequently found together. They are the least apparent and are oftenest overlooked, because

vision for distance is usually very good, and they have no difficulty in passing the only used test—the Snellen card. Yet they produce great discomfort and children cannot read even for an inconsiderable period without tiring. As soon as they recognize the ill effects of reading they shirk it. Often these refractive errors give rise to tics, twitchings, convulsive movements, torticollis, and curvature of the spine. The choreic and the convulsive movements combined with the attendant dullness have been confused with imbecility, only to disappear entirely on correction of the refractive errors.[5]

With myopia we have a defect more easily discovered, and one which gives the least amount of trouble unless the defect is so high that the child can practically see nothing. Myopia rarely causes eyestrain. While myopic children are often the brightest, their hyperopic or astigmatic classmates of equal mental capacity are inattentive and are branded defectives. High myopia is rarely left uncorrected and hence does not operate in the causation of mental defects, but unfortunately it receives the whole attention of the school physicians and nurses, while the more momentous errors are overlooked. Too much significance is accorded the standard test card for distance and too little to the more vital errors not of distance. "The action of the malformed eye begets disease of the eye, diminution of cerebral action, of feelings, and of nutrition."[5, 6]

The mental inferiority attributed to the albinos—the pink eyed—is due almost entirely to the effect of the failure of vision. The absence of pigmentation in the choroid changes the eye from a camera obscura to a camera lucida, prevents the absorption of the light rays, causes photophobia, and allows little or no work to be done under light. In early times this bat-like or owl-like propensity brought them a great deal of opprobrium and even persecution. While the visual defect cannot often be corrected, dimmed glasses will remedy the photophobia and allow the victims to read and to learn.

Auditory.—Auditory defects, whether central or nervous, or local and due directly to ear diseases, or indirectly to adenoids, nasal obstructions, or narrowing of the pharyngeal vault, deprive the mind of this pathway to it, and particularly of the stimulation necessary for the development of auditory memory. The deaf mute, though deprived of this pathway and of the mental exercise furnished by speech, is yet rescued from mental oblivion by the still modern methods of training through the patent senses. In the very young mute it is well-nigh impossible to differentiate between a negative mentality and a potentially normal one. With hearing lost, though possessing central and motor power of speech, children may remain deaf-mutes because they do not hear spoken language. Indeed, there are instances where, though the power of hearing and speech are normal, the child does not speak simply because being deprived of the company of other children it does not hear sufficient spoken language spoken to learn. Children learn to speak much sooner in the company of other children. It is important to recognize and to separate the various auditory-speech defects, and not to confound them with each other or with idiopathic mental deficiency, lest curable cases be set adrift.

Nasopharyngeal.—Nasal obstructions, adenoids, pharyngeal constriction, and tonsillar hypertrophies produce mouth breathing, difficulty and diminution of the respiratory function, restlessness and sleeplessness, with anemia, malnutrition, chest deformities, and the general lack of physical development, and are accompanied by neurotic tendencies and mental dulness. The usual concomitant, ear complications, reduce the hearing even to total deafness. These children are easily recognized on inspection from their typically dull facial expression, open mouths and protruding lips, yet the expression does not differ so very much from the dulness and apathy of the pure defectives, especially when the two conditions coexist, perhaps one the cause of the other. Removal of the obstructions and the treatment of the ear complications restore the hearing, the normal expression, and the intelligence.

Often, however, the removal of the adenoid vegetations does not remedy the conditions, and it is found that the vegetations were not even large enough to warrant removal. In these the pharyngeal vault is found so narrow that there is obstruction even without the slightest evidences of adenoid vegetations. There is usually a Gothic vaulting of the palatal arch, and a narrowing and an obstruction of the nasal passages, in most cases taking the form of deflections of the septum. The pharyngeal condition is developmental, probably hereditary and racial. The higher the plane of a race or of an individual the more does the cranial vault develop at the expense of the face, and the greater the tendency to obstruction. Even with very severe bony malformations the negro with his smaller cranium and larger face has little annoyance from nasal obstruction.[7] Unless some other remedy than the here ineffective intranasal operations is devised these cases remain permanently defective. Rapid separation of the maxillæ at the sutures by methods of orthodontia have been tried with much success if commenced early.[8]

Enlarged tonsils are local obstructions to the air passages, besides exposing a very large surface to infections; and in this respect they are considered to be a chief factor in the etiology of valvular disease in children. They cause inattention, restlessness and dulness. Removal is a comparatively simple procedure, and usually brings relief. Surgically, the indications would seem to be the entire removal, the enucleation, of the tonsils. Medically, it may be best to leave some of the gland tissue *in situ* in order that the gland may functionate with respect to a possible internal secretion. And, indeed, the old tonsillotomy is again gaining favor; it removes the obstruction, and that is, after all, what is particularly sought.

Genital.—Phimois and paraphimosis, in all likelihood in the female as well as in the male, are sources of irritation which militate against the mental and physical well-being of the child. They cause inattention and restlessness as well as bad sexual habits, especially masturbation, and help to divert the attention of the child from the proper channels for its development. Circumcision in the male is an easily applied remedy, and should be universally adopted.

Neurotic.—Of the neurotic manifestations which seem to bear a close relation to amentia of one degree or another, chorea is the most important and the most common. Chorea can last such an inordinately long time that it gives rise to the suspicion that one deals rather with a chronic and perhaps a permanent mental and nervous condition, than with real chorea. There is loss of memory and inability for application to studies; the grim-

aces and the frequent meaningless and unprovoked laughter may very easily be mistaken for a very profound mental deficiency. The irritability, instablity, and mischievousness are not unlike the temperaments of the "instabile" feebleminded, who while inattentive to, and backward in, the studies yet possess a sort of primitive brightness, cunningness, or precociousness. The more these choreic children are made to apply themselves to study the worse become their mental and nervous symptoms. This downward progress but confirms the erroneous impression that one deals with an idiopathic form of mental enfeeblement. Feebleminded children grow feebler in direct proportion with their age and the grade of their studies; older children naturally show defect more than younger ones—at least by contrast.

Tics, habit spasms, epileptic manifestations, and migraine attacks are nervous manifestations usually found engrafted on a weak heredity. They prevent attention, retard education and mental development. Migraine in older children and in adults is related to cyclic vomiting in young children; the cause in either is not known, but is believed to be either an hereditary constitutional inferiority, faulty metabolism, or a constriction of the foramen of Munro.

The so-called nervous children are usually very much under par physically, and often above par mentally. Their brightness does not, however, possess substantial stability; it is transitory, short lived, and very prone to give way in later life to the development psychoses, especially to dementia præcox, or to distinct mental enfeeblement. They are better described as facetious, cunning, or sharp, than bright. The mental spurts that these children do perform are nothing more than flickers under the lash of their nervous irritation; and it is not long before these apparently bright children succumb to physical and mental exhaustion.

Speech Defects.—Speech defects are largely neurotic manifestations, and are considered stigmata of degeneration; they retard mental development either through a communication of the motor defect back to the brain or through the hindrance to the facility of expression so necessary to liberal mental advancement. Things are remembered much more easily when repeated or expressed than otherwise, since the action of speech sets in motion and exercises many different nervous lines. Of this aid the stammerer is deprived. Older children become very sensitive of their defect and hesitate to take part in expressions or discussions. The fear of talking makes the severer cases little better than mutes—and worse off because they do not get the association or the attention of the latter. Stammering is curable and there is no excuse for its neglect.

Muscular Weakness.—Weak muscles, especially the muscles controlling the hands and fingers, and general muscular incoordination, often go hand in hand with mental weakness; and development of these muscles and their coordination develops the motor centers in the brain, and they in turn develop or stimulate to development the mental centers. It is for this reason that writing is such an important phase of teaching. "The training of the hand is the chief agent in promoting mental activity."[5] Motor methods of teaching, while perhaps the most primitive, are, nevertheless, the easiest for the child; and if deprived at the start of this method of coming in contact with environment, it will lose this influence in mental development. The right handedness of most people is an illustration of the connection between the muscular movement in writing and in declamation, and the speech center. The center of speech is closely in contact with the motor centers of the right hand. Either right sided muscular movement is responsible for the development of the speech center or the location and influence of the speech center is responsible for righthandedness. The value of muscular exercise and training in the school curriculum is not merely physical, but mental as well. The great value of muscular movement exercises in the training of defectives is now well established. Aphasia victims can learn to speak sooner by making them write. The connection of this defect with the mind is shown by the amount of mental deficiency among them, both when the condition is sensory or motor; and it is surprising that they are not more defective. The motor method of teaching is the easiest and the best, next is the visual and lastly the auditory.

Glandular.—While the mechanism, the function or the place in the human economy of the ductless glands are little understood, the results of overdevelopment and oversecretion, underdevelopment and diminished secretion or total absence of the glands, are oftentimes well marked; and of these results the mental disturbances and mental enfeeblement are of no little importance. Abnormal thyroid conditions give the most marked and the most characteristic symptoms. The cretinoid type of defective differs in no wise mentally from the idiopathic types, but unless too profound or allowed to go too long so that tissue damage has occurred, yields to thyroid medication. The deficiency or removal of the thyroid in later life produces an analogous mental and physical state as in the congenital form of deprivation, and is called myxedema. There is destruction and chromatolysis of the nerve cells and processes, and as a result the mental dulness, apathy, and deficiency may become extremely marked. Overfunctionation of the thyroid, on the other hand, causes extreme mental irritability, hysterical manifestations, excitation, and even manic excitation. In them there is rather a mental exaltation and precocity, than dulness or apathy. They are said to have a "chorea of ideas." These are in effect the mental manifestations of Graves' disease.

The absence, the arrest of development, or the removal of the testicles or ovaries causes a lowering of intelligence, memory, and general mental efficiency, besides the characteristic facial appearance of male castrates. Castration of animals produces shrinkage of the cerebral and cerebellar tissues and even of the superimposed brain case. Eunuchs and skopzies—members of Russian sects which have castration as a religious rite—are deficient in intelligence, in courage, and in morality, and they are indolent, avaricious, and cruel. The mental and nervous disturbances following the complete removal of the ovaries is now so well appreciated that whenever possible a piece of ovary, no matter how small, is left *in situ* to supply the internal secretion and to anticipate nervous and mental disturbances. Overdevelopment or precocious sexual development in children often goes hand in hand with mental precocity, but the training, education, environment, and companionship must therefore be carefully guarded lest this mental precocity be utilized in criminal rather than in upright ways.

The disturbances of function accompanying pituitary abnormalities produce, besides the well-known bony enlargement of acromegaly, pressure on the optic nerve, or psychic disorders from pressure of the thickening bone on the brain tissue, loss of memory, slowness of the mental processes, general mental depression, and mental enfeeblement.

In Addison's disease, a disease of the adrenals, probably of tuberculous origin, there is apathy, loss of memory, mental depression, dementia, mental imbecility of varying degrees, together with weakness of the special senses.

While in the advanced gland conditions there is little room for error in diagnonsis, it is not unlikely that in the early stages the mental deterioration may be the only symptoms, and then perhaps emphasized out of proportion to the lesion. If the frequency of association of somatic ills with the mental means anything, it means that many heretofore considered idiopathic mental or moral affections are quite concrete, and that it is imperative in every case to look for some tangible physical, physiological or sensory basis for the mental embarrassment. Many mental deficiencies can be improved by modern educational methods adapted to these classes of cases, even when no removable basis is discovered.

Sensorial Deficiencies.—The development of the nervous cells of the brain, and of intelligence, depends, then, for its proper and orderly progress first, upon a generally normally acting organism; second, upon the ability of the organism to receive from the outside, through the special or "unspecial" senses, the stimuli necessary for brain fertilization, and lastly the quality and the quantity of these stimuli. Were one born with a perfectly normal brain, but with all the known special or unknown unspecial senses not patent, one would be a complete idiot. The ability of the brain to receive stimuli depends upon the patency of the senses, and their ability to carry in the stimuli in sufficient quantities, without alteration and with sufficient alacrity. The quality and the quantity of the stimuli depend upon environment, education and training in their broadest sense.

Defects of Association.—Even after reaching the brain through patent sensory paths, in sufficient quantity and of good quality, the impulses would be of no value to the mind except for the good offices of the association or projection fibers. The higher forms of efficiency-conception, reasoning power, judgment and general intellect, depend upon their specialized and orderly action. The index of education is the quantity and quality of the percepts and more internal concepts and the number of their associative combinations. "No mind is more poorly trained than one which is crowded with items of information without an *inner relation* between them." And this is the state of mind of a great many trained, educated or "normal" defectives—they lack association and correlation. The power of association is the first to show lapse, defect, or disorder, and is an important diagnostic feature in these conditions. Defects and disorders of a more subtle character, and so ill defined as to defy identification, are caused by breaks in continuity or "short circuiting" in one or more groups of association paths. There are many mental variations from the normal due to some slight or some complex error in association combination—but the combination is unknown.

Unspecial Senses.—Ordinarily we look to the special senses as embracing all the paths of ingress to the mind, yet there must be other sense paths, of some we already have clues, of most of them we know nothing. They exist, nevertheless, and when defective must give rise to the many subtle deviations from the broader intelligence met with in all walks of life. Intelligence is, after all, nothing more than an appreciation of the proper value and relation of things, of facts, of ideas, of impulses—their relations syllogistically; but lacking some of these impulse data all the necessary elements of the syllogism are not present and the reasoning or viewpoint is not normal or logical. Bunyan's "five gateways of the soul" are not, then, the complete list of the senses; recently discovered senses are muscle sense, joint sense, tendon sense, heat sense, cold sense, the sense of pain, organic sensations from internal parts of the body, etc. Who can say that there are not numberless special or unspecial senses, the absence or disorganization of any number or combination of them producing vital mental eccentricities—and perhaps only partial in character or in degree; if severe, easily identified as a distinct mental condition; if slight, appreciated but not identifiable?

Certain senses are brought into being only under special circumstances. The sense or the instinct of life may be a very indifferent or dormant sense till after an attempt at suicide, or during or after serious illness—then it becomes very keen. The sexual sense in women often finds expression, apparently, only under certain circumstances—as after childbearing, for example. A great many senses are acting without giving evidences of their action—just as many bodily processes—but make themselves felt during inaction. The senses express themselves in quality, quantity, and intensity, and there may be disorders or defects in any of these respects. The color sense may be partial to certain colors. Hearing may be limited to certain tones, to high or low ones—or to pitch; taste, to various tastes—the sense of smell, likewise. Perception in all senses may be only between certain limits, and stimulations of greater or lesser degrees are not perceived at all. Sensory defects may be partial in numerous ways or degrees, but always leaving an imprint on the mind, however slight. Mental conditions from maldevelopment of brain areas, or from the inoperation of a sense or sense group, when more general than the local defect would justify, are communications by extension to the unaffected areas, or are the ill effects of bad neighbors; or it can be said that the other areas are less efficient because robbed of the association or mediatory help of the defective areas. A very profound condition, even when limited to a certain sense or area, may exert baneful influence over the entire brain and make of the individual a more or less complete defective.

Sensory and Mental Education.—In the normal brain with patent senses, disuse of the mind and lack of education deprive the mind of that exercise necessary for development, the same way as physical exercise is necessary for physical or muscular development. Like the body, the mind may atrophy from the lack of exercise. A great many studies have no material or intellectual value in later life, and, indeed, do not stay in the mind, but they have the effect of mental exercise, and that fully warrants the time spent thereon. "Mental development is not hindered by the deficient growth of the brain, but the brain is retarded in its development by the

absence of all mental activity and excitement." "Paths," which have been considered absolutely impervious, have been opened and widened almost to normal by mental exercise. Defectives have been trained to do most difficult things—music, poetry, translation, etc. An attempt should be made to discover and then to develop the pervious path or natural bent, and that path made to supply the loss to the brain from the impervious ones. Even an expert genius can be created in such a way. The genius-defective, the one-path genius—an individual with a "single track brain," sometimes also designated "learned idiot" or "savant idiot"—collects all the many strands of the mind which themselves separately are too little developed or too weak to be of any value alone, and launches them into the most likely field. The sum of all these undeveloped or undifferentiated or unspecialized strands, which because of their condition are biologically available for use in any place, are far greater than any individual normal or even overdeveloped content. The normal specialized brain powers being differentiated are genetically restricted from use anywhere except in their own particular field, and they cannot be gathered together to do the genius sort of work. Paths reclaimed or newly developed by training can be used to do the work of the defective ones in the same way as is done in tendon and nerve surgery where the good tendons and nerves are made to do also the work of the bad.

Education develops the brain cells; it does not increase them. Education cannot supply missing brain cells. Education and the influence of environment do increase the number of the dendrons, the projection or the association fibers, and allow greater latitude and variation of association and greater mental poise and equilibrium. The mutations and combinations in association increase in direct proportion to the increase of dendrons. The number of the developed or matured cells—that is, the maturation of normal cells—does increase with education probably up to the 40th year, after which heretofore undeveloped cells can no longer develop. This accounts for the mental fixity of age. Maturation of young, immature, and functionless cells is brought about in the course of mental development and is accomplished through and increased by, education. Large numbers of undeveloped cells are found in all adult brains, and it shows that all cells have not been taken up in the formation of the psyche. The number of cells capable of development are commensurate with the possibilities of education. The mental fixity in age, where remote events are vividly recalled while recent ones are not, simply means that in the early and the receptive period of life the brain cells were physically affected by the impressions which remained physical parts of the cells, and therefore retained in memory, while the now old, sclerosed, and unreceptive brain cells can no longer take an impression, and things pass out of memory with the passing of the event. The higher the psychic plane of the individual the smaller is the number of the undeveloped cells. Brain cells governing defective sensory paths are immature, but can be developed through other avenues—which accounts for the apparently universal mental development of the Helen Keller and Laura Bridgeman types. One may be made to learn even through the skin. "How wonderfully it is proven how much the senses are alike at the bottom, and to what point they may supply one another." Cell development is hastened by physical and sensory efficiency and impeded by all impediments of environment. "In persons in different stages of weakmindedness the cells are accordingly defective in size and in number." [10, 1]

Partial Mental Deficiency or Mental Assymetry.—Aside from definite sensory defects of kind, quality, or degree, which may have their effect on the mind, there are mental deficiencies limited to certain conceptions, where no sensory defect is at least apparent. There may be defects of apperception, association, judgment, and discrimination—analytic or synthetic, memory of kind—visual or auditory, and of place, things or events, of suggestibility, of imagery or imagination, introspection, will power, moral consciousness, of personal, race or familial pride or duty, etc., and of any number of combinations. Defectiveness in one or more of these, especially if not marked, need not influence the individual's usefulness. Such defectives are found among college students, teachers, professional men —and in fact, in all walks of life. Some persons have very strong visualizing powers and visual memory, but very poor auditory memory; and if teaching were confined in them to auditory methods, they could derive no benefits from them, would fall behind and soon become backward; whereas, if the visual methods received more emphasis they would remain quite normal. Others may be deficient in both auditory and visual memory, and while the coexistence of both is a serious handicap and indicates constitutional inferiority, yet a great deal can be learned by motor methods of teaching, especially when pupils are strongly motor minded. These learn by action what others learn by seeing and hearing. Motor minded children labor at a great disadvantage with visual and auditory minded classmates. The motor mind and the motor method of teaching are respectively the most primitive and the simplest. The feebleminded, in fact, can be taught little by any but this method, and, indeed, they are taught a great many things by which they become self-supporting.

All teachers have had experience with the beginner at school, where even the apparently normal children were backward in one way or another; some were good readers but very poor writers, others good in mathematics but poor in writing, and so on for all the subjects. Everywhere there is given emphasis to human imperfections and weaknesses.

The early backwardness, in school matters at least, of some of the great men in history is explained on the ground of partial mental deficiency unrecognized and not provided for by the early schoolmasters. When, however, these men were allowed or themselves assumed the liberty of individual methods of mental development, the genius in them promptly rose to the surface. Had they been too long restrained they might have been lost to the world and perhaps been morons. It is said that John Hunter, the anatomist and surgeon, could not learn to read or write till 17; Oliver Goldsmith's teacher said that he was impenetrably stupid; Henry Ward Beecher was deficient in word memory; Wordsworth, Linnæus, Darwin, Newton, Heine, etc., were considered defective school children.[11]

Sensory and Mental Compensation.—It is a common belief that curtailment of one or more of the senses was compensated for by Nature in the enlargement of scope, function, and intensity of one or other of the sensory powers or of the general

mental capacity. The blind, for instance, have been credited with extraordinarily fine tactile sensation and very acute hearing, but this is not corroborated by actual experiment. With the loss of a sense or diminution in its power, the organism is left with fewer senses among whom to divide the limited attention, and their powers are better trained and made capable of keener observation. The sense or senses which came nearest to being able to take the place of the defective one are given better educations. To the organic economy the result is the same no matter in what manner this result is reached. Blind tuners are sought after because they seem to have a finer and more sensitive appreciation of tunes than tuners who see. The blind are said also to possess a "sixth sense" or a "sense of obstacles" with which to perceive and avoid obstructions—and this seems to have practical demonstration.

The physically deformed are likewise credited with greater mental capacity—in spite of the doctrine, *mens sana in corpore sano*. The greater capacity, if present, is usually special, in one line, and is present only because more pressure has been laid on their mental education—even in families where the training of children would be in manual occupations—in order that they may hold their own with the people with whom they are to compete, in spite of their infirmity. In others instead of a generally liberal education being given, a special education, even to the exclusion or neglect of other lines, is commenced very early with such a purpose in view. Inquiry is made into, and attention paid to, the bent or innate capabilities of the child and these fostered and trained to fit them in a field where they can do the most. Such inquiry and attention would be of benefit to all children, and perhaps this would help lower the number of misfits and incompetents in all walks of life.

Moral Deficiency.—The criminal or unmoral tendency may be cited as a definite, though serious example of partial mental deficiency. Frequently criminal and mental conditions are closely associated. It has often been demonstrated that a large part of the criminal population of penal or other institutions is distinctly backward mentally and physically. The moral sense or conception does not differ materially from other conceptions, and it is in this conception that the criminal is found wanting—perhaps brought about through the absence or inefficiency of some unknown unspecial sense or some ductless gland.[12] The ammoral may be low enough to be a moral imbecile or idiot, with crimes bestial; or he may be a little higher and be merely a plotter of mischief—a moral "instable;" or he may even be a genius in crime, with mental and physical development of the highest, but morally the lowest. The defect in moral conception need not be universal, so as to make one devoid of any moral sense or upright tendency. It can be partial in that the individual has a proneness only for certain unsocial acts. He may be a veritable specialist or genius for certain crimes, and a veritable failure in others, which he may be unable to do well or unwilling to do—perhaps, from the moral standpoint. Indeed, most people will consider certain acts honest and moral, and commit them without any qualms of conscience, which even on casual analysis are dishonest. Besides, what is now right may be by a future conception very wrong—but the normal will soon rise to that conception.

Even conceding the somatic basis for crime, environment is yet the exciting cause, and rescue from the temptations of life would often prevent the tendency from becoming manifest, just as guarding from adversity can prevent latent psychopathic tendencies from becoming patent. Under improper environment it is not improbable that a great many now moral individuals would be criminals.[13] The criminal tendencies *per se* are the normal tendencies of primitive races, but these are of no comparative value because aboriginal races are on the whole defective mentally. Aboriginal children can be trained to be as bright or even brighter than civilized children, especially when trained under the same environment, but their mental development is determined by a short period of their lives, and at a very early age they have exhausted their limited supply of gray matter and they stop developing further. The childish tendencies such as wandering, begging, lying, cruelty, etc., are primitive, and the criminal acts of later life, where there has been no proper training or guardianship, are merely accentuations given them by the added mental development. The general tendency to unsocial deportment is atavistic, since the moral sense was absent in the primitive peoples, and their presence now is an evolutionary change and adaptation for purposes of self protection, so as to allow individuals thus protected by the communal moral sense to devote their time to other endeavors instead of merely to self protection. Morality is often more of a special habit than a principle.[1] "The barriers against crime are will power which controls the passions, and sound judgment which allows one to distinguish between right and wrong."[12] To whatever cause the criminal tendency is ascribed—to the lack of moral sense, to habit, to mental or physical defect, to environmental conditions or to atavistic retrogression, the remedy cannot logically be found in punitive therapy.

Age Determinations and Responsibilities.—In every determination of mental efficiency or moral responsibility the age is a pivotal point. Age is a relative and not an absolute consideration. The chronological age means only that one has been in being a certain number of years, and does not convey so definite or so important a meaning as would be conveyed by the anatomical, physiological, or psychological ages. Some children mature very slowly in every respect; others, the precocious, mature very rapidly. In both the chronological ages may be the same, yet it would not be correct to say that the slowly maturing and the precocious child are of the same age, and to charge them with the same mental and moral responsibility. It is difficult, however, to determine with any degree of accuracy the anatomical, physiological, or mental ages. Probably one's own experienced judgment, after careful examination and the consideration of all data, is the best guide to the actual age. Medicolegally such a judgment might not stand, for something more definite is required, based perhaps on some technical observation. Rotch suggested that the carpal bones of the left side show on Rœntgen-ray examination a uniform degree of development in harmony with the general physical development. A table of carpal bone ages could be constructed, which would always tell the truth and could be used as a standard for comparison. This method is not practicable and therefore not much in use.

Mental Age Determinations.—Unless, in using the Binet-Simon test or its modifications, the actual

or anatomicophysiological age is also kept in mind, the comparison of the chonological age of a child with the Binet-Simon standard mental age will not be entirely satisfactory. The scoring used in making mental age computations, in which a child is given added credit for mental age if it succeeds in negotiating some of the problems of the next higher age, or less credit if he fails in some of the problems of the next lower age, and allowing the gains and the losses in the scores to neutralize themselves, can be further modified or corrected for error, according to the actual developmental age. The slowly maturing child receives a handicap; the rapidly maturing or physically precocious child should start on "scratch"—or even behind, according to development. The Rotch table, were it feasible, or one's own judgment of physical age, could be combined with the chronological and mental ages and perhaps a mathematically mean age determined. At any rate children should be started in school according to their actual developmental ages, and not purely according to their chronological ages. In this way the physically precocious child could even be started earlier than at the usual age of admission. On or before admission of a child to school it should undergo a very complete physical examination, as well as a complete mental examination. There should be placed against the child's name the results of these examinations, the likely degrees of physical and mental development, a notation of remedial defects, together with a digested personal and family history. A great deal of disease and defect could in this way be anticipated. After all, a school is a clinic, purposed to develop the immature, and no aid to this purpose should be overlooked.

Legal Responsibility.—A child is *sui juris* and responsible for its acts after reaching a legally determined age. Yet a child above this established chronological age, but below it mentally or physically is not *sui juris*. Children could be brought within the embrace of the juvenile delinquency acts if credited only with their actual or with their mental ages. Perhaps many more infants—not only in the legal sense of minority, but in the actual sense—old in years, but young in mind and body, could be saved from capital punishment, and society would also be saved from the odium of the hangman, at least in these cases. The attachment of psychologists to all courts has been frequently urged, for this ovation, the establishment of the children's courts, as well as the passage of juvenile delinquency acts, are forward steps in modern times.

Every delinquent child should, before being brought before a judicial officer, be examined mentally and physically, its personal, parental, and ancestral history inquired into, as well as an inspection made of its home environment. The results of the physical and mental examinations should be detailed in full, together with a statement of remedial defects, and the general index of the mental and physical development indicated. Where it is found that there are physical, sensory, or mental defects the final disposition of the case should be deferred until after treatment has been completed and time given for reaction. Perhaps treatment could be enforced where entered upon unwillingly by the child or its guardians as a form of "expiation" for the delinquency, as it were. If after treatment there is a cure of the unmoral tendency absolute liberty can be given, or perhaps for a time under probation; if unaffected by treatment, then proper custodial, but not penal care.

Conclusion.—In conclusion it is urged that idiopathic mental or moral deficiencies are idiopathic only because science is yet ignorant of the nature of the tangible causes; that many of these causes are physical or sensory and can be discovered on careful investigation; that this search must be instituted early in life because the mental development in normal children is so incredibly rapid that a lagging behind even for an inconsiderable period makes it difficult to catch up even after the cause of the lagging is removed—"Such is the mere life of vegetation the baby lives during the first two months; no grown person ever experienced such an expansion of life, such progress from power to power in that length;" [15] and that "if it is possible to perfect mankind, the means of doing it will be found in the medical sciences."

REFERENCES.

1. Swift, Edgar J.: "The Mind in the Making," 1909.
2. Treadway, Walter L.: "Care of Mental Defectives," Springfield (Ill.) Survey Comm., Nov., 1914.
3. Friedman, Henry M.: "Muscular Development," *Journal of the American Medical Association*, March 9, 1912.
4. Stevens, George T.: "Functional Nervous Diseases," 1887.
5. Gould, George M.: *American Medicine*, Vol. VII, p. 228.
6. Friedman, Henry M.: "Aspects of Visual Acuity," MEDICAL RECORD, Aug. 8, 1914.
7. Wilson, Joseph G.: "Anatomical Hereditary Peculiarities," MEDICAL RECORD, Jan. 20, 1910.
8. Haskins, William H.: "The Relief of Nasal Obstruction by Orthodentia," *Laryngoscope*, Nov., 1912.
9. Barr, Martin W.: "Mental Defectives."
10. Hammerberg, Carl: "Studien uber Klinik und Pathologie der Idiots." Upsale, 1895.
11. Bolton, Sarah K.: "Famous Men of Science."
12. Lorand, Arnold: "Old Age Deferred," 1911.
13. Friedman, Henry M.: "The Criminal's Place in Psychiatry," *New York Medical Journal*, Nov. 29, 1913.
14. Rotch, Thomas Morgan: "Chronological and Anatomic Age in Early Life," *Journal of the American Medical Association*, Oct. 10, 1908.
15. Minot, Charles S.: "The Problem of Age, Growth, and Death," 1908.

351 EAST FIFTIETH STREET.

GONORRHEA TREATED WITH SUCCINIMIDE OF MERCURY ADMINISTERED INTRAMUSCULARLY.

(A PRELIMINARY REPORT.)

BY GEO. B. LAKE, M.D.,

CAPTAIN MEDICAL CORPS, U. S. ARMY.

THE writer has been very much interested in the treatment of gonorrhea for a number of years, this interest having been stimulated by the exceedingly gloomy prognosis given by most writers on the subject, and particularly by a case, formerly reported ("Neisser Bacterin in Chronic Gonorrheal Urethritis,"—Lake, *J. A. M. A.*, Vol. LIV, Feb. 19, 1910, page 611), in which he had an opportunity to exhaust his therapeutic armamentarium during thirteen months of treatment, with no perceptible effect on the course of the malady or the condition of the patient.

During the next two years trials were made of various remedies, logically or empirically suggested, such as diphtheria antitoxin and iodized lime, administered intramuscularly, and various other local and systemic medicaments, but no results worthy of mention were obtained.

During the winter of 1912-13 the writer was in charge of the venereal ward in the Military Hospital at Ft. Sheridan, Ill., and, despairing of finding any specific treatment for gonorrhea, endeavored to work out a routine ward treatment which would shorten the stay in hospital of these unfortunate patients, while giving them a reasonable prospect of a cure of their malady. There was no means of determining what the requirements for discharge had formerly been, but the average stay in hospital, in fifty cases, was found to have been 15.72 days per case.

The treatment described below was decided upon after various experiments, and resulted in reducing the average stay in hospital, in 32 cases, to 11.75 days per case (a saving of three days), with a standard for discharge of two consecutive days of entire freedom from urethral discharge. A number of these cases, however, showed gonococci for a long time after they left the hospital. This treatment and its results are given in detail because it was used in all the cases to be reported at this time, except where otherwise stated, in connection with the mercurial treatment.

One admission to the hospital the patients were all given a purge of 5 grains each of calomel and sodium bicarbonate, followed next morning by a large dose of Epsom salts, kept strictly in bed upon liquid diet, and ordered to inject a penis syringeful of a 2 per cent. solution of protargol after each urination and hold it for five minutes. As soon as the discharge was reduced to mere moisture (usually in four or five days) the patient was permitted to be up and was given light diet, and, in addition to the protargol injections, received two irrigations daily of a 1-3000 solution of potassium permanganate. When the urethral discharge had been entirely absent for two days the patients were discharged from the hospital, but were followed up to determine the time when the gonocci disappeared for two consecutive days. In the 21 cases where the occi did eventually disappear this time averaged 26.86 days. During this time daily irrigations of potassium permanganate solution were kept up.

This may not seem a very rosy report, but considering the fact that the discharge *did* become negative in 68.75 per cent. of the cases treated, it compares favorably with the results under other forms of routine treatment, and fairly well satisfied the writer for a time. The matter of a specific for gonorrhea was, however, kept in mind and various drugs studied as to their possibilities in this line.

Early in 1914, while stationed at Augur Barracks, Jolo, P. I., a soldier of the Hospital Corps reported that he had an obstinate case of chronic gonorrhea of which he was very anxious to be cured, and that he had heard a laboratory assistant from another hospital say that he had seen cases clear up after succinimide of mercury had been administered for other conditions.

Remembering the pronounced tonic and alterative properties of mercury, and the remarkable results of Wright's use of this drug in tuberculosis, together with the fact that many of the older writers held it in high esteem as a general systemic antiseptic, the writer decided to give it a trial in this case (see Case I). The results were so striking that the treatment was used in other cases, nineteen of which are now to be reported in detail.

This article is in the nature of a preliminary report, as other cases are now under treatment, and various modifications will be tired and reported upon at a later date.

Case I.—W. H. J., white soldier. Has had numerous attacks of gonorrhea, as well as chancroids and syphilis, for which latter he has received three intravenous injections of salvarsan. The present attack of gonorrhea has lasted for nine months, with a constant milky discharge, constantly positive for gonococci, although he has been assiduous in the use of irrigations of solution of potassium permanganate. On March 23, 1914, the discharge was examined and found to contain very many pus cells and gonococci in every field. On this day he received 40 mgm. of mercury succinimide, intramuscularly in the left buttock, at 10.00 A. M. In the afternoon he complained of slight headache and dizziness, but this passed off before night. On March 24 the discharge was about the same and still showed many pus cells, but only one cell was found containing gonococci, after examining many fields. On March 25 and 26 the discharge was much less and very few gonococci were found. March 27, very little discharge, no gonococci found. On this date a second injection of 40 mgm. of the mercury salt was given in the right buttock. March 28, patient had a metallic taste in the mouth and slight tenderness of the gums, but this cleared up in a day or two. Marach 28 to April 2, inclusive, mere moisture at meatus—negative for gonococci. April 23 no discharge for three weeks, except slight stickiness at meatus after he has had an erection. Negative for gonococci. June 5, no discharge, no gonococci. November 2, no discharge, no gonococci (smear from prostate). This man ate full diet and did full duty during the entire treatment. He continued his irrigations until March 30, since when no local treatment has been used.

Case II.—A. S., Filipino soldier. Patient had gonorrhea several months ago. At present has a free, purulent discharge from the urethra. March 14 to 29, inclusive, gonococci abundant. March 27, 40 mgm. of mercury succinimide given in buttock. March 29, discharge reduced to mere moisture; on 30th it stopped. April 3 and 4, negative for gonococci. On the evening of the 4th, five drops of a 2 per cent. solution of silver nitrate were instilled into the urethra. April 5, discharge moderate. Negative for gonococci. June 22, no discharge. No gonococci. November 2, no discharge, no gonococci (prostatic secretion).

Case III.—A. O., Filipino soldier. Denies venereal history. Has free, purulent discharge. March 30 to April 4, inclusive, gonococci abundant. April 3, received 40 mgm. of mercury succinimide in buttock. April 4, discharge mere moisture. (This continued until the 9th, and was probably due to phimosis, which was later relieved by circumcision.) April 6 to 12, inclusive, and 22, negative for gonococci. On April 13 he developed a suspicious papular eruption, which was diagnosed syphilis (his Wassermann proved to be double plus) and salvarsan was administered on April 20 and 30, with entire control of the symptoms. June 22. No discharge. No gonococci. September 16 and 27 and November 2, negative. (All prostatic.)

Case IV.—B., Moro soldier. Denies venereal history. Free purulent discharge and edema of the prepuce. April 1 to 12, inclusive, gonococci present every day. April 10, received 40 mgm. mercury succinimide in buttock. April 12, discharge mere moisture; dry on April 16. April 14, 17, and 18, negative for gonococci. June 26, no discharge; no gonococci. September 19 and November 2, negative. (Prostatic).

Case V.—A., Moro Soldier. Denies venereal history. Free, purulent discharge and acute epididymitis, right side. April 10 to 17, inclusive, discharge positive for gonococci. April 15 received 13 mgm. mercury succinimide. (The supply had run low) in the left buttock. April 16, developed fever, which went to 102.2° F. and subsided on the 19th, at which time there was little or no discharge and the epididymis was nearly normal. Discharge ceased entirely and epididymis normal on April 21. April 19 to 24, inclusive, gonococci negative. April 25, positive. April 26 to 30, inclusive, no gonococci present. May 29, patient returned to hospital with a free, milky discharge and slight pain and swelling in the right epididymis. He had been having very violent drill (wall scaling). At rest in bed on liquid diet his discharge ceased in 48 hours. It was negative for gonococci at all times, up to and including June 8. June 1, received 65 mgm. mercury succinimide in buttock. Temperature went to 100° on the 2nd, and

subsided next day. June 22, no discharge; no gonococci. June 30, September 19, and November 2, negative (prostatic).

Case VI.—C., Moro soldier. Denies venereal history. Moderate mucopurulent discharge. May 3 to 27, inclusive, discharge continuously positive for gonococci. May 3 and 7, received 40 mgm. of mercury succinimide in buttocks. May 26, received 65 mgm. of the mercury salt in right buttock. May 28 to 31, inclusive, discharge negative for gonococci. June 22, no discharge, no gonococci. September 19 and November 2, negative (prostatic).

Case VII.—A. O., Filipino soldier. Denies venereal history. Moderate mucopurulent discharge. May 12 to 18, inclusive, discharge positive for gonococci. May 15 received 40 mgm. of mercury succinimide in buttock. May 21, 22, and 23, discharge negative for gonococci. June 22, no discharge; no gonococci.

Case VIII.—A., Moro soldier. Denies venereal history. Moderate mucopurulent discharge. May 13 and 15, discharge positive for gonococci. May 15, received 40 mgm. of mercury succinimide in buttock. May 17, 19, and 20, discharge negative for gonococci. June 22, discharge positive for gonococci. Ordered into hospital again. June 23 and 24, still positive. June 24, received 78 mgm. of mercury succinimide in buttock. June 25, 26, and 27, negative for gonococci. September 14, 1914, readmitted with profuse, purulent discharge. (All signs of a fresh infection.) Placed on ward treatment. September 14 and 15, many gonococci in discharge. September 15, received 26 mgm. of mercury succinimide. September 16, one cell found with gonococci, after careful search. September 17 to 19, inclusive, negative for gonococci. All smears except the first were made from prostatic squeezings. September 26, negative for gonococci (prostatic). October 11, positive for gonococci. November 2, negative for gonococci (prostatic).

Case IX.—P., Moro soldier. Denies venereal history. Moderate purulent discharge. May 25 to 27, discharge positive for gonococci. May 26, received 65 mgm. of mercury succinimide in buttock. May 28, 29, and 30, discharge negative for gonococci. A moderate mercurial stomatitis developed on May 28, but cleared up in a few days. June 22, no discharge. No gonococci. August 11, September 27, and November 2, negative (prostatic).

Case X.—J. 2nd., Moro soldier. Denies venereal history. Profuse purulent discharge, for 6 days. June 3 and 4, discharge positive for gonococci. June 3, received 65 mgm. of mercury succinimide in buttock. June 5 to 10, inclusive, and 22, no discharge; no gonococci.

Case XI.—B., Moro constabulary. Says he has had gonorrhea twice this year (probably recurrences). At present has gonorrhea and multiple chancroids. June 4, received 65 mgm. of mercury succinimide in buttock. June 5, 6, and 7, discharge showed a few gonococci. June 8, 9, and 10, discharge mere moisture. Negative. June 21 and 22, discharge positive for gonococci. June 21, received 78 mgm. of mercury succinimide in buttock. June 23 to 28, inclusive, no discharge; no gonococci. This patient has been on full diet and without local treatment since June 16. July 8, 12, 14, and 19, negative for gonococci (prostatic).

Case XII.—S., Moro constabulary. Had gonorrhea in 1911. Moderate purulent discharge. June 21 and 22, positive for gonococci. June 21, received 78 mgm. mercury succinimide. June 23 to 28, inclusive, negative for gonococci. June 22, slight stomatitis, which cleared up in 3 days. June 24, swelling and tenderness at site of injection, cleared up in a few days. No treatment except the mercury was given.

Case XIII.—A. B., Filipino soldier. Denies venereal history. Slight moisture at meatus, and a mild epididymitis, right side. June 23 to 26, inclusive, negative for gonococci. June 24 to July 4, inclusive, positive for gonococci. June 28, received 78 mgm. of mercury succinimide. June 29, stomatitis, local pain and induration, temperature 100° F. All cleared up in a few days. July 5, received 40 mgm. mercury succinimide. July 5, 6, and 7, negative for gonococci.

Case XIV.—L. M., Filipino soldier. Had gonorrhea in April, 1914. Did not receive mercury treatment. Now has slight mucopurulent discharge. June 22 to July 4, inclusive, discharge positive for gonococci. June 28, received 78 mgm. of mercury succinimide. July 5, received 40 mgm. of mercury succinimide. July 5 to 9, inclusive, negative for gonococci. No other treatment was given with the mercury. A slight stomatitis appeared after the first dose. October 4, gonococci again found in discharge. Apparently a new infection. Case now under treatment.

Case XV.—O., Hindu civilian. Denies venereal history. Not taken into hospital. Leads a very unhygienic life and never carried out directions faithfully. Was treated from time to time by native and Chinese "doctors." Suffered with inflammation of both epididymides at different times. Was under treatment for 4 months in all, and received four injections of 78, 40,* 65,* and 90 mgm. of mercury succinimide, respectively, after which he always improved for a time and then relapsed. Still under treatment. This case is classed as an entire failure of the method.

Case XVI.—L. D. T., American civilian. Has had gonorrhea three times, last time two years ago. Not in hospital. Working entire time of treatment. First seen July 12, at which time there was no discharge, but meatus was red and moist and there was uneasiness in urethra. Secretion positive for gonococci. July 12, received 78 mgm. of mercury succinimide. July 16, negative for gonococci; no symptoms whatever; no discomfort from mercury. August 20, has had no symptoms since first day. November 3, no discharge, no gonococci (prostatic). Local treatment consisted of injections of argyrol solution.

Case XVII.—M., Moro soldier. Has had gonorrhea previously. Profuse purulent discharge. July 14 to 27, inclusive, positive for gonococci. July 15, received 78 mgm. of mercury succinimide. July 22, received 40 mgm. of mercury succinimide.* July 28 to 31, inclusive, negative for gonococci. Discharge ceased entirely on July 28.

Case XVIII.—L., Moro soldier. Denies venereal history. Moderate purulent discharge. This case is recorded as a failure. In hospital from July 16 to September 2, under various forms of treatment all the time. Received three injections of mercury, of 78, 40,* and 65* mgm. of mercury succinimide, respectively. Developed a right epididymitis and a cystitis while under treatment, and was transferred to the Department Hospital, Manila.

Case XIX.—Z. M., Filipino soldier. Had gonorrhea two years ago. Profuse purulent discharge. July 26 to 28, inclusive, positive for gonococci. July 27, received 78 mgm. of mercury succinimide.* July 29 to Aug. 1, inclusive, negative for gonococci. July 31, received 65 mgm. of mercury succinimide. November 10, no discharge, no gonococci (prostatic).

Case XX.—L. F., Filipino soldier. Denies venereal history. Moderate purulent discharge. August 8 to 12, inclusive, positive for gonococci. August 10, received 65 mgm. of mercury succinimide.* August 13 to 17, inclusive, negative for gonococci. August 18 to 25, inclusive, positive for gonococci. August 22, instilled 5 drops of 2 per cent. silver nitrate into urethra. August 29 to Sept. 2, inclusive, negative for gonococci. (Last 3 smears were from prostatic squeezings.) September 7, readmitted with profuse discharge and many gonococci. September 8 to 28, inclusive, positive for gonococci. September 11, received 78 mgm. of mercury succinimide. September 30 to October 2, inclusive, negative for gonococci. (Discharge varied greatly in quantity and character. Several specimens—including the last two—were prostatic.) October 9 and November 3, no discharge, no gonococci (prostatic).

Of the first eight cases in this series, seven received, in the first instances, doses of 40 mgm. of the mercury succinimide, and one had only 13 mgm.

Of these eight cases, seven became clear of gonococci quite promptly; one in two days, one in three days, three in four days, and two in six days; the other patient remained positive after two doses of 40 mgm. of the drug. One of the seven cases that cleared up (Case VIII) relasped (or was reinfected) after several weeks, but this man and the one who did not clear up on the smaller doses (Case (VI), both became negative within 48 hours after receiving doses of 78 and 65 mgm., respectively. Case VI has remained clear, but Case VIII relapsed again,

*All the doses marked with an asterisk were given with a preparation of mercury which had in some way deteriorated, being of a brown color and the tablets softened. It was all that was on hand at the time. It is not known how this would affect its action.

and again cleared up in a few days after the mercury.

Twelve cases received initial doses of 65 or 78 mgm. of the mercury salt, and of these, ten promptly became free from gonococci (five in 2 days, one in 4 days, 2 in 7 days, one in 13 days, and one in 19 days) while two showed no good effects from the drug whatever (Cases XV and XVIII).

Of the ten, three (Cases IX, XVI and XIX) have remained continuously clear up to date; one (Case X) was clear for three weeks and was then discharged the service; two relapsed in two or three weeks, received another injection of the mercury, in larger dosage, cleared up again and have remained clear (Cases XI and XX); two (Cases XIV and XVII) relapsed (or were reinfected) two and one-half and three months, respectively, after leaving the hospital, and are now under treatment; and two (Cases XII and XIII) could not be followed up.

Thus, in the 20 cases, we find that 13 (65 per cent.) became clear of gonococci in an average time of 6.7 days, and have remained clear for periods ranging from 3 weeks to 7 months. Two (Cases XIV and XVII) remained clear for several months and were then, in all probability, reinfected; this would raise the number to 15 (75 per cent.). It is possible that one or both of the two cases which could not be followed up remained clear also.

Of the remaining three cases, one (Case XVIII) pursued an untoward course without any assignable cause; one (Case XV) never pursued the treatment consistently, and was using all sorts of weird remedies, prescribed by native "medicine men," and one (Case VIII) seems, in my opinion, as likely to have been reinfected as to have relapsed.

At this point it may be well to state that among these people a recurrence after two or three weeks is very likely to be a reinfection, for they are exceedingly promiscuous and undisciplined in their sexual relations, and a man who has just left the hospital after an attack of gonorrhea is almost certain to spend his first night outside in the arms of a woman who is, in all probability, herself infected. Thus, if a case remains free from gonococci for several weeks, it is fairly safe to assume that the man is cured, while if the organisms do reappear after two or three weeks it is, at least an even chance that there has been an exposure and a reinfection.

From the foregoing it will be seen that the results in these 20 cases show 65 per cent. cured in an average time of less than one week; 15 per cent. probably cured and reinfected; 10 per cent. lost for purposes of record, and only 10 per cent. showing wholly unsatisfactory results.

Three cases (XII, XIII and XIV) had no local treatment at all. Two of these have not been followed up and the other relapsed, so, for the present, at least, it seems best to accompany the mercurial treatment with the old and accepted local and internal remedies.

The bacteriological work on the first twelve of these cases (in the other eight cases the work was done by the writer) has been done with exceptional care and thoroughness by Dr. Chas. H. Halliday, 1st Lieut. Medical Reserve Corps, U. S. Army, to whom I am indebted for most valuable assistance. In the most kindly spirit he has worked against me all through this series of cases, in the endeavor to prove the idea either right or wrong.

He visited the wards at all sorts of hours so as to catch the patients unprepared; he passed platinum loops up to the posterior urethra in all cases in taking specimens; he stained every specimen both with methylene blue and by Gram's method, making the preparations himself and using a slightly modified Gram stain, which gave very beautiful results, as follows: (1) Stained with aniline-gentian-violet solution for 30 seconds. (2) Washed in water. (3) Slide covered with Gram's iodine solution for 30 seconds. (4) Washed in water. (5) Washed in 95 per cent. alcohol until color ceased to come out of smear. (6) Washed in water. (7) Stained with Bismark brown for 30 seconds.

In examining the specimens he found that most of them showed a variety of bacterial flora, and, to ascertain whether or not this had anything to do with the course of the disease, he examined three healthy soldiers and found that they all presented the same conditions.

He noted an interesting point in several of the cases and reported it to me in a note regarding Case VIII, as follows: "There are bodies in this smear which, to me, present very interesting possibilities. On June 23 and 24 this case showed numerous gonococci by Gram's method; on June 25 it was found negative; after a careful examination, however, there were numerous Gram positive organisms found in the smear. On June 26 there are a few Gram positive cocci present, though the smear is negative for gonococci. Throughout the field there occur many oval bodies, varying in size from a coccus to 1/3 the size of a red blood cell. These bodies present the following appearance: The smaller ones are stained throughout their structure; as they increase in size the staining reaction becomes somewhat changed, the organism appears to be deeply stained about its margins, becoming paler as the center is approached, until, in the largest forms, the body is stained only at the edge, leaving a clear space within more than half the size of the body. Examination of the slide also presents very minute bodies, much smaller than a coccus, and deeply stained. While an opinion of any value should not and cannot be advanced simply on the staining reaction of an organism, it is worth while to remember that all bacteria make some effort at self-protection when being subjected to adverse conditions; also that those bacteria which form spores, at first become enlarged, their staining reaction changed, and in their last stage present a body entirely changed in shape and size."

This note opens up a field of study for bacteriologists who have an opportunity to observe any cases which may be treated by this method by other observers.

The technique of giving the injections is simple. The syringe must be all-glass, and it and the needles, which are better made of platinum, must be carefully sterilized by boiling. The desired dose of the mercury salt is dissolved in 1 or 1.5 c.c. of hot water. The site of injection (usually the buttock) is sterilized with tincture of iodine and the needle is plunged deeply into the muscular tissues, the fluid ejected and the needle withdrawn. The spot is then once more touched with iodine.

There is considerable pain for an hour or two after the injection, but in all of these cases this has passed away promptly (usually within 24 hours), leaving no bad effects. Two cases (V and XIII) had what appeared to be a reaction to the drug, as in them the temperature rose after all injections and subsided promptly without any treatment, leaving no unpleasant results. Several cases developed a mild stomatitis, which subsided in a few days.

It appears, from a study of these cases, that the earlier doses were too small to give certain results, and, at present, the writer is giving 65 mgm. or more of the mercury succinimide as an initial dose in every case, and may increase the dose still further. It is now believed, also, that a second, smaller dose (say 40 mgm.) should follow the first after from three to six days, especially if the gonococci do not disappear within that time.

Of course, no definite conclusions can be drawn from so few cases as those here reported, and they are submitted only with the hope that others may be induced to use this drug as outlined, and that their results may establish or disestablish its value in this class of cases.

The writer wishes to express his disappointment at the fact that the valuable article on the use of mercury succinimide, by Surgeon B. L. Wright, U. S. N., in the MEDICAL RECORD for July 11, did not reach his hands until after the cases here recorded were complete, and this paper largely written. In fact, the original paper, embodying the first twelve cases, was submitted for approval on June 29, 1914. The suggestions made in Dr. Wright's paper are, however, being carried out in some other cases now under treatment, and the results will be reported at a later date.

AUGUR BARRACKS, JOLO, SULU, P. I.

THE USE OF DECANTED BLOOD SERUM AFTER SEVERE HEMORRHAGE AND IN HEMOPHILIA.

REPORT OF TWO CASES.

BY ASPINWALL JUDD, M.D.,

NEW YORK.

ADJ. PROF. SURGERY, POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

IN reporting the following cases, it is my desire to emphasize the benefit that can sometimes be derived from the simple injection of decanted blood serum where other more scientific but more elaborate and more difficult measures are not available. In these days when the direct transfusion of blood in hemorrhage and in diseases of the blood is of such frequent report and the benefits derived of such undoubted value, of course, the choice of procedure is transfusion, but there are times when, as in the two cases to be reported, this cannot be accomplished. In such cases we sometimes overlook the fact that in a lesser degree we have at our command at once a simple, and at any rate, if not always efficient, a harmless means of assisting in restoring certain elements to the blood. No technique is required that is not available to the general practitioner. No harm can result from its use, or at least, no harm that is not inherent in the more difficult procedure of transfusion. Hemolysis is, of course, always somewhat of a danger unless the blood of donor and recipient is first tested, but as many transfusions are undertaken without this test and as few untoward effects have been reported, this could in emergency be dispensed with, especially if donor and recipient are closely related. In extreme hemorrhage in an adult, where a volume of blood is required, coincident intravenous infusion of normal saline solution with or without the addition of adrenalin in sufficient quantity to bring up the fluid content of blood, could be added; but in children even this is not required. It is truly remarkable to note the rapid gain in hemoglobin and in the number of red cells following this procedure. In the cases reported the final result is fully as good as in any case of transfusion that I have seen or done.

CASE I was a baby, aged fourteen months. Diagnosis: Fracture of skull, right parietal bone, with rupture of the middle meningeal artery. I saw her first on May 17, four days after the fracture, which occurred as a result of a fall from a bed. The child at this time had a temperature of 106°, pulse 140 and almost imperceptible; respiration, 46. In the right parietal region was a hematoma of enormous size. The blood had burrowed anteriorly and the cheek was also much enlarged and the right eye closed. The child was unconscious and had been so for some time.

The operation was simple, consisting of an incision over the mass, the cleaning out of the clot and trephining over the site of the fracture. When this was accomplished another blood clot of some size, which had burrowed in the membranes, was discovered, and the middle meningeal artery was found torn and still bleeding. This was tied, the clot was thoroughly evacuated, and the wound washed out with saline and closed without drainage. The child was pretty well exsanguinated, the hemaglobin about 40 per cent., and almost no blood pressure.

With a child of this age it was impossible to do transfusion successfully by the methods at this time in vogue, and even had the Lindermann method been at this time available, I doubt if we could have used it successfully. I, therefore, resorted to the method about to be described. On May 18, 20 c.c. of decanted serum, in the afternoon of the same day 20 c.c.; May 19, 40 c.c.; May 21, 40 c.c., and May 22, 60 c.c. of decanted blood serum, taken from the mother, was injected slowly into the losse tissue beneath the skin into the abdominal wall. There was practically no reaction. Recovery was uneventful, the wound healing by primary union. The little patient gained rapidly in weight. The color index of the blood rose to 70 per cent. within six weeks. The baby was a normal child.

It is not unusual in these cases, as in transfusion, to get a reaction, but except in cases of hemorrhage it is transitory and not to be regarded.

The technique used in securing the blood is quite simple. A donor as closely related as possible (as in transfusion) should be obtained. A healthy adult in early life is preferable. Mother or father or adult brother or sister is most desirable. Examination of hemoglobin and data as to the rapidity of clotting are next in order, but in case of necessity this can be determined sufficiently accurately by the simple method of pricking the finger with a needle. The test for hemolysis can be dispensed with. We must bear in mind that the proportion of blood to serum is roughly two to five. That is, in 100 c.c. of blood we will get about 40 c.c. of serum. Such an amount is taken from the cephalic or other prominent vein of the donor as will answer our need or such an amount as the donor can spare. In the case of my baby, 180 c.c. of serum represented 450 c.c. of blood obtained from the mother in two separate sittings. This is a somewhat exceptional amount, but the mother was an extremely healthy, full-blooded woman, the condition of the child was desperate, and the father was a weak, puny specimen. If a sufficient quantity of blood cannot be obtained from one donor, of course a second one can be used. No harm beyond a simple anemia, which quickly responded to treatment, resulted to the mother, and as the case history shows, the result to the child was very satisfactory. After drawing the blood from the vein into a clean, sterilized glass vessel it is preferably put in an incubator for a half hour, although this is not absolutely necessary provided

a temperature of blood heat is maintained. It is then placed upon ice or in a thoroughly cool place, protected by cotton from the air until the blood separates from the clot. From one to twelve hours is required. The serum is then decanted and kept in a cool place until needed. It can be kept for several days if upon ice. An ordinary glass or metal aspirating syringe answers the purpose of injecting admirably. In this instance thirty hours after the operation we made our first injection.

Case II.—A young man, nineteen years of age, with a tuberculous involvement of the head of the femur with destruction of the head, was presented to me. As the result of a previous operation, which was uncompleted on account of tremendous hemorrhage, a secondary infection had occurred. Upon admission to the hospital the patient was running a septic temperature ranging from 100° to 105°, accompanied by great prostration and intense pain. Even a simple drainage resulted in such considerable hemorrhage as to make any further procedure inadvisable. The boy gave a clear history of hemophilia.

Two efforts were made at transfusion, the donor being the father, a big, plethoric German weighing about 250 pounds, with hemoglobin of 100 per cent., but extreme rapidity of clotting in each instance prevented us getting any considerable quantity of blood into the boy's veins. I then resorted to the method already described, using a somewhat larger quantity of blood serum and injecting it all into the back and the abdomen in two sittings. Within forty-eight hours a test for bleeding showed a normal period of blood clotting.

The operation performed is of no special interest. A complete excision of the joint down to the tuberosity was accomplished with only normal hemorrhage, and although the wound was packed and drained, no secondary hemorrhage occurred at any time.

A rather remarkable feature in this case is that up to the present time, more than three years after the operation, there has been no recurrence of any tendency toward hemophilia. The boy's blood picture and clotting time is normal and his hemoglobin is more than 90 per cent. Murphy and others have reported the same interesting fact in cases of hemophilia, but so far as I can find this is the longest period that the blood picture has remained normal.

137 West Sixty-ninth Street.

FURTHER REMARKS ON THE RETENTION OF SALVARSAN.

By W. J. McGURN, M.D.,

BOSTON.

Failure of elimination after the intravenous administration of salvarsan, with its subsequent oxidization in the blood, is now generally accepted to be the causative factor in most cases of salvarsan fatality. The hypothesis advanced by Wechselmann, that the retention of salvarsan is dependent upon degenerative changes in the renal epithelium due to previous mercury administration, is not likely to become conclusive. In fact it is known that death has followed closely upon the intravenous injection of salvarsan and neosalvarsan in cases where mercury had not previously been given. This alone places emphasis upon our present inadequate knowledge of the toxicity of these agents and should suggest to every physician, interested in safe salvarsan therapy, the importance not only of a most careful technique, but also a searching inquiry into the physiological action of the drug, together with a study of its physical and chemical behavior, when preparing solutions for intravenous administration.

Before proceeding with the discussion I wish to present for consideration the opinon: *that the retention of salvarsan is due to the fact that the retained portion was not in chemical solution when introduced into the blood stream,* and to offer in evidence of the plausibility of this opinion the result of clinical observations which extend over a period of about three and one-half years.

Salvarsan as it reaches the physician is a yellowish powder, much of which, in the process of its manufacture, is physically reduced to very minute subdivisions, the size of individual granules being slightly smaller than that of the red blood corpuscle. When suspended in distilled water or 0.5 per cent. sodium chloride solution, these minute particles become gelatinous in character and may be present in great numbers without interfering with the transparency of the mixture, for it is only when a considerable number of these granules agglutinate that they become visible to the naked eye.

Whoever has had experience in the preparation of acid solutions of salvarsan is, of course, familiar with the adherent tenacity with which these gelatinous masses cling to glass, and with their persistent refusal of aqueous bondage. The extent to which these bodies avoid dissolution depends somewhat upon the temperature, and greatly upon the purity, of the water employed.

In the early days of intravenous salvarsan administration it was noticed that severe illness often followed when bacteria, *living or dead,* were present in the water used in preparation of the solution. The logical explanation of this is, that bacteria offer a powerful affinity for salvarsan and, when in contact with particles of that agent, they act as nuclei for microscopic masses of the drug, which after the most vigorous shaking, with or without glass beads, avoid aqueous solution; then, when carried into the general circulation, not being capable of rapid elimination, they act as reducing bodies to the formation of violent toxic agents capable of producing degenerative changes in the parenchymae, with resultant illness and death.

Ehrlich in his advices on the mixing of salvarsan made use of the terms "acid solution," "alkaline solution," also "neutral suspension" and gave specific directions for the preparation of each. These directions, of necessity, have been more or less modified by most physicians who have made an attempt to follow them, so that every solution of salvarsan represents to some extent the personal equation of the individual clinician. Some of our American authors, when speaking of the neutralization of salvarsan, have shown a fondness for the term "accurate titration" but frankly admit they have no means other than simple inspection by which to determine the accuracy of the reaction.

Much that is misleading has transpired in regard to the preparation of "neutral solutions" and "faintly alkaline solutions" of salvarsan, for in the light of investigation, salvarsan fails to fulfil the requirements of the term solution, except when distinctly acid or alkaline in reaction. When 0.6 gram of salvarsan is dissolved in 40 c.c. of fresh distilled water, a transparent acid mixture is obtained, but until filtered the constant presence of insoluble bodies should forbid its acceptance as constituting a chemical solution.

According to advices emanating from the George Speyer House, it would appear that the addition of 24 drops of a 15 per cent. solution of chemically pure sodium hydrate is capable of converting 0.6 gram of salvarsan in "acid solution" to a solution alkaline in reaction. While it is true that a somewhat transparent mixture is usually obtained after

the addition of from 23 to 26 drops of the sodium hydrate solution, it is also worthy of note that the mixture becomes much clearer after the further addition of one or more drops of the hydrate, the transparency increasing with each drop until the liquid begins to sparkle on shaking. It is not until then, however, that a high percentage of the salvarsan is actually in chemical solution. If at this point the mixture is passed through a dense layer of "chemically pure" compressed cotton, a distinct precipitate is shown which is found to be soluble only by the further addition of sodium hydrate. That these insoluble bodies are great in number and of appreciable size is proven by filtering through a porcelain tube, of sufficient porosity to permit the passage of the smaller types of micro-organisms, but at the same time prove impervious to bodies one-third the size of the red blood corpuscle. Such a filter invariably reveals the presence of much that is not in solution and furnishes a filtrate that is free from contamination, so far as can be determined, by its passage through the finer laboratory tubes often spoken of as "germ-proof" filters.

To Mr. Gowdy, of the Boston Filter Company, I am indebted for his prolonged efforts which finally resulted in the production of a filter exactly suited to verify the hypothesis advanced by me in the *Boston Medical and Surgical Journal*, November 14, 1912, and have made possible the present amplification of my former article on the retention of salvarsan.

From the beginning of salvarsan therapy great importance has been placed on the necessity of a clear, transparent solution for intravenous use, and much stress laid upon the dangers of the drug when wholly or partially suspended. No doubt all have tried to fulfil Ehrlich's dictates in this respect, but if an experience with more than four hundred specimens of these agents (salvarsan and neosalvarsan) is worthy of opinion, I would express the belief that 5 to 10 per cent. of all salvarsan and 1 to 3 per cent. of all neosalvarsan that has been given intravenously, entered the veins while suspended from their supposed solutions. It is true that I have never seen a salvarsan solution filtered through porcelain that did not leave a distinct residue, the amount of which depended greatly upon the temperature and purity of the distilled water used, and more particularly upon the quantity of sodic hydrate employed.

When the porcelain filter is used and it is seen that a residue is accumulating upon its surface, much of the precipitate can be rapidly dissolved by the addition of one to three drops more of the 15 per cent. sodium hydrate solution. The total amount found necessary for the complete chemical solution of 0.6 gram salvarsan is seldom less than 26 and usually not more than 32 drops. "Complete chemical solution" is intended to mean all that the ampul contained which was capable of aqueous solution, for there is unquestionable proof that in every instance insoluble bodies remain after the filter has been flushed with gallons of both distilled water and 0.5 per cent. sodium chloride solution even when an excess of sodic hydrate was added. Proof that these bodies are too large to penetrate the substance of the porcelain is furnished by gently brushing its surface with pumice or carborundum, which completely removes all trace of the precipitate.

Spasm of vein and the moderate burning sensation, experienced by many patients, which extends from the point of entrance in the vein to the axilla and often as far as the cordium, should be regarded as evidence of a poor solution, since these phenomena never occur when a porcelain filter is clinically employed.

Of the two cases of anuria which I saw in December, 1911, each followed an intravenous injection of 0.6 gram salvarsan (filtered through linen only) where an attempt was made by "accurate titration" to secure a "faintly alkaline" solution. The anuria, which extended over a period of thirty-six hours, was accompanied by severe headache, pain in the back, nausea, some diarrhea and slight hemorrhage from mucous membranes, and was followed in each case by an hematuria that continued for about one week. Chemical and microscopic analysis of the urine at the end of one month did not reveal the presence of any pathological condition. Since then this man and wife have each received three intravenous injections of 0.6 gram salvarsan without subsequent reaction of any kind. Prior to the first administration neither had taken mercury but following the second and third doses each was given a liberal amount of the protiodide by mouth.

Some of the facts acquired as a result of these observations are:

1. Salvarsan cannot be produced in pure chemical solution until it has passed a filter equal to that of a porcelain tube.

2. From 26 to 32 drops (standardized to one minim each) of a 15 per cent. solution of sodium hydrate are necessary to the production or 0.6 gram salvarsan in alkaline solution.

3. The dilution of an alkaline solution of salvarsan with sodium chloride solution reduces the percentage of its alkalinity and often causes a sudden precipitation of the drug, with a faint leuco-opalescence appearing throughout the liquid.

4. Vigorous shaking with distilled water free from microorganisms at a temperature of at least 110° F. is important as the first step in the mixing of salvarsan.

A question which may be justly propounded is: What effect does this higher percentage of alkalinity have on the action of the drug as a spirochetacide? While at present no fixed or definite answer can be given, the clinical results together with a limited number of serological reactions would indicate a proportional increase of efficiency. Of all patients treated by me with both salvarsan and neosalvarsan, 90 per cent. in number elect salvarsan as the one from which they derived the greater benefit, and it is to this opinion that the writer is inclined.

In conclusion I wish to sanction the opinion expressed by Dr. Clarence Martin of St. Louis that "the last word on salvarsan is far from having been written," and to reaffirm my belief that salvarsan retention means salvarsan fatality; also, that retained salvarsan with its resultant hemorrhagic encephalitis or acute degenerative nephritis would not have occurred had it not been for the presence, in the solution, of insoluble salvarsan bodies which could not have passed a porcelain tube; and finally, that when scientific methods are universally employed in the intravenous administration of salvarsan and neosalvarsan, the last word on "the pathogenesis of salvarsan fatalities" will have been written and the "retention of salvarsan" forgotten.

It is to be regretted that many of the afflicted are holding aloof from salvarsan today through

fear engendered by the not infrequent disastrous results reported through the public press; for it is highly probable that, when due respect is given its *avoidable dangers*, salvarsan is one of the safest and most efficient drugs ever employed as an heroic therapeutic agent.

A NEW INSTRUMENT FOR SCARIFYING IN THE VON PIRQUET CUTANEOUS TUBERCULIN TEST.

By W. H. LUCKETT, M.D., F.A.C.S.,

NEW YORK.

ROGERS has shown that the mortality of all children up to ten years of age who have a von Pirquet reaction is much higher than in children who do not so react; this conclusion being based on the subsequent history of sixty-nine children giving a positive von Pirquet reaction in the Massachusetts General Hospital. They had been out of the hospital on an average of two and one-third years. The importance of the test as to its prognostic value is thus illustrated and this also gives force to Miller and Woodruff's contention to keep every case giving the reaction "under careful observation." Frazer makes an earnest plea for its further trial and for standardization of the test.

The popularity of the test is undeservedly on the wane. The reaction has fallen into disrepute in certain quarters, with the general practitioner in particular. This is based upon faulty technique

and a consequential misinterpretation of the reaction. After a continuous and wide experience extending over a period of six years with the same scarifier and a standard solution, I am of the opinion that it is a most valuable asset in determining the probable early presence of otherwise undetectable deposits, and in helping to differentiate certain surgical lesions. Particularly must I refute the oft repeated assertion that the test is so commonly positive in adults as to cast doubt on its value. Personal equation enters strongly in determining the test. The indiscriminate use of broken matches, toothpicks, needles, and scalpels as scarifiers is to be condemned. A standard scarifier and a standard solution alone should be employed.

In February, 1909, I had Tiemann make a scarifier after the model of a jeweler's cup-shaped swivel-headed watch screw-driver with longitudinal corrugations. Shortly after this, believing that the indiscriminate dipping of the scarifier into a vial of tuberculin was not conducive to thorough asepis, I had old tuberculin put up in capillary tubes containing each two minims. Each tube is for one test. These tubes are now carried in stock together with full printed directions.

The essence of the test is a careful attention in detail to the technique. The wide variation in opinion of the efficacy of the test is due in a large measure to a lack of appreciation of this technique together with a misinterpretation of the reaction.

To operate, grasp the forearm of the patient from behind with the left hand retracting the skin posteriorly in such a manner as to make it tense over the anterior aspect. This is absolutely necessary in order to always and regularly control the depth of the scarification. The scarifier is held in the right hand with the tip of the index finger in the cupped head and revolved in one direction between the thumb and middle finger, making ever so gentle pressure the while, only the veriest superficial scarification is made, three in number, at least one and a half inches apart. They should be identical, perfectly round and two mm. in diameter. Neither blood nor serum should ever be drawn. The capillary tube of tuberculin is broken and one drop is placed on each end scarification. The middle is the control. The tuberculin is then partially dried by a current of air from an empty atomizer and a sterile dressing is applied.

The accompanying cut is two-thirds the actual size.

18 WEST EIGHTY-SEVENTH STREET.

Medicolegal Notes.

Mortality Tables as Evidence.—The effect of mortality tables as evidence, if any, is a question for the jury. Proof that the person whose expectancy of life is under consideration conforms to the standards of health and vigor adopted in compiling mortality tables is not essential to their admissibility. Evidence of disease or of ill health or of hazardous employment may impair or destroy the probative effect of tables of expectancy of life, but it does not make them inadmissible.—Broz v. Omaha M. & G. Hospital Assn, Nebraska Supreme Court, 148 N. W. 575.

Medical Associations—By-Laws as to Medical Defense—Duty to Defend—Demand.—Action was brought against a medical association by one of its members, to recover the expenses paid in defending a malpractice suit, the defense of which the plaintiff claimed the association was obligated under its laws to conduct. One of the purposes of the association was "to guard and foster the material interests of its members and to protect them against imposition." It adopted by-laws relating to "Medical Defense." Section 1 provided that members should be entitled, on the conditions after specified, to receive, without charge, legal advice and court service, etc., when accused of malpractice. Section 2 made it the duty of the council to investigate all claims of malpractice against its members, and to adjust them when possible, "and if in their judgment an adjustment is impossible, or the claim is unjust, or the damage sought is excessive," to tender aid, etc. Section 3 provided for an annual report of all such suits or threatened suits. Section 4 prescribed conditions, the only one relevant to the present case being the fifth, "The association will assume the defense in a suit for malpractice against a member only when the cause for the alleged malpractice occurred subsequent to the date on which the member joined the association." These by-laws went into force April 1, 1910.

Liability of Private Hospitals for Negligence of Nurses.—A patient was admitted to a hospital conducted for private gain while suffering from a temporary mental disorder, which impelled him intermittently to leave his bed and act irrationally. In the night, while without an attendant, he gained access to a sickroom where poison was kept. Some of this he swallowed and died. In an action against the hospital it was held that a hospital conducted for private gain is liable to a patient for the negligence of nurses, while acting within the scope of their employment. Where a patient in a hospital is treated by a physician who does not manage or control the hospital, he is not liable for the negligence of hospital nurses or internes, if he had no connection with any negligent act. A patient is generally admitted to a hospital conducted for private gain under an implied obligation that he shall receive such reasonable care and attention for his safety as his mental and physical condition, if known, may require. Whether the hospital was negligent, in the present case, in allowing the patient access to the sickroom was held to be a question for the jury. Judgment given for the plaintiff was affirmed.—Broz v. Omaha Maternity & G. Hospital Assn., Nebraska Supreme Court, 148 N. W. 575.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 17, 1915.

NATIONAL QUARANTINE.

THE anomaly of the local (State or city) control of quarantine has almost disappeared from this country, and if the efforts now being made to effect the transfer of the New York station to the United States Public Health Service are successful, the passing of this antiquated and irrational system will positively be assured. Since 1888 the quarantine functions at sixty-six ports of the United States have been transferred to national control. The Boston quarantine is the latest to make the change, and there now remain but three ports where the Public Health Service is not in full control, viz., New York, Baltimore, and Galveston. The question of transfer is being actively considered at all three of these places and there is no question that if New York leads the way the other two will follow promptly.

There is every reason why the National Government should control the quarantine service of the entire country, for the function of quarantine is as much a national affair as the inspection of immigrants; indeed, it is impossible to dissociate the two. At this port, when an attempt is made to keep the two separate, one under State, the other under national control, although the State quarantine officers make the first inspection no steerage passenger can land until he has passed through the immigrant station at Ellis Island where he is again examined by the surgeons of the Public Health Service. The State quarantine is superfluous and the double examination is a waste of labor and an altogether unnecessary expense to the State of New York.

The Merchants' Association of this city has expressed itself as strongly in favor of the transfer of the quarantine at this port to the National Government and has requested the Governor to take the necessary steps in that direction. The Public Health Committee of the New York Academy of Medicine has passed resolutions in favor of this change; these resolutions have been endorsed by a number of organizations and individuals in this city and elsewhere in the State, and they will undoubtedly be adopted by the meeting which is to be held at the Academy of Medicine on April 20 to discuss the situation.

Typhus and typhoid fevers, cholera, and smallpox are prevailing to a frightful extent in several of the belligerent countries of Europe, and as soon as the war ends and free communication with this country is reestablished we shall be in the greatest danger of the importation of those diseases in the bodies of the sick and especially of seemingly healthy carriers. To avert such a calamity, this harbor, which is the chief port of entry for immigrants who later will scatter to every State in the Union, should be guarded by the specially trained and expert sanitarians of the United States Public Health Service. If such an irruption of disease appears imminent, the National Government will almost certainly take possession of quarantine here, as it has the right to do in an emergency; but how much better that its officers should already be in control and thoroughly familiar with the physical conditions of the station before putting it to the test of repelling the fierce onslaughts of these infections.

THE EXUDATIVE DIATHESIS.

IT is now ten years since Czerny outlined sharply the condition which he called the exudative diathesis, and during this time it has grown to have a considerable place in pediatric literature. From the first it was considered to be evidence of disturbed metabolism, but the results of investigations have been conflicting, and the exact nature of the disturbance and its cause have remained unsolved problems. Niemann has carried out very complete metabolism studies upon three children suffering with this condition and has drawn therefrom certain interesting conclusions.* He selected nursing infants in whom the eczematous manifestations were not such as to lead by their irritability, to increase in muscular activity. In all of his cases he was able to demonstrate an increase in the production of heat and of carbon dioxide over the normal, and he considers such increase as characteristic of the condition. The children naturally divide themselves into two groups, one obviously thin and undernourished, the other apparently fat but of the "pasty" type. The weight curves were subject to rather marked and rapidly changing variations which were much more noticeable in the "pasty" type, and Niemann advances the theory, which is supported by his evidence, that the fat children were fat in a different way from normally fat babies. In these patients the increased weight was due almost wholly to the retention of a large quantity of water. There was no disturbance in the absorptive power of the intestines and a certain number of the patients developed symptoms while still at the breast.

In application of these findings to the treatment Niemann was led to avoid the addition of carbohydrates to the food since under such conditions the storing of water is rendered easy. Also the feeding of increased amounts of protein was not thought advisable in view of the specific dynamic action of protein in increasing a metabolism already abnormally high. He therefore treated

*Der Stoffwechsel bei exsudativer Diathese. Von Priv.-Doz. Dr. Albert Niemann, Assistenten an der Universitäts-Kinderklinik in Berlin. Price M. 2.80. Bonn: A. Marcus & E. Webers Verlag, 1914

his patients by increasing the fat content of the food, not by the addition of cream, for that would increase also the sugar and the carbohydrates, but by the use of washed butter. His results were very striking. Within a few days from the beginning of his butter feeding the skin manifestations began to clear up and in a short period of time the patients were apparently well. The "lability" of their metabolism persisted for variable lengths of time, but he was able to control it by this method and regularly obtained satisfactory results.

In any consideration of a work of this kind it must, of course, be remembered that our metabolism studies are carried on for the most part in such a manner that we are able to see only just beneath the surface, and all deductions must be made with the realization that the introduction of improved methods may disprove them completely. Nevertheless it is by such studies that our information is increased, and with increase in knowledge comes increase in power.

VOLKMANN'S CONTRACTURE AND FRACTURES AROUND THE ELBOW JOINT.

This unfortunate condition may follow embolism, thrombosis, crushing injuries, too long application of the Esmarch bandage or other interference with the arterial blood supply or the venous return; but the majority of such cases are seen following fractures, and it is this type only which concerns us just now. After fractures of the elbow or forearm, typical cases of Volkmann's ischemic paralysis and contracture of the flexor muscles of the forearm and hand are occasionally seen. It is usually found that the causative factor has been compression of the vessels by the maintenance of too sharp flexion at the elbow or there has been too great constriction at some point in the forearm by adhesive plaster strips or bandages holding splints in place. In most cases constriction of the vessels has existed for several hours, but cases have also been reported in which constriction did not last over half an hour and still Volkmann's paralysis resulted. As Volkmann himself pointed out, the lesion is primary in the muscles and not in the nerves, as is shown by the fact that paralysis occurs and contracture begins practically simultaneously, while with primary nerve lesions there is first a paralysis and, if it occurs at all, contracture is a late manifestation. Occasionally there is a combination of ischemic paralysis of the Volkmann type and an associated nerve lesion leading to subsequent degenerative changes in the muscles supplied by that nerve. The ischemia results in rapid degeneration of the individual muscle cells, infiltration, and ultimate replacement fibrosis. Contracture begins almost immediately, and in an incredibly short time the muscles present a board-like hardness together with marked shortening, the fingers are flexed at the interphalangeal joints, and later the wrist becomes partially or completely flexed. Until extension at the wrist is interfered with the fingers can be extended painlessly when the wrist is flexed, thus showing that there is no inflammation in the tendon sheaths but merely a contracture of the muscles, pulling the tendons up in their unaltered sheaths. Pain may or may not be noted when Volkmann's paralysis is imminent, but there is always swelling; hence a patient with a fracture dressing should be instructed to see the surgeon at once if undue swelling of the hand occurs after the application of splints to the upper arm, elbow, forearm, or wrist. Children are the victims of this unfortunate paralysis more often than adults and the parents should always be impressed with the absolute necessity of bringing the child to the surgeon without delay if undue swelling occurs.

While Volkmann's contracture following fracture is almost always the result of too tight dressings there are occasional exceptions, and a very interesting case of this unusual type is reported by Guyot, whose article is abstracted in the *Archives de Médecine des Enfants*, January, 1915. A six-year-old girl fell about five feet, striking the right elbow, which immediately became painful and began to swell. After a "bone-setter" had treated the region by massage and mobilization for a month the child was taken to a hospital. Examination then showed considerable limitation of motion at the elbow joint, while the child naturally held the forearm flexed on the arm at an angle of about 120 degrees; the wrist was half flexed on the forearm; the fingers were in a position of semiflexion, and with attempts to extend the wrist the fingers became still more sharply flexed; the tendency to pronation of the wrist was marked; pulsation in the radial artery could not be felt, and there was an abnormal reddish discoloration of the skin of the peripheral part of the injured member. Examination showed that there had been a supracondyloid fracture of the humerus with anterior and upward displacement of the lower fragment. Union had taken place with the lower fragment in that bad position and in such a way as to cause pressure upon the median nerve and brachial artery.

Here, then, was a typical case of Volkmann's contracture following fracture, but in which no retentive apparatus of any kind had been used; yet the contracture was undoubtedly the result of faulty treatment, for a competent surgeon would have recognized the nature of the injury and malposition of the fragment which was causing interference with the blood supply and would at least have seen to it that pressure was relieved. The deformity and other symptoms following supracondyloid fracture of the humerus or separation of the lower humeral epiphysis are so typical that accurate diagnosis and failure to secure at least approximate reduction are hard to explain now that expert radiography is almost universally available.

Fractures, especially those around the elbow joint, are a fruitful source of malpractice suits. In some of these fractures a certain amount of functional impairment is unavoidable, since reduction and retention in a position of anatomical perfection are often impossible—a fact recognized not only by the profession but also by the average jury. Volkmann's contracture, however, in cases where

the blood supply is not seriously interfered with at the time of the original injury, is, with possibly very rare exceptions, plainly due to one of three things: (1) incomplete reduction; (2) the faulty application of dressings (and this includes the failure to provide for the inevitable swelling that takes place in the traumatized region); (3) the failure of the patient to follow instructions and return at once for readjustment of dressings at the first sign of pressure symptoms. The aphorism "Eternal vigilance is the price of safety" is eminently applicable in connection with fractures around the elbow joint, not only that we may give the patient the best possible result and prevent unnecessary complications, but in order to protect ourselves from the danger of legal entanglements, with possible financial loss and certain damage to professional reputation.

The Probable Prevalence of Venereal Disease.

It is manifestly a matter of extreme difficulty to estimate correctly the prevalence of venereal disease in any community, owing to the absence of authentic records of definite value. Dr. Charles G. Banks, writing in Public Health Reports, February 26, 1915, suggests as a basis of estimate, as probably the nearest approach to a normal comparison with the general population, the class known as seamen. After pointing out that seamen are generally supposed, and with some truth, to be proverbially careless with regard both to drink and to sexual intercourse, he goes on to say that it would also be imagined that venereal disease is rife among them. However, statistics of the Public Health Service show that but one case in five among seamen is of venereal origin and if the professional and popular conception is different from the facts we may be prepared to admit the now obvious conclusion that the same class of disease is not prevalent among the general public to the extent claimed by some. Arguing then from the standpoint that the sailor is the extreme probability, numerically speaking, of the gonorrheic and syphilitic in our problem, the high water mark, indeed, in the possibilities, Banks is of the opinion that the prevalence of syphilis has been considerably exaggerated. He considers from an analysis of the situation that the actual number of persons acquiring venereal disease in the United States is less than 3 per cent. annually, although it would be an impossibility without a complete census to ascertain the number of persons actually infected with venereal disease at any single date. As is pointed out, the real interest centers practically in facing the problem for the future, not in estimating the exact damages of the past. It is really a campaign for prevention, and we can start out by saying that we have to meet with nearly two and a half million cases of venereal diseases annually treated in the United States, about one person in every forty.

Hypochlorite Treatment of Water Supplies.

The hypochlorite treatment of water supplies has met with a considerable degree of success, and is being employed largely throughout the United States and Canada, and in other parts of the civilized world. In Public Health Reports, February 26, 1915, H. A. Whittaker, assistant director, Division of Sanitation, Minnesota State Board of Health, describes portable emergency hypochlorite plants constructed in 1910 by the board of health to be kept in readiness for immediate transportation to localities within the State where water supplies were suspected or known to be contaminated. The writer announces that these plants have rendered great service, as their constant readiness and portability have made it possible to reach practically any public water supply in the State, install a plant, and treat the water within a period of twenty-four hours after notice has been received by the division in charge of the work. He further states that the plant and equipment described by him make it possible for a trained worker to enter the field equipped to handle in an emergency the problems met with in treating a polluted water supply.

News of the Week.

For Belgium Relief.—The following is the report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending April 10, 1915:

The Cooke County Medical Society, Gainesville, Texas	$15.00
The Sedgwick County Medical Society, Wichita, Kan.	25.00
Dr. Carl B. Davis, Chicago, Ill.	10.00
Dr. R. C. Dorr, Batesville, Ark.	5.00
Anonymous, "J," New York, N. Y.	5.00
Dr. George Leonard Schadt, Springfield, Mass.	5.00
Dr. Mark T. Goldstine, Chicago, Ill.	10.00
Dr. Lomax Gwathmey, Norfolk, Va.	25.00
Dr. J. C. Chipman, Sterling, Colo.	5.00
Miss Grace Hutchison, Canton, N. Y.	2.25
Dr. Brooke M. Anspach, Philadelphia, Pa.	5.00
Dr. J. B. Haskins, Chattanooga, Tenn.	15.00
Dr. Fred W. Phifer, Wheatland, Wyo.	5.00
Dr. Henry P. Brown, Jr., Philadelphia, Pa.	10.00
Dr. Floyd W. McRae, Atlanta, Ga.	10.00
Dr. William L. Rodman, Philadelphia, Pa.	25.00
Anonymous, "F," St. Johnsbury, Vt.	10.00
Dr. Joseph P. Murphy, Brooklyn, N. Y.	5.00
Dr. Rudolph Matas, New Orleans, La.	25.00
Dr. Neal N. Wood, First Lieut. M. C., U. S. A., Schofield Barracks, Hawaii	5.00
Cumberland County Medical Society, Bridgeton, N. J.	10.00
Gonzales County Medical Society, Gonzales, Texas	10.00
Receipts for the week ending April 10th	$242.25
Previously reported receipts	5,896.50
Total receipts	$6,138.75
Previously reported disbursements:	
1,625 standard boxes of food at $2.20	$3,575.00
1,009 standard boxes of food at $2.30	2,320.70
Disbursements for the week ending April 10:	
105 standard boxes of food at $2.30	241.50
Total disbursements	6,137.20
Balance	$1.55

One box of surgical instruments sent to The American Commission for Relief in Belgium, through *Surgery, Gynecology and Obstetrics*, without name of donor and without a list of contents.

Protest of Mayors against the Hinman Anti-Health Bills.—The New York State Conference of Mayors, held in Middletown last week, registered a strong protest against the passage of the amendments, introduced in the Legislature by Assemblyman Hinman, crippling the health laws of the State. In a letter sent to all the members of the Legislature, the Conference, which represents the officials of all of the fifty-four cities in the State, sincerely regrets the effort to emasculate the Public Health law, and to cripple its administration. The Conference considers that the reduction in the number of sanitary districts and cutting down the Supervisors' salaries would make it difficult to get efficient service. Making the divisions of the Health Department permissive instead of mandatory is strongly deprecated, as is the taking from the Health Council the power to prescribe qualifications for places on the Department staff. But the protest is especially strong in its condemna-

tion of the bill depriving the Health Council of the power to enact sanitary regulations

Return of American Hospital Physicians.—Dr. Samuel L. Ledbetter, Jr., member of the staff of Lakeside Hospital, Cleveland, who has been at work in the American Ambulance Hospital at Neuilly, Paris, returned last week on the *Philadelphia* of the American Line.

The Mortality of the War.—According to the *Avanti*, a Roman newspaper, the total loss of men by all nations at war during the first eight months numbers 5,950,000. The amount of money spent during the fist six months is estimated at $8,400,000,000.

Death Rate Increased.—The report of the New York City Health Department for the week ending April 3 states that there were 1,831 deaths which was 219 more than in the corresponding week of 1914. The most potent factor of this increased mortality, the report states, was the prevalence of influenza in a more virulent form than has happened in some years, with a corresponding increase in the deaths from acute respiratory diseases and organic diseases of the heart. There were 407 deaths from acute bronchitis, bronchopneumonia and lobar pneumonia, this number being in excess by 143 of the number of deaths reported from these causes in 1914. In addition to this the organic heart diseases showed an increase of forty-two deaths.

Ravages of Typhus in Serbia.—Another American Red Cross surgeon has fallen a victim of typhus fever in Serbia, Dr. Ernest P. Magruder of Washington. The first of the band to die was Dr. James F. Donnelly of this city. Of the six American surgeons and twelve nurses who went in the Red Cross units to Serbia, the only one who has escaped the disease is Dr. Butler, the head of the second unit. When Dr. Edward Ryan, who was in charge of the first American Red Cross unit in Serbia, was stricken, Dr. Magruder was put in charge of the work.

Rockefeller Institute for the Study of Animal Diseases.—The signing by Gov. Fielder of the bill recently passed by the New Jersey Legislature, permitting experimentation on animals under the supervision of the Board of Health, has made possible the establishment of an institute for scientific research in animal diseases. The buildings will be erected near Princeton and the institution will be under the direction of Dr. Theobald Smith.

Surgeon General Gorgas has been offered by the trustees of the Rockefeller Foundation the position of advisor in problems of public health. If he accepts he will be obliged to retire from the Army, though not necessarily to resign unless he is sent to Serbia, in which, being belligerent territory, he would probably be unable to work even in the saving of life while a retired army officer.

The Louisiana State Board of Medical Examiners announces that, beginning with June 1, 1915, candidates for licensure must show evidence that they have completed one full year, at an approved college or university, of work in the branches of biology, physics, chemistry, and in one modern language.

Death of Prof. Friedrich Loeffler.—Announcement was made in Berlin on April 9, of the death of Friedrich Loeffler, professor of hygiene in the medical faculty of the University of Griefswald, Prussia, and director of the Hygienic Institute, and perhaps best known as one of the discoverers of the *Bacillus diphtheriæ* or Klebs-Loeffler bacillus. Prof. Loeffler was also the discoverer of the glanders bacillus, the bacillus of mouse typhoid, and other pathogenic organisms, and was the author of many important treatises on medical and hygienic subjects. He was in his sixty-third year.

For Quarantine Transfer.—A meeting will be held at the New York Academy of Medicine on Tuesday evening, April 20, at 8.30 o'clock, for the purpose of advocating the transfer of the quarantine station at this port to the control of the United States Public Health Service. Addresses will be made by Mr. Henry James, Jr., on "The Present Health Conditions in Europe and Their Relation to This Country in the Coming Months"; Dr. William C. Woodward on "The Menace of Inadequate Quarantine and What an Efficient Quarantine Means to the Entire Country," and ex-President William Howard Taft on "The Relation of the National Government to Quarantine and Other Public Health Agencies."

Typhus Vaccine.—At a meeting of the New York Pathological Society on Wednesday of this week, it was announced that a vaccine against typhus fever had been prepared by Dr. Harry Plotz, the discoverer of the typhus bacillus (*B. typhi exanthematici*), and that Dr. Hans Zinsser and others who recently left New York to fight the typhus epidemic in Serbia had been inoculated with the vaccine before sailing.

The End of the Coroner System.—On April 14 Gov. Whitman signed the Stoddard bill abolishing the office of Coroner in New York City and providing for the appointment by Mayor Mitchel of a chief medical examiner, who is to name assistants to do the work now performed by Coroners. The new law goes into effect when the terms of the present coroners expire. Eleven coroners and the same number of coroners' physicians are affected by this change.

A New Physicians' Building.—It is reported that the physicians have leased the old Calumet Club building at Fifth avenue and Twenty-ninth street and purpose dividing the house with offices for physicians.

Charitable Bequests.—By the will of the late Admiral C. Drennen, of Easton, Pa., bequests are made as follows: to the hospital of the University of Pennsylvania, $5,000, for the endowment of a bed or beds for children, and $5,000, for the endowment of a bed for adults; to the Easton Hospital, $5,000, for the endowment of a bed.

The Warren Triennial Prize, which was founded by the late Dr. J. Mason Warren in memory of his father, is awarded every three years for the best dissertation considered worthy of a premium, on some subject in Physiology, Surgery, or Pathological Anatomy; the arbitrators being the physicians and surgeons of the Massachusetts General Hospital. The prize, amounting to $500, will be awarded in 1916. Dissertations must be in English, French or German, and must be typewritten and suitably bound, so as to be easily handled. Work that has been published previously will not be considered in competition. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one on the accompanying dissertation. Dissertations will be received until April 14, 1916, by Dr. Frederic A. Washburn, Resident Physician, Massachusetts General Hospital, Boston.

Obituary Notes.—Dr. William H. Randle of Philadelphia, a graduate of the Jefferson Medical College, Philadelphia, in 1878, a member of the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society, and an expert on yellow fever, having served as a member of the Yellow Fever Commission appointed by President Hayes in 1878, died at the Jewish Hospital, Philadelphia, with which he had been connected for many years, on April 2, following a mastoid operation, aged 64 years.

Dr. Nancy M. Miller of New York, a graduate of the New York Medical College and Hospital for Women in 1867, and well known as a writer on hygiene and health reform, died at her home on March 15, aged 84 years.

Dr. David Polk Juett of Blandville, Ky., a graduate of the Jefferson Medical College, Philadelphia, in 1857, died at his home after a long illness, from cancer of the stomach, on March 8, aged 79 years.

Dr. Alfred Mason Amadon, formerly of Boston, Mass., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1897 and a member of the American Medical Association, the Massachusetts Medical Society, the American Otological Society, and the New England Otological and Laryngological Society, died at Saranac Lake, N. Y., from tuberculosis, after a long illness, on March 7, aged 47 years.

Dr. Gregory Arvide Martin of Franklin, Mass., a graduate of the University of Vermont, College of Medicine, Burlington, in 1879, for twenty years chairman of the Board of Health of Franklin, died at his home, after a long illness, from Bright's disease, on March 9, aged 72 years.

Dr. Joseph Bascom Griswold of Grand Rapids, Mich., a graduate of Rush Medical College, Chicago, in 1868, a veteran of the Civil War and senior vice commander of the G. A. R., and a member and former president of the Michigan State and Kent County Medical Societies, died at his home after a long illness on March 9, aged 72 years.

Dr. Thomas E. R. Miller, formerly of Frederick, Md., died at Lewistown on March 2 at the age of 71 years. He was graduated from Miami Medical College in the class of 1866. During the Civil War he served in the hospitals of the Eighth Army Corps. He was at one time Pension Examiner, at another time a member of the Maryland Legislature, and for three years County Health Officer.

Dr. John Lincoln Bromley died at Philadelphia of heart disease on March 4 at the age of 46 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1891. He was ophthalmologist to the Episcopal Hospital and to St. Timothy's Hospital.

Dr. Annie W. Stauffer died at Philadelphia on March 3 at the age of 70 years. She was graduated from the Eclectic Medical College of New York City in the class of 1881.

Dr. Jules M. Rosenbloom died at Philadelphia on March 8 at the age of 35 years as the result of an opoeration for the relief of abdominal disease. He was graduated from the Medico-Chirurgical College of Philadelphia in the class of 1905.

Dr. John C. Cotton, formerly of Meadville, Pa., died at Philadelphia on March 10 at the age of 86 years, as the result of an apoplectic stroke. He was graduated from the Cleveland University of Medicine and Surgery in the class of 1853. He was a volunteer surgeon at the battlefield of Gettysburg.

Dr. David F. Swisher of Darby, Pa., died at Jefferson Hospital at Philadelphia on March 1 as a result of pneumonia at the age of 47 years. He was graduated from Jefferson Medical College in the class of 1892.

Dr. Abram C. Treichler died on March 2 at Elizabethown, Pa., at the age of 71 years. He was graduated from Jefferson Medical College of Philadelphia in the class of 1871. He was physician to the Masonic Home at Elizabethtown. He was a member of the Lane County Medical Society and the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. Frank W. Flower of Carthage, Mo., a graduate of the Hahnemann Medical College and Hospital, Chicago, in 1876, at one time physician of Jasper County, and a member and former president of the Missouri Homeopathic Medical Society, died at his home after a long illness on March 7, aged 77 years.

Dr. Ethelbert H. Black of Rossburg, O., a graduate of the Curtis Physio-Medical Institute, Marion, Ind., in 1883, and a member of the Ohio State Medical Association, and the Darke County Medical Society, died at his home on March 9, aged 55 years.

Dr. Theodore Gaillard Croft of Aiken, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1875, a member and former presdent of the South Carolina Medical Association, and a member of the American Medical Association, and the Aiken County Medical Society, died on March 10, at the age of 69 years.

Dr. Isaac R. Phillips died at Philadelphia on March 11 as a result of pneumonia. He was a graduate of Jefferson Medical College of Philadelphia.

Dr. Smith Armor died at Columbia, Pa., on March 14 at the age of 91 years. He was graduated from the Homeopathic Medical College of Pennsylvania in the class of 1851.

Correspondence.

ARTIFICIAL GASTRIC JUICE IN GANGRENE.

To the Editor of the Medical Record:

Sir:—Referring to your editorial comment in the issue of March 13, on the treatment of gangrenous wounds with artificial gastric juice, I would say that I have used this method occasionally for about twenty years. As it is rather far-fetched to include such practice in gastroenterology, my experience has not been very large and has included only minor cases, as of felon, foul wounds of the hand, carbuncles, chronic ulcers with crusts, etc. I have used solutions of pepsin and hydrochloric acid and also solutions of vegetable digestants, mostly commercial papains. Like Freund, whom you quote, I have used hydrogen peroxide freely and think that it is fair to ascribe a good deal of the action to it. However, in carbuncles notably, a true digestant action on the core is manifest. It is scarcely necessary to state that when a clean granulating surface is obtained, ordinary dressings should be substituted, although there does not seem to be any practical danger of digesting living tissues, with any reasonable degree of caution. Usually, on the principle that one cannot spoil bad eggs, antisepsis and even asepsis may be neglected in the preliminary digestive treatment, though, of course, care should be taken not to introduce virulent bacteria by carelessness. A local anesthetic may be employed but is often unnecessary.

Buffalo, N. Y. A. L. Benedict, M.D.

A WARNING.

To the Editor of the Medical Record:

Sir:—A man has recently presented himself in Butler, Pa., as George H. Gray, Pathologist, State Board of Health, New York. He has left Butler, leaving some obligations behind him. This Department has never had anyone of this name in its employ, and I beg to suggest that you will make some mention of this matter in the Medical Record so that others may be warned against him.

Linsly R. Williams, M.D.,
Deputy Commissioner of Health.

State Department of Health,
Albany, N. Y.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

RADIOTHERAPY—INFANT LIFE PROTECTION—WAR NOTES.

London, March 25, 1915.

Radium has of late demanded so much attention that the report of the London Radium Institute comes opportunely before the profession. This is the third annual report and during the year sixty-seven patients have been treated fully, and of these only two are reported as not being at all the better for it. There were, however, twenty-two which are stated definitely to have been improved. One case which applied was not treated at all. Even such a result, if that were all, might be called encouraging for cases so generally pronounced hopeless, for the Institute requires a medical recommendation as a condition of admission. Moreover, except rodent ulcer, no malignant case is accepted unless it is certified to be inoperable or unless the patient absolutely refuses to submit to operation. It seems a correct proceeding in an institute established chiefly for the purpose of determining the value and position of radium in therapeutics to exclude rodent ulcer, as that disease is more generally acknowledged to be largely amenable to the remedy.

But how about the forty-one cases not accounted for in the foregoing figures? They are reported as "apparently cured," and that is as much as may be properly stated in the present state of our knowledge. The medical superintendent interprets the term as representing a condition in which all trace of the original lesion has disappeared and the patient is free from any indication of it as far as careful examination can discover. He classes as "improved" cases, resulting in marked benefit either by retarding the progress of the disease, decreasing the size of the growth, healing ulceration, arresting hemorrhage and discharge, or relieving subjective symptoms such as tenderness, pain, itching, dyspnea, dysphagia, etc.

Radium can be used in the form of solution of its salts, or the emanations and applications, or glass or metal tubes of it are sold, as are also screens for filtering the rays, so to say. Three kinds of rays are distinguished by the names of the three first letters of the Greek alphabet.. Alpha rays rapidly lose their activity and are completely interrupted or absorbed by a very thin screen (0.01 mm. of aluminum). Beta rays are more penetrating, and those working with radium recognize two varieties "soft" and "hard." Gamma rays are extremely penetrating and should only be used by those experienced with radium.

Exposures to the emanations may be made for only a minute or two for slight or superficial effects, or may be prolonged for any time between that and a day or even more, according to the purpose of the application. A quarter, half, or an hour has been found useful against warts, nevus, ulcers, etc. The screening in these cases need not exceed 0.002 mm. aluminum. To destroy tissues twelve hours may be required, say, for rodent ulcer, epithelioma, lupus vulgaris, etc. These exposures are usually divided over two or three days, say, three hours at a time and no screening is used, or if any only 0.1 mm. of lead. Deep-seated malignant growths have been treated by exposures of twenty to one hundred hours. The reaction caused varies very much according to the apparatus and screening employed, the time of exposure, the nature of the tissue, its extent and condition. Personal idiosyncracy may also add to the difficulties of the medical attendant. The reaction appears, as a rule, in the second week and four degrees may be observed: (1) Simple erythema; (2) erythema succeeded by desquamation; (3) vesication with superficial ulceration; (4) deep ulceration, sometimes accompanied by the production of an eschar. Sometimes the reaction appears earlier, at other times later. It has been seen on the third day; on the other hand it has been delayed for four weeks.

A morning and evening clinic is held daily at the Institute, where 6,453 applications are reported to have been made during the last year. Of the persons sixty-seven, as mentioned above, were treated to a conclusion. Carcinoma furnished more cases than any other disease and the breast the organ most frequently attacked. The majority of the cases were recurrent, largely due, no doubt, to the policy of not admitting operable cases, except such as absolutely refused amputation. Of the cases of mammary cancer eight died, seventeen showed no improvement, but forty were decidedly improved and one was apparently cured. The repetition of these results is permissible as a preface to the statistics of the three years of the Institute's work combined. It appears that 224 cases have been treated in the three years, 32 of which died during that period, 27 gave up the treatment, 114 were considered to be improved, 47 were not improved, but 4 were apparently cured.

Of other diseases uterine cancer gave encouraging results; 27 cases with 1 apparent cure, 17 improved, 7 not, and 2 deaths. Of 6 cases of cancer of the bladder 2 showed remarkable improvement. Of rodent ulcer 65 cases were treated, 41 being reported as apparently cured, 23 improved, and 2 not better; 4 cases are reported at length, on the nose, scalp, cheek, and temple, respectively. Of lymphadenoma there were four cases, all improved, and it is stated that in this disease the striking feature is the rapidity of the diminution in size of the affected glands, the effect being often perceptible to the patients themselves within a week of the first exposure. Fourteen cases of adenoma of the thyroid who refused operation were treated, all being improved. Of arthritis deformans there were 168 cases, of which 91 were said to be improved, as many perhaps as could be expected in this extremely intractable disease. Numerous patients have also undergone "prophylactic irradiation," that is treatment with the hope of preventing or delaying recurrence after operations. The majority of these we are told had suffered from extensive and rapidly progressing malignant disease,

and the operators had warned them that it would probably return in a few months. It is thought cases may be most suitable for trial in which it has been found impossible to carry operation well beyond the diseased area.

These remarks on the working of the Radium Institute, though more lengthy than I usually give to a subject, afford but a feeble expression of the great value of this report of its third year. Anyone thinking of devoting attention to radiology in relation to therapeutics would do well to commence by mastering this voluminous report, which is to be obtained by medical men from the superintendent, Mr. A. E. Pinch, F.R.C.S., Riding House street, London, West.

The Royal Sanitary Institute had a conference on Saturday when infant life protection occupied most of the discussion. Dr. Brindley, Medical Health Officer for Derby, said public money had too long been spent at the wrong end, providing hospitals and other aids for the old instead of preserving life at the beginning. Health reformers were beginning to realize this. Colonel Kenwood, professor of hygiene at the University, urged that new energy and special services were called for to compensate for the tremendous wastage now occurring.

The war is still the absorbing topic with every section of the public.

In common conversation the Red Cross, the ambulance work, frost-bite, the casualties, the roll of honor are expressions continually heard, and the entrance of a doctor gives rise to a number of questions, more or less puzzling. Among medical men themselves military surgery, the mortality in various circumstances and the honors list are prominent subjects. The high compliment paid to the Royal Army Medical Corps by Lord Kitchener in his speech in the House of Lords has been fully appreciated. But in every medical chat on such matters the subject of typhoid is sure to intrude and demand the chief attention.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

NEW HOSPITAL AT CATTABATO—TUBERCULOUS LEPERS IN SAN LAZARO—EVIL EFFECT OF THE HARRISON ANTINARCOTIC BILL IN THE PHILIPPINES.

MANILA, February 10, 1915.

ARRANGEMENTS are being made to build a new hospital at Cattabato, to replace the one now in use, which was inherited from the army when Cattabato was abandoned as a military station. The present hospital is in bad condition. A preliminary appropriation of 20,000 pesos has been made toward the hospital, which will be built of native hard woods and have a capacity of fifty patients. The present hospital, which has been in operation for about a year, treated 749 cases in the first eight months, besides conducting a large outpatient service. The institution is proving very popular among the Moros of the Cattabato Valley, who are now resorting to it in large numbers. Moro cooks are now in charge of the preparation of food for the patients and this has removed the last objection, as the Moros, being Mohammedans, were afraid lest they lose their religion through unwittingly eating food in the preparation of which the flesh or fat of pigs had entered.

A separate building for lepers suffering from tuberculosis is planned for San Lazaro Hospital, if the recommendation of the leper committee is carried out and funds are found to be available. A good many cases of leprosy are found to have this dual infection—though quite recently several of the investigators here have announced their belief that the nodules so commonly found in the lungs of lepers after death are leprous rather than tuberculous.

Radical changes of the Philippine opium law will be effected by the antinarcotic law enacted by the Congress of the United States, and the extent and importance of these changes is now understood to engross the attention of the internal revenue, bureau of health, constabulary, attorney-general, and others. The bill was introduced by Governor-General Harrison, when a member of Congress, was passed on December 17 last, and copies of the act have just been received here. The antinarcotic act was made especially applicable to the Philippine Islands and other possessions and goes into effect on March 1, 1915. It provides for a special tax on all persons preparing, handling, or administering such drugs. The penal provisions of the act of Congress are generally much less severe than those obtaining under the local law, which has been in force about ten years and which is now superseded; and this is what gives particular concern to the officers of the local government, who fear that the effect will be disastrous in materially decreasing the protection against opium now afforded the people of the Philippine Islands. Under the old law the Chief of Constabulary had the enforcement of the law under his charge and possessed the power to compromise cases, which was often used as a warning and prevented repeated offenses. Under the new bill prosecution through the courts is the only resort. The antinarcotic bill was extended to the Philippines against the advice of the insular authorities, and an effort will now be made to induce Congress to repeal the Philippine proviso, which upsets all legislation relative to the opium traffic now existent in these islands. The latter has worked extremely well. The use of opium has steadily decreased, until it is now an almost negligible factor in health work. The few users are largely Chinese, who have been long addicted to opium or learned its use outside the islands. Under the law, an opium habitué is arrested and sent to Bilibid Prison for cure, which is brought about by ultimate total withdrawal of the drug. Conditions in the islands are in marked contrast to those in the neighboring island of Borneo, for example, where the chief profit of the British North Borneo Company is derived from the monopoly and sale of opium. There anyone can buy as much opium as desired, and as little as even seven cents, American money, will buy sufficient for a debauch. As a result, practically the entire Chinese population are said to be opium habitués, and certainly most of the Chinese and many of the Malays of British Borneo show marked effects of drug use. To deliberately impair the economic efficiency of a whole people seems a short-sighted policy from an economic standpoint, yet the North Borneo Company seems quite willing to do this for the sake of the immediate profits secured by promoting this most destructive vice.

Salt Fever in Infants.—G. Jörgensen confirms the observations of Samelson, Bendix, and Bergmann that the febrile reaction following the hypodermic injection of physiological salt solution in infants is avoided by the use of freshly distilled water in the preparation of the solution.—*Monatsschrift für Kinderheilkunde.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 1, 1915.

1. Charles Sedgwick Minot, M.D. W. T. Porter.
2. James Gregory Mumford, M.D. R. C. Cabot
3. The Changed Position of the Profession of Medicine. D. W. Cheever.
4. The Menace of Syphilis to the Clean-Living Public. J. H. Blaisdell.
5. An Undescribed Ulnar Nerve Trouble Due to Tension from Scar, and Its Cure. F. J. Cotton.
6. Some Nervous Affections in Which Massage Deserves More Frequent Use. J. W. Courtney.

4. The Menace of Syphilis to the Public. — J. H. Blaisdell states that the amount of syphilis in Massachusetts today is absolutely unknown. Figures from communities where the disease is reportable show it to be one of the two most prevalent infectious diseases. Every syphilitic case definitely exposes many innocent, clean living people to the disease. Sixty cases of fresh syphilis exposed 134 by coitus, 442 by family or boarding-house life, and 651 by occupational association—1,227 people in all. At present no organized effort is being made to round up the source of every case. Out of the sixty sources of this series only two were brought under medical care. These sixty cases infected at least five others, but no effort was made to trace out infections in over five hundred equally good possibilities. Left to themselves, patients make little effort to follow up even the most elementary treatment. Twenty-eight per cent. of the patients entering the clinic with active symptoms of syphilis never return for treatment. Seventy per cent. made less than five visits,—a number insufficient in most cases to relieve the presenting symptoms for which they entered. Aftr the first few months the syphilitic patients as a whole average only 25 per cent. of the visits required for minimum efficient treatment.

5. Scar Tension on Ulnar Nerve.—F. J. Cotton describes an affection of the ulnar nerve at the elbow, due to the intermittent tension produced by elbow motion on a nerve held rigidly fixed by a deep scar. The mechanism is purely fixation of the nerve by scar tissue, at the turn of the elbow, where it lies in the epitrochlear groove, or in the inch next below this point. Given a nerve so fixed, it must necessarily happen that flexion of the elbow must pull upon it, and ordinary use of the arm must give intermittent traction on the nerve trunk. The result may be in some measure a paresis in the muscles supplied by the nerve, sometimes with marked atrophy in the muscles of the hand, but more particularly the damage expresses itself in pain; pain radiating from the elbow down to the last two fingers, with numbness to touch in this region; a numbness not usually serious in itself, but important as an indication of real trouble. Pain and a partial paresis of the intrinsic muscles of the hand, expressed in weakness and clumsiness in executing the finer movements of the fingers, are the factors which principally form the list of complaints from the patient. Relief of this condition is surgical. Just as in the cases of intermittent nerve-pressure symptoms from recurrent luxation of the nerve at the elbow,—so here also, the only remedy is removal of the nerve to a more favorable site; one can relieve symptoms by dissecting out the nerve, carrying it forward, and imbedding it in loose fat and muscle.

New York Medical Journal.

April 3, 1915.

1. The Modern Treatment of Diabetes Mellitus. J. Tyson.
2. Growth and Overgrowth. P. G. Woolley.
3. Subpectoral Abscess. D. Riesman.
4. Suggestions as to Blood Cultures. W. Lintz.
5. Sex Gland Implantation. G. Frank Lydston.
6. The Action of Sparteine. George E. Pettey.
7. Multiple Fibroids of the Uterus Complicated by Pregnancy. H. Grad.
8. The Nails. W. P. Cunningham.
9. Functional Intestinal Stasis: Its Cause and Effect. W. C. K. Berlin.
10. Boiling Water in Hyperthyroidism. J. C. O'Day.

2. Growth and Overgrowth.—P. G. Woolley notes that growth depends upon (1) the ability to grow (*i. e.* a certain type of unstable constitution); (2) the stimulus to grow (*i. e.* the action of a force which increases, temporarily, at least, the instability); (3) a sufficient food supply. The phenomenon of overgrowth is one which is recognized in very many forms which vary according to nomenclature from regeneration to tumors. It is seen in healing of wounds; in exuberant graulation tissue; in the gravid uterus; in the heart under varying conditions; in the hollow viscera whose activities are modified by the presence of stenoses; in the bloodvessels in conditions of high arterial pressure; in the skeletal muscles under the influence of exercise; in glandular organs when a part of the functional tissue is damaged; and in certain other organs, which, while they appear unlike, are parts of correlated systems, and so correlated that an absence of one member of the system produces increased activity on the part of the other members. It is seen in corns and calluses, in the fibroses, in the benign and malignant tumors. It is customary to speak of work overgrowth, adaptive overgrowth, compensatory overgrowth, irritative overgrowth, nutritional overgrowth, inflammatory hyperplasia, and neoplastic growth. The only difference between these lies in the sort of stimulus which brings about the cellular reactions. In the cases of work, adaptive, compensatory, and vicarious overgrowth, the stimuli belong in the realm to which one may apply the term "physiological." In the cases of irritative, inflammatory, or neoplastic growth, the stimuli belong in the category to which one may apply the term "pathological."

3. Subpectoral Abscess.—D. Riesman states that the constitutional symptoms of subpectoral abscess from the very beginning are out of proportion to the local manifestations. This is due to the fact that the streptococcus is the causative organism and that the free lymph circulation of the thorax permits of easy dissemination of the infection. In the treatment of subpectoral abscess the question arises whether it is better to wait for definite localization of the pus or to make an incision as soon as the diagnosis is established.

9. Functional Intestinal Stasis. — W. C. K. Berlin concludes that unhygienic oral and nasal cavities, errors of diet, together with idiosyncrasies for different foods (fats and burnt greases, yolks of eggs, etc.) are actual or predisposing causes of localized functional intestinal stasis. 2. Infections such as nephritis, bronchitis, empyema, tuberculosis, etc., apparently are directly traceable to this localized functional stasis. 3. Localized functional stasis must be remedied in order to make other treatment efficient and recovery possible. 4. Operative obliterations of a dilated caput cecum coli is justifiable for the reduction of a localized functional stasis when it occurs in this locality, and when other measures fail.

Journal of the American Medical Association.

April 3, 1915.

1. The Cerebrospinal Fluid in Health and Disease. C. H. Frazier.
2. Experiments Relating to the Virus of Verruga Peruviana. R. P. Strong and E. B. Tyzzer.
3. A Milk-Borne Epidemic of Tonsillitis in Tuberculous Patients. H. A. Bray.
4. The Preparation of Diabetic Patients for Operation. T. Addis.
5. Results of Complement-Fixation Studies with the Corynebacterium Hodgkini. Peter K. Olitsky.
6. Treatment of Hemorrhoids by the Open Method. J. R. Pennington.

7. Paralysis of the Ungual Phalanx of the Thumb from Spontaneous Rupture of the Extensor Pollicis Longus. The So-Called Drummer's Palsy. J. Ramsay Hunt.
8. Hereditary Syphilis in Connection with Clinical Psychology and Psychopathology. J. V. Haberman.
9. Study of a Recent Typhoid Epidemic with Especial Reference to the Use of Antityphoid Vaccines. W. P. Elmer.
10. Clinical Observations on Asiatic Cholera in Manila in 1914. A. P. Goff and O. E. Denney.

1. **The Cerebrospinal Fluid.** — C. H. Frazier points out that the original conception of the cerebrospinal fluid as a transudate has long been discarded. That the choroid plexus is a gland with an external secretion has been shown by the morphological studies of Pettit and Girard, by the similarity between the choroid plexus and the lachrymal gland as noted by Mott, and by the intra vitam staining methods of Goldmann. The impermeability of the choroid plexus to toxic substances injected into the circulation is further evidence in favor of the secretory theory. The author refers to the artificial production of hydrocephalus, and to the increased rate of flow of cerebrospinal fluid following the injection of extract of choroid. The cerebrospinal fluid has a dual origin; the greater part comes from the choroid plexus; but some is derived from the perivascular system of the nervous tissues. Possibly the two different parts have separate chemical and physiological properties. The functions of the cerebrospinal fluid are as follows: It is a mechanical water-bed protecting the brain and spinal cord against shock and injury; it equalizes and distributes pressure throughout the intracranial and intraspinal cavities; it serves a compensatory purpose in filling up dead spaces in cases of atrophy or congenital defects of the brain; it protects the nervous system against infection; it serves as a medium of exchange between the capillaries and nerve cells, and it distributes the active principle of the pituitary to the tissues of the central nervous system. The experiments of the author in conjunction with Peet have shown that whenever the rate of flow of cerebrospinal fluid is disturbed it is always accelerated and not diminished and coincident with the increased flow there is a fall in blood pressure. These results follow the injection of extracts of spleen, kidney, pancreas, and liver, and are attributed to the sudden dilatation of the cerebral sinuses forcing out fluid which had accumulated in the ventricles and subarachnoid space and to the stimulation of the choroid glands. Brain extract produces this stimulation irrespective of the amount of fall in blood pressure. Thyroid extract has a specific inhibitory effect on the action of the choroid plexus. Diiodotyrosin, a synthetic product identical with a substance found in the thyroid, has the same effect, although to a less marked degree. Ligation of the common carotid has no effect on the secretion of the cerebrospinal fluid. The absorption of the cerebrospinal fluid occurs principally by way of the venous channels, and it may rapidly meet unusual demands as when large quantities of salt solution are injected into the subarachnoid space. In serous meningitis the relief of increased intracranial pressure is effected more readily by a temporal decompression than by lumbar puncture. Increased intracranial tension in tumors is the result of a secondary hydrocephalus. It has now become possible to differentiate types of hydrocephalus; for example, an obstructive or a non-obstructive type. Of a given amount of phenolsulphonephthalein injected into the ventricles, 60 per cent. should be recovered in the urine in two hours. The use of thyroid extract is suggested in the treatment of suitable cases of hydrocephalus, on the basis of the inhibitory action of thyroid extract upon the secretion of the cerebrospinal fluid.

4. **The Preparation of Diabetic Patients for Operation.**—T. Addis believes that the estimation of the degree of impairment of the power of the body to oxidize fatty acids is of prime importance in deciding whether or not operation is advisable in any particular case; but the amount of acetone bodies (fatty acids) excreted does not give a reliable indication of the degree of danger, because, although that amount may be small, the reserve power of the body to deal with these substances may be very slight, so that there may be a sudden failure under the special strain induced by operation, with the result that diabetic coma ensues. What is needed is a functional test of the fatty acid oxidizing power. A method is outlined whereby, with very simple methods, the amount of acetone bodies or of ammonia under certain fixed conditions is compared with the quantity found under circumstances which call for a marked increase in the catabolism of fatty acids. The fear, excitement, and undernourishment of the patient, which frequently accompany operation, brings about a call for the utilization of the food stored in the body. This food consists of glyogen and fat, but the most easily available is glycogen, and there will be no very extensive breaking down of fat into fatty acids until the glyogen stores of the body are largely depleted. Even in cases in which the utilization of sugar is very defective, glyogen will diminish the amount of fat required in such emergencies. One aim of treatment should therefore be to bring about a storage of glyogen in the body before operation. The best means yet devised to this end is the oatmeal treatment introduced by von Noorden. The inability of the kidneys to excrete large amounts of fatty acids is a factor in the production of diabetic coma. The giving of alkali helps the kidneys in this work. Before operation, therefore, it is important to give alkali until the urine becomes alkaline, and to maintain if possible this alkaline reaction after operation. Neither success in inducing a storage of glycogen in the body before operation, nor in keeping the urine alkaline is an absolute barrier against diabetic coma. They are only palliative measures. All those circumstances which unite together to produce shock are factors which act as exciting causes of the condition known as diabetic coma. It is possible to mitigate the action of these agencies by the application of the principles of "anoci association."

7. **Rupture of Extensor Longus Pollicis.**—J. Ramsay Hunt states that extensor paralysis of the end phalanx of the thumb is a very rare affection. It results from rupture of the tendon of the extensor pollicis longus as it emerges from beneath the posterior annular ligament of the wrist. Trauma and a variety of occupations have been found to be the cause of this accident, all of which have tended to induce low-grade inflammatory and degenerative changes in the tendon, which predisposes to spontaneous rupture. Drummers are especially liable to this affection; hence the term "drummer's palsy." If evidences of union do not occur after a brief period of fixation of the part, function can be restored only by a tendon operation. The term "drummer's palsy" is a poor one and is misleading, for the reason that the lesion is not neural, and therefore not a true paralysis, nor is the condition one which is confined solely to drummers. Therefore, if this term is used, it should be with the understanding that the affection is one of the tendon and not of the nerve.

The Lancet.

March 27, 1915.

1. The New Psychiatry. W. H. B. Stoddart.
2. Typhoid and Paratyphoid Infection. The Detection and Identification of B. typhosus and B. paratyphosus. G. Dreyer, E. W. Ainley Walker and G. Gibson.
3. A Case of Rupture of the Heart in a Child. J. Anderson.
4. On the Movements of the Normal Stomach. H. Walsham and W. Overend.
5. A Note on Certain Peculiar Crystals Found in the Cere-

brospinal Fluid from a Case of Septic Meningitis. W. W. D. Thomson.
6. A Contribution to the Bacteriology of the Urinary Tract in Children. A. Ross.

1. **The New Psychiatry.**—W. H. B. Stoddart in the second of the Morison Lectures discusses the sphere and the technique of psychoanalysis, which he finds applicable in the treatment of the neuroses, including neurasthenia, the anxiety neurosis, and some forms of hypochondriasis; the psychoneuroses, including hysteria, the compulsion neurosis, obsessions, and morbid fears; and the psychoses, including maniacal depressive insanity, dementia præcox, and paranoia. In the case of manic-depressive insanity no attempt should be made to analyze the patient during the course of one of his attacks. A partial analysis serving to lay bare the most obvious of the patient's repressed complexes is often sufficient to effect a permanent recovery, whereas anything like a complete Freudian analysis often does harm. Most of the cases of dementia præcox are too inaccessible mentally. The most favorable cases are those of katatonia. The psychoneuroses comprise the cases in which psychoanalytic treatment is eminently satisfactory. It is the duty of every physician who contemplates using the method either to be psychoanalyzed or to psychoanalyze himself so that he shall not read his own complexes into his patient.

3. **Rupture of Heart in a Child.**—J. Anderson reports a case of this condition in a girl aged five years, who had been apparently well previous to her sudden death. The lesion which had given rise to the rupture was of remarkable character; a hematoma, one-quarter inch in diameter, had formed in the wall of the left ventricle and septum. Its cavity was filled with blood clot and its walls were ragged and granular. At its lower aspect it had ruptured externally into the pericardium, and a large probe could easily be passed through the aperture, which was situated one-half inch from the base of the ventricle. The thinned inner wall communicated with the interior of the ventricle by a large and irregular aperture, which was continuous with an extensive rupture across the inner portion of the posterior wall of the chamber. The torn area almost encircled the ventricle, and reached as far as a point immediately beneath the position of the left auricular appendix. The laceration occupied a fair depth of the muscle, and the wall of the ventricle, when viewed by transmitted light, was quite translucent. The right ventricular wall was intact. The valves were of normal size and their curtains were healthy. Examination of the coronary vessels showed a stenosis of the lumen of both arteries, and the descending branch of the left coronary artery was obliterated at the seat of the rupture and could not be traced beyond it. The interpretation which was placed on the case was that the child was the subject of an abnormal development of the coronary arteries. The vessels were unusually narrow, and further, the lumen was encroached upon in places by the areas of thickening in the inner coat due evidently to a syphilitic endarteritis. The hematoma in the septum was more than likely the result of the thrombosis in the descending branch of the left coronary artery, and represented really a dissecting aneurysm of the heart wall; and the case is comparable with that described by Lazarus-Barlow, which, however, occurred in a man of advanced life. Another important factor in the case was inherited syphilis.

British Medical Journal.

March 27, 1915.

1. Preliminary Notes on the Treatment of the Cranial Injuries of Warfare. P. Sargent and G. Holmes.
2. Epidemic Cerebrospinal Fever: the Place of the Meningococcus in Its Etiology. A Bacteriological Study. E. C. Hort, C. E. Lakin and T. H. C. Benians.
3. Cerebrospinal Fever: Diagnosis and Treatment. M. Foster.
4. Local Anesthesia in Skin-Grafting by Thiersch's Method. E. P. Gould and C. W. Archer.
5. Gas Gangrene and Tetanus. W. K. Hatch.
6. The Treatment of Painful Frostbite. W. C. Davis.
7. Some *a priori* Pathometric Equations. Sir Ronald Ross.

2. **Rôle of the Meningococcus in Meningitis.**—E. C. Hort, C. E. Lakin, and T. H. C. Benians advance the thesis that in cerebrospinal fever the meningococcus might prove to be a late noninfective phase in the life history of a minute organism not yet discovered, which is only infective in its earlier stages—that is to say, it is only in these early stages that it causes the disease. If this be so, the early infective phase might prove to differ widely, morphologically, culturally, and biochemically, from a late noninfective meningococcal phase. The basis for this theory was the fact that Hort and Ingram had already described a minute pleomorphic organism in typhus fever, and had produced experimental evidence, not yet completed, which suggested that this minute organism was in its earliest phases the primary infective agent in that disease, while the late phases were noninfective.

6. **Treatment of Painful Frostbite.** — W. C. Davis states that the problem of how best to treat painful frostbitten feet is one which doubtless has caused those in charge of military wards some anxiety. The best remedy the author has found to be cocain, 8 grains; olive oil, 4 drams, and lime water, 4 drams. A small quantity is rubbed into the feet twice daily, special attention being given to the toes; the feet are massaged with it for a few minutes, and afterward wrapped up in cotton wool. It is an improvement to add 1 ounce of liquid paraffin to 4 ounces of above preparation, as by this addition it is prevented from oxidizing so quickly, and also from drying up so rapidly, and makes it less liable to rancidity. When the oil dries on the feet, the following dusted on is an excellent powder: Camphor, 35 grains, and zinc oxide and powdered starch, of each ½ ounce.

7. **Pathometric Equations.**—Sir Ronald Ross contributes a new development of his studies on pathometry, *i.e.* the mathematical study of epidemiology. In these studies he followed the *a priori* method; in other words, he assumed a knowledge of the fundamental laws governing the time-to-time variations of disease in a population of living creatures; formed the corresponding difference and differential equations, and then sought by solving these to ascertain the more remote laws which should govern the variations if his assumptions were correct. The author's work was concerned chiefly with insect-borne diseases; but he gave brief but not quite complete integrated equations on the general theme, these equations being obtained on the supposition that the total population remains constant during the considered period of time. A year ago, however, he was able to remove this restriction by integrating the original differential equations even when the population varies, and he has now found a simplification which enables one to state the equations in forms which are easy to analyze and which will be understood by any one who has some knowledge of the calculus. Thus put, they give an elegant (though tentative) mathematical theory both of epidemic and endemic communicable diseases.

Berliner klinische Wochenschrift.

March 1, 1915.

War Aphorisms of a Dermatologist.—Unna discusses the single furuncle, furunculosis, and axillary abscess. In treating a furuncle the surgeon notices the direction of the hairs of the affected part and pulls up a broad fold of skin with the left hand, so that the furuncle is at the summit, and compresses it softly until a blood-

less area appears. In the center of this is a cylinder of cocci which surrounds the hair follicle and constitutes the future core of the boil. An attempt is made to puncture this cylinder with a hot needle, such as the finest paquelin. This enters in the direction of the hairs. Great heat is not necessary, as a common needle heated in a flame will answer. If this maneuver is properly done the cocci and their toxins are destroyed, and tension and pain at once disappear. Not until this moment does the operator release his hold on the fold of skin. If the attempt has failed it must be repeated. This procedure is superior throughout to the crucial incision. On the other hand, if there are a number of furuncles—a parent lesion having apparently propagated others—the surgeon should not think of an internal cause and treatment based thereon (unless of course he has to do with a diabetic); he may indeed, however, in civil practice, give yeast or calcium sulphide inwardly. On the field the individual boils should be cauterized as already described, but something must be superadded to attack the process as a whole and arrest the spread. The author recommends warmly a paste made of ichthyol and kaolin. But as neither of these may be present in the available hospital supplies, chalk may replace kaolin, and sulphur plus zinc oxide ichthyol. Glycerin is present in both formulæ. Axillary abscesses are not, properly speaking, dermatoses. They have been described by surgeons, notably the French, as inflamed and suppurating sweat-glands; but Unna regards them as "furuncles without cores"; that is, they form about the follicles of the axilla. They tend to relapse, but never lead to phlegmons or metastatic abscesses. The axillary abscess, if small, should be cauterized with the hot needle. If pus has accumulated it should be evacuated and then dressed with a paste of turpentine, lead, and mercury spread on a plaster.

Operative Cure of Total Ectopia Vesicæ by Trendelenburg's Method.—Heinsius reports his case in great detail. In the Trendelenburg method the separated segments of the os pubis are approximated, and having thus eliminated the tension of the abdominal wall and intraabdominal pressure the bladder, urethra, and genitals are united. The author gives a survey of the results of twenty-three operations of this sort. There were five deaths as follows: wound infection, as primary result of operation, 2; pyelonephritis and iodoform poisoning, 3. There were but three cures, one that of the author. Other procedures which utilize Trendelenburg's principle of pelvic narrowing but are more severe give a high death rate (vertical osteotomy, total pubiotomy, etc.).

Nervous Retention of the Urine.—Cohn writes briefly of this subject. Retention is seen in numerous organic diseases of the cerebrospinal axis, but in certain cases only some neurogenic factor is in evidence—either neurasthenia or hysteria. In many of these cases, however, careful study, including cystoscopy, will reveal some slight organic lesion—possibly a cystitis colli, or an enlarged colliculus, and in women some foreign body in the bladder. The author employs the manometer in these cases for differential diagnostic purposes, for if the condition is a nervous one the manometer reveals a low pressure. To cite one case a man, aged thirty-four, had been troubled for a year with the desire to urinate. At times he had to pass water every two hours. Urinary stream slow. At night he rose four or five times to urinate. There was no tenesmus. No admission of gonorrhea. When symptoms began to grow worse the author was consulted and found the bladder as high as the navel. Urine quite normal, likewise urinary passages. The condition was found to be a trabecular bladder. The manometer showed a very low intravesical pressure. Injection of 100 c.c. boric-acid solution hardly affected the manometer, while one of 400 c.c. caused strong desire to urinate and a pressure of 15.

Münchener medizinische Wochenschrift.

March 2, 1915.

France in War Time.—Madelung continues his efforts to piece together from fragmentary data what is going on in the countries of the Allies. He gives his authorities. Letters from Paris early in the war to the various British medical journals mentioned interesting data in reference to traffic. Omnibuses no longer ran. Horses and autos were commandeered. The street cars ran only during the day. Not only all able-bodied physicians but many students were called to the colors. Hospital annexes for wounded soldiers were placed in readiness. Gymnasia, school buildings, and private houses became hospitals. The civil hospitals were almost emptied of doctors and nurses. However, for fear that the city would be captured, the first wounded did not come to Paris. Not until late in August did they begin to arrive at the latter city. Chantemesse warned against epidemics of variola. Vaccination and typhoid inoculation were advised, provided for, and in part made compulsory. But few troops could wait for typhoid immunization. Ordinary sanitary measures were duly carried out. Thousands of cows were killed in the Bois de Boulogne for provisioning the city. The milk was pasteurized and used. Laws were passed against the traffic in absinthe and certain other spirits. By September 24 the population of Paris was but 63 per cent. of the antebellum figures. Americans placarded their houses or flew American flags over them. By the end of November all was changed. All fear of siege or occupation had vanished, and the city once more filled up with Frenchmen and foreigners. In the meantime, however, thousands of figures in mourning throw a gloom over the community. There is no resumption of night life, no sign of tourists. Everywhere one sees improvised hospitals. The people are not exultant, but sober and quiet. The Academy held a number of interesting sessions on war medicine, but reports are not forthcoming. Clemenceau ordered the most careful treatment of German prisoners. Many data from friendly sources show the want of efficiency of the French medical service. These concern allotment of surgeons to commands, deficient transportation service, and the like. This was greatly aggravated by destruction of railways and bridges. All these examples of neglect have been largely made good, English, and especially Americans, having come to the aid of the natives with money, nurses, and surgeons. The efforts of the Americans are not regarded by the author as unneutral, but as wholly humane. In November a contingent of Canadian (chiefly French) surgeons reached the north coast of France and established a hospital.

Light Treatment of Tetanus.—Jesionek reports four cases of recovery from tetanus ascribed by him to the use of light rays. The basis of the treatment is, of course, rational, and recognized as such through the remarkable effects upon lupus of the Finsen-light treatment. In the absence of solar light the author employs a mercury vapor lamp. He lays no stress on the concentration of chemical rays and anemization of tissues, nor on the direct bactericidal properties of light. The sole dependence is placed on the phlogistic powers of the light with their incidental bactericidal property. The author's treatment of tetanus wounds is necessarily bactericidal in scope, but this is brought about indirectly through the artificial sunburn caused by the light. Whether the latter be directed toward a sound or

diseased integument, subcutaneous tissue or muscles, there results first a hyperemia, then a copious serous transudation from the vessels. It is this saturation of the wound with serous fluid which the author believes to be responsible for the aseptic healing of the wound. Dead and dying tissue particles are destroyed while the phagocytes are stimulated to act. The result is an aseptic closure of the wound.

Deutsche medizinische Wochenschrift.

February 25, 1915.

Gas Phlegmons in the Field.—Seefisch concludes that gas phlegmons, which are particularly common after artillery wounds, lead in most cases to gangrene; yet nevertheless despite very extensive gas development do not necessarily give a bad prognosis if they are quickly attacked by free incisions extending into the sound tissues. Amputation when necessary may be performed close to the periphery of the gangrenous area, while at the same time due regard is to be had to the formation of a serviceable stump. There need be no fear that incision through a gas phlegmon will cause gas gangrene. Following these rules the author has treated successfully twelve cases of gas gangrene of severest character without a death. The majority recovered with good, serviceable stumps. The management of these cases with oxygen is difficult of execution at the front, where the remedy is used largely as prophylactic. The very large number of wounded and the pains required for carrying out the technic render this resource unsuited for general use.

Rumpf's Oscillating Current and Its Radiant Energy.—The author described his new modality of electricity in 1907 as of exceedingly great value in diseases of the heart and circulation. It is of a class with d'Arsonvalisation and diathermy. The current is obtained from a large Rühmkorff induction coil, the ultimate source being accumulator batteries or the lighting circuit. The spark gap is from 1 to 5 cm. One cm. corresponds to 10-12 volts and 2 milliamperes. Strong currents may be weakened by the use of long vacuum tubes. One pole of the inductor, the positive, is represented by the interior of a glass oscillator, while the other is connected with the patient's foot in various ways. The principal glass oscillator consists of a thin flask holding from 1 to 1½ liters and is partly coated within with staniol paper or other substance. The positive pole is therefore connected with this coating. The negative pole runs beneath a thin glass plate, isolated, and of area 30 square cm. This plate is coated below, save for a finger's breadth at its margin, with staniol paper and isolated from the floor with a strong glass plate and hard rubber. The patient's feet are usually also placed in shoes. The current is turned on with an interruption in the circuit of 60-80 per second, until the coating within the flask is charged. Oscillatory discharges at once pass through the patient. These slowly decrease in strength and are renewed from time to time by recharging the oscillator. It may be shown that this oscillatory current contains the Tesla high frequency current. The oscillations are computed to number 1,000,000 per second. In addition to high frequency oscillations there are the shocks produced by opening and closing the induction current which are transferred to the subject and affect the nerves of the skin which are not reached by the oscillations. The physical phenomena of the high frequency current are apparently slight; it gives off some heat to the tissues traversed—enough, for example, to heat 100 ccm. faucet water from 1.5 to ½ deg. C. They also have marked ozonating properties. The author now relates many experiments of various kinds made with the current.

Deutsche medizinische Wochenschrift.

March 4, 1915.

Peculiarities in the Course of Typhoid in the German Army and the Treatment of the Disease.—Grober states that no surprise should be caused by the appearance on both army fronts of actual or suspected cases of typhoid. Even in times of peace these geographical boundaries are the seat of rigid medical inspection to keep out this and other pests, and in war time, with its invasions and counter-invasions and interchange of prisoners, the dangers are greatly multiplied. Diagnosis is rendered difficult because of the various types of the disease and a large fraction of the sick is made up of typhoid suspects. The Widal test is invalided by antityphoid inoculation and is of little or no value at the front. Bacillary tests of feces and urine cannot supersede clinical finds in diagnostic value. Mortality figures give an inkling of the presence of typhoid, as does also the manner of exit, for typhoid victims die first of heart failure, next of pulmonary complications, and, finally, of intoxication of the nervous centers. In troops with their hardships and overexertions the heart presents but a weak resistance; both acute and chronic collapse are of frequent occurrence. This behavior of the heart is aggravated by overloading the stomach and colon. A typhoid case in transport does not always respond to the stimuli, baths, etc., which are of value in civil practice. The course of typhoid in the field, however, in no case resembles the disease of the text-books. At the front we see undoubted cases run their course in a few days only. Some of these readily relapse. There are other cases which run their course in from eight to fourteen days. Opposed to these are fulminant cases which end fatally in a few days. In the army we find the intestinal complications and ulcers are very rare. Hence death from perforation or hemorrhage is a rarity. Venous thrombosis is not uncommon, and this is also true of middle-ear disease and deafness. Exanthems and dermatoses are common and extensive—large, moist eczemas and other affections which bear no direct relation to the disease. To cite at random a case of military typhoid: no intestinal lesions or symptoms; moderate fever; slight bronchitis; swelling of right knee and purpura hemorrhagica. The piagnosis was purpura. Patient while seemingly doing well had cardiac failure and died. Autopsy: slight ileotyphus, with extremely flabby heart. This was all, save for the joint effusion and purpura. These patients are treated with due reference to cardiac failure. The circulation should be carefully watched from the start, and when the hardships of transportation are pending, digitalis should be given as a prophylactic. This includes all suspected cases. Alcohol and coffee may be used at this juncture. Injections of camphor oil should also be used if needed, bearing in mind the fear this remedy instills into the patient as having the force of a death warrant. In acute collapse caffein, camphor, and suprarenin should be injected. The patient should receive baths under great restrictions. They are *per se* of great value, antagonizing a large number of symptoms, but they must not be so given as to weaken the circulation, *i.e.* neither too long or of too high temperature. They may be given cool (30-25) and often, under control of the pulse. The application of cool packs at the front is of somewhat doubtful value. In regard to diet the author nourishes by calories and patient should receive daily from thirty to forty calories per kilo, to be increased even to seventy calories if the temperature is very high.

Insurance Medicine.

Significance of Pulse Anomalies in Insurance Practice.—Goliner states that recent advances in physiology have made it possible for us to study the pulse with exactitude. To be able to deduce the right conclusions from a pathologically altered pulse, one must possess a certain familiarity with the qualities of the normal pulse, such as volume, frequency and tension, along with the secondary elevations. In the normal pulse we note three elevations, but the first and third are hardly palpable; these are known as elastic elevations. On the other hand, the second elevation is much longer and much more readily palpable; it is known as the back impulse elevation and is due to the recoil of the blood upon the aortic valves, while the minor elevations are due to the vibrations of the arterial wall. In a normal overworked man the major elevation may be increased while the two minor ones disappear. This, however, is only a transitory phenomenon. In life insurance medicine the so-called pulsus durus is of the greatest importance because it is found in chronic nephritis, arteriosclerosis, and valvular insufficiency. Its prognostic significance is worse in the last-named condition. Such a pulse leads to the rejection of the applicant. To define a hard pulse one says that it does not readily yield to the pressure of the finger. The elasticity elevations are especially well marked. The hardness is owing to the increased tension of the arterial wall which is due either to its degree of elasticity or to increased outflow of blood. A hard pulse in applicants over 40 makes us think of calcification, but in the young subject it means only overfilling with blood, such as could occur in hypertrophy of the left ventricle or overloading the vessels with fluids. The hardest pulse of all is found in chronic nephritis. Pulsus durus should also suggest plumbism and valvular lesions secondary to sclerosis of the aorta.

The soft pulse suggests anemia and chlorosis, in fevers and compensatory disorders of the heart from weakened myocardium. It is often dicrotic in character. The quick pulse has no recoil, and suggests aortic insufficiency with secondary hypertrophy of the left ventricle.

The slow pulse may also be a hard pulse and then has a bad prognostic significance. It is found in mitral and aortic stenosis.

The large pulse is associated with marked overactivity of the heart and with hypertrophy. The small pulse is due to a weak systole and occurs in short-lived persons. Most of the pulse anomalies described by the writer are encountered only in severe organic disease, which would readily be disclosed by auscultation, urological examination, etc. His remarks are of value to the examiner for the accurate description of the pulse.—*Blätter für Vertrauensärzte der Lebensversicherung*, November-December, 1914, Vol. V, No. 6.

The Microscopy of the Urinary Sediment in Life Insurance Examinations.—The imperfections of modern methods of living are finding expression in our urine. Dr. W. F. Thomson, Beaumont, Texas, says that we eat, drink, and work on a six-cylinder basis, relying upon a two-cylinder renal capacity to remove our waste. Due to the nature of its function, the kidney is one of our most vulnerable points; and because of our misguided mode of living, irritants are poured through this filter that sooner or later produce structural changes.

From the standpoint of insurance it is a serious mistake to disregard the presence of small hyaline casts in the urinary sediment, even when albumin cannot be detected by the usual chemical means; they are the chief evidence in the urine of interstitial nephritis. The presence of small narrow casts signify that the lesion is situated near the outer border of the kidney in the vicinity of the cortex; medium sized casts are from the middle zone, and the larger ones are from the straight collecting tubes in the area of the pyramids.

Epithelial casts in the urine are proof positive of active inflammatory changes involving the kidney structure. The cells are the exfoliated epithelia of the tubules. Blood casts are positive evidence of renal hemorrhage and are always the result of trauma or active inflammatory processes. Pus casts in the urinary sediment point clearly to the presence of kidney lesions associated with suppurative changes and, when associated with bacterial casts, their presence is of most serious diagnostic import. Granular casts denote chronic degenerative changes in the renal structure, and fatty casts indicate fatty changes.

The presence of red blood cells in the urinary sediment indicate a pathological lesion somewhere between the meatus and the renal cortex; associated with casts, especially blood casts, it may be correctly assumed that their origin is renal. Leucocytes in the urinary sediment of men clearly signify the existence of a suppurating lesion somewhere along the urinary tract; if associated with casts, especially pus casts, the assumption that they hail from the kidney will probably be correct.

Cylindroids are composed chiefly of mucus, and their presence in the urinary sediment signifies the existence of an inflammatory process affecting some part of the urinary mucosa, and while oftentimes having their origin in the kidney, they may come also from any of the ducts of the urinary tract; and unless associated with true casts, and other evidences of renal inflammation, their presence should not unfavorably influence an opinion regarding the risk.

No examination of the urine for the purpose of eliminating undesirable insurance risks is complete without a microscopical examination of the urinary sediment. Casts, red blood cells, or leucocytes are open expressions of existing pathological lesions. While such lesions may be permanent or transient, serious or slight, lesions they are, and evidence that warrants postponement of acceptance on the part of the medical examiner until he has definitely ascertained the location and character of the lesion and its effect upon the risk.

Conclusions. (1) The usual chemical uranalysis employed in making insurance examinations may show normal findings and fail to detect the presence of important signs of existing renal disease in the urinary sediment.

(2) Casts, especially the more common hyaline casts, are albuminous products and have been preceded or will be followed by an appreciable albuminuria.

(3) The presence of casts, red blood cells, and leucocytes in the urinary sediment is direct evidence of pathological changes of the urinary system and cannot be ignored by the insurance examiner, unless these evidences are proven not to be serious or permanent.—*Texas State Journal of Medicine*, November, 1914.

Book Reviews.

Aids to Dental Anatomy and Physiology. By Arthur S. Underwood, M. R. C. S., L. D. S., Late Professor of Dental Surgery at King's College, London; Member of the Board of Examiners in Dental Surgery, Royal College of Surgeons of England; and Lecturer in Dental Anatomy and Physiology at the Dental Hospital of London. Third edition. Price, $1.00. New York: William Wood & Company, 1914.

The third edition of this well-known handbook consists of the matter of the second edition together with many important advances which have been made in dental science since our last issue. Calcification and the innervation of dentine have gone through revolutionary changes during the last two years, so Mr. Mummery's latest work on the former subject is given in an appendix. The author accepts Magitol's view of calcification which is also agreed to by Mr. Mummery, at least in its main essence, that it is the matrix and not any part of the cell itself which calcifies.

The Anatomy of the Human Skeleton. By J. Ernest Frazer, F.R.C.S., Eng. Lecturer on Anatomy at Medical School of St. Mary's Hospital; formerly Lecturer at King's College, London; and Senior Demonstrator at the Medical School of St. George's Hospital; Examiner in Anatomy for the Conjoint Board of the Royal Colleges of Physicians and Surgeons. With 219 Illustrations. Price, $6.50. Philadelphia: P. Blakiston's Son & Co., 1914.

This work is a treatise on Osteology in which the bones are considered, less as individual formations than as parts of a whole. In thus considering the skeleton, the author adds a complete account of the articulations, the cartilages which do not enter into joint formations, and the muscular insertions. The vertebral column, thorax, pelvis, limbs, and skull are considered as integers. Much space is given to osteogenesis. In illustrating many complicated structures—to cite for example the hip joint—the individuality of the constituent parts is emphasized by differential coloring. There is a complete omission of radiographs, without any allusion to this fact.

The author believes that his book is a necessary prologue to the study of the anatomy of the superjacent structures and viscera. It is certainly much more readable than the usual treatise on osteology, etc., and this alone is sufficient to recommend it. It further covers all the more minute technique of osteology, such for example as the facets of the small bones—carpus, tarsus, etc.,—so that a student of the book should be able to stand a quiz on the bones, cartilages, joints, and muscular insertions.

The author seems to imply that his work is somewhat of an experiment as a textbook, but there can be no doubt that it will be admirably adapted for collateral reading and easy reference, just as is the case with works on regional anatomy.

Grundriss und Atlas der Röntgendiagnostik in der inneren Medizin. Herausgegeben von Dr. med. Franz M. Groedel. Zweite, volkommen umgearbeitete und wesentlich erweitete Auflage. Mit 100 photographischen und 324 autotypischen Abbildungen auf 121 Tafeln und mit 283 Textabbildungen. Price, 38 Marks. Munich: J. F. Lehmann's Verlag, 1914.

The first edition of this work appeared in 1909 in a single volume of 388 pages and an atlas supplement. The present edition consists of two volumes of which the first represents 513 pages of text while the second is the Atlas proper. Despite this degree of expansion Dr. Groedel informs us in the preface to the second edition that the work has been interrupted by the breaking out of the war. The first edition had nine contributors including the author. The late Cark Beck of New York was one of these collaborators. The present volume has thirteen contributors, eight of whom collaborated in the first edition. The latter consisted of 16 chapters on regional technique, while the present comprises twenty-two. The greatest expansion occurs naturally under radiography of the gastrointestinal canal. Three subdivisions have been increased to eleven. The other old chapters show a corresponding expansion.

Among the new departures are a chapter by Schnaudigel on radiography of the eye, one by Pfeiffer on the ear, and one by Finckh on the jaws and teeth. These men are all new contributors. Pfeiffer also collaborates with Spiess on the radiography of the nasal fossæ and sinuses, mouth, and larynx. The volume fully conforms to the vast expansion and deepening of the subject during the past five yeers. One can only wonder wherein the outbreak of war can have prejudiced the completeness of the work.

Diseases of the Rectum and Anus. A Practical Handbook. By P. Lockhart-Mummery, F.R.C.S., England. Senior Surgeon to St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum; and Surgeon to the Queen's Hospital for Children; late Hon. Surgeon, King Edward VII Hospital for Officers. Price, $3.00 net. New York: William Wood & Company, 1914.

The importance to the general practitioner of a work of this kind may be realized in view of the fact, as stated by the author, that nearly 50 per cent. of the population suffer from rectal ailments at some period of their lives. This book presents an interesting and practical account of the operations and methods of treatment that the author has found to be of most value. There is a special chapter on antiseptic technique and diet; the possibility of carrying out an antiseptic technique under the difficulties that prevail in rectal surgery is shown to be really practicable. A chapter on anesthesia in rectal operations is contributed by J. Blumfeld. Among the interesting features of this book are the case reports. Medical, surgical, and palliative measures are described. A large number of excellent illustrations embellish the book, which may be recommended to the student and practitioner as one of the best of its kind.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College, Philadelphia; Assisted by Leighton F. Appleman, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Price, $6.00 per annum. Philadelphia and New York: Lea & Febiger, December, 1914.

The current number of Progressive Medicine contains chapters on diseases of the digestive tract and allied organs; the liver, pancreas, and peritoneum; diseases of the kidneys; genitourinary diseases; surgery of the extremities, shock, anesthesia, infections, fractures and dislocations, and tumors; and practical therapeutic referendum. Special attention is directed to Dr. Bloodgood's contribution; his summary on shock, anesthesia, and cancer control are of more than ordinary value.

Proceedings of the First National Conference on Race Betterment. January 8, 9, 10, 11, 12, 1914, Battle Creek, Mich. Edited by the secretary. Published by the Race Betterment Foundation, Battle Creek, Mich., 1914.

The purpose of the conference of which the present volume is the record was "to assemble evidence as to the extent to which degenerative tendencies are actively at work in America, and to promote agencies for race betterment." These proceedings comprise a large number of papers, including discussions, classified under the following headings: president's address; statistical studies; general individual hygiene; alcohol and tobacco; child life; six questions; school and industrial hygiene; city, State, and national hygiene, and eugenics and immigration. This volume is a veritable mine of information on the above subjects.

Transactions of the Thirty-sixth Annual Meeting of the American Laryngological Association held at Atlantic City, N. J., May 25, 26, and 27, 1914. New York: Published by the Association, 1914.

The student of laryngology will find considerable valuable and new material in this volume. Some of the articles comprising it are as follows: "Intrinsic Cancer of the Larynx: Complete Excision Apparently Effected by Endolaryngeal Operation," by Sir St. Clair Thomson; "Limitations of Bronchoscopy," by Chevalier Jackson; "The Employment of Skiagraphy in the Diagnosis of Enlargement of the Thymus Gland," by D. Bryson Delavan; "Laryngitis Submucosa Subglottica, Acuta," by Charles W. Richardson; a symposium on Empyema of the nasal accessory sinuses in children under fourteen years of age; "The Relation of the Tonsils to Thyroid Disease," by B. R. Shurly; "Primary Lupus of the Larynx," by Emil Mayer, and "Too Optimistic Rhinology," by B. Alexander Randall.

Special Article.

OUTLINES OF A STATE POLICY FOR DEALING WITH MENTAL DEFICIENCY.*

Thoughtful people in every State are awakening to the importance of dealing with the social, economic and educational problems which have grown out of our failure to provide for the mentally defective. The present widespread interest in this subject is somewhat similar to that which, in the first half of the last century, inspired the movement to provide for the insane. An important difference between the public sentiment which brought about the firm establishment of State care of the insane and the present general interest in mental deficiency is that the former was due chiefly to humanitarian impulses while provision for the mentally defective is being urged chiefly because it is believed that such persons constitute a grave menace to the public welfare.

Various plans of action looking toward (1) preventing mental deficiency, (2) dealing more rationally with mental deficiency as a source of crime, delinquency and dependence and (3) providing more effectively and more humanely for the care and training of the mentally defective are being proposed in the different States. Many commissions have made cursory surveys of the situation as a whole in various parts of the country and a few careful studies have been made of specific phases of the subject. Legislation dealing with varied aspects of care and prevention has been proposed and not a little has already been enacted. It is believed that the New York Psychiatrical Society can perform a most useful service at this time by preparing and publishing for the information of the public a statement giving clearly the fundamental conceptions upon which we believe a sound State policy for dealing with mental deficiency should be based, together with some specific suggestions for action by the Constitutional Convention and the Legislature of this State. The Committee appointed to prepare an outline of such a statement submits the following report, giving, first, a very short summary of some of the more important consequences of failure to provide for the mentally defective; and, second, some suggestions for constructive legislation for dealing with the problems. Especial care has been taken to avoid exaggeration in stating the social consequences of mental deficiency, for the Committee has been deeply impressed by the harm done by making statements which arouse public sentiment but which are not borne out by the facts in our possession.

I. Social Consequences of Mental Deficiency.

Crime and juvenile delinquency.—1. A large amount of evidence has been collected to show that many girls and boys in institutions for juvenile delinquents are mentally defective. Just how large this proportion is cannot be stated definitely for the results of examinations made are not equally trustworthy—as shown by the fact that the number of mentally defective persons found in different institutions of the same general type varies from 10 to 89 per cent of the total number of persons examined. Careful inquiries have placed the proportion in certain correctional institutions at from 20 to 30 per cent.

2. Examination of prostitutes in the wards of general hospitals, in detention homes and in reformatories and training schools shows an even larger proportion of mentally defective persons.

3. Although the number of studies made of adult criminals have been fewer than of those of juvenile delinquents, it is apparent that a considerable proportion of these offenders are mentally defective.

4. The presence of such large proportions of mentally defective persons in penal and reformatory institutions, is undersirable chiefly for these reasons (1) because it is unjust to punish persons whose responsibility for their acts is not that of normal persons and (2) because methods of reformation, discipline and industrial training which are successful with criminals and delinquents of normal minds are ineffective with those who are mentally defective. Thus it is both inhumane and uneconomical to confine mentally defective persons in such institutions.

5. The courts, being designed to determine guilt or innocence, are generally unprovided with the proper mechanism to determine mental responsibility. Thus the presence of many mentally defective persons among those accused of crime interferes with the administration of justice.

6. As mental deficiency can be recognized at an age even earlier than that at which children are brought before juvenile courts, it is apparent that in failing to deal adequately with mental deficiency in childhood we are overlooking an excellent method of preventing crime.

7. The presence in the community of mentally defective persons, especially those who, through volitional or emotional defects are unable to exercise the control in sexual life which laws and social customs demand or to protect themselves from the advances of others constitutes an important source of moral contamination and of the spread of venereal diseases.

8. Cruelty to children has been shown to be due in many cases to the mental deficiency of parents.

Dependence.—1. Evidence is available showing that poverty is often the result of mental deficiency not only in the individual but in families in which the father or mother or both are mentally defective.

2. A large but undetermined proportion of the persons who are chronically unemployed is known to be mentally defective, their defect making consecutive useful labor impossible except under a type of supervision which is not provided in the community.

3. Vagrancy and homelessness among adults have been shown by studies of these classes to be due often to mental deficiency.

4. Mental deficiency has been shown to underlie alcoholism and drug addiction in a considerable proportion of cases.

5. Illegitimate pregnancies among mentally defective girls and women frequently render them or their children charges upon the public and constitute an important means of transmitting defective hereditary strains.

Education.—1. Although children with grave mental defects are excluded from school or are never presented for admission, many with lighter degrees of defect are to be found in the regular classes, especially in the lower grades.

2. On account of difference in the methods of diagnosis used in different studies which have been made, the exact proportion of such children in the school population cannot be stated, but it is known that the number is large enough to interfere very seriously with the work of the educational system.

Other social effects.—1. The most serious social consequences of permitting the mentally defective to participate fully in all phases of community life grow out of their inability to establish and maintain happy and well-ordered homes. High infant mortality, neglect of children, unsanitary living conditions and low moral standards characterize the homes of the feebleminded.

2. Evidence is available which indicates that a considerable proportion of industrial accidents and not a few traffic accidents, both of which involve dependence and economic loss, are due to mental deficiency in the persons injured or in those who cause such accidents.

Such a list of the wrongs which the mentally defective unwittingly inflict upon society might be greatly lengthened and to it might be added a list of the hardships and injustices which the indifference of society inflicts upon the mentally defective. Enough has been said to indicate the heavy penalty which is being paid for failure to face squarely the problem of mental deficiency and to deal with it with enlightenment and humanity. It is difficult to think of more important or more urgent tasks confronting any State today than those of devising broad, constructive measures to control the disastrous effects of mental deficiency and of speedily putting such measures into effect.

II. Legal, Administrative and Institutional Provisions.

The attempt is made in the following outline to present in more or less general terms some of the steps in a constructive State program, which, we believe, are fully warranted by information already gathered. At the same time we wish to state our earnest conviction that a large and profitable field for research exists and that a satisfactory solution of the problem, especially of those phases of it which have to deal with the detection and management of persons with the lighter forms of mental defect must wait until careful studies have

*A report adopted and approved for publication by the New York Psychiatric Society, January 6, 1915.

cleared up questions which now are obscure and the subject of controversy.

By far the most thorough investigation of the problem of mental deficiency ever undertaken was that made by the English Royal Commission on the Care and Control of the Feebleminded from 1904 to 1908. The report of that Commission made so clear the unhappy lot of the feebleminded in their hopeless struggle to compete on equal terms in the community with those possessing normal minds and showed so strikingly the waste of national resources and the grave menace to public safety which neglect of the duty of providing for the mentally defective involved that the best minds in England were enlisted in the effort to devise a comprehensive plan for dealing with the problem in all its phases. The "Mental Deficiency Act" which was based upon the report of the Royal Commission made its way slowly through Parliament; statesmen, physicians, teachers and others joining in an earnest effort to eliminate objectionable or impracticable features and to fit it for its purposes. As finally passed in 1913, this act constitutes a remarkable foundation of law upon which to develop a system of care and protection of the feebleminded.

The recommendations which follow are based in part upon this notable piece of legislation but much has also been based upon the best features of American legislation for the commitment, care and protection of the insane.

Existing laws provide us with no satisfactory mechanism for dealing with mental deficiency. If the suggestions to be made seem to involve a wide extension of present laws and methods, it should be remembered they are proposed to enable us to solve the greatest social problem which confronts the State.

General Supervision and Control.

The English "Mental Deficiency Act" provides for the creation of a central supervisory body and of certain local authorities charged with definite powers and duties regarding the commitment, care and protection of the mentally defective. In England the central body was established by consolidating the existing Lunacy Commissioners with a new Board created for the care of the mentally defective. The local authorities required were constituted by providing that the Council of each County and Borough should have a "Committee for the Care of the Mentally Defective."

Many reasons exist in this State for placing the responsibility of providing for the mentally defective, administering institutions for their care and enforcing the provisions of the law for their commitment, registration and protection upon the administrative body which perform similar offices for the insane. We have seen the care of the insane so carefully fostered by the State Commission in Lunacy (now the State Hospital Commission) that our laws, institutions and social activities in their behalf reflect the most advanced and humane ideals and have been copied widely in other States. At the same time the duties of the State Hospital Commission have grown in number and importance. It seemed to your Committee that the tasks of putting into operation a new and comprehensive law for dealing with mental deficiency, of developing the different types of institutions needed and of carrying out plans for securing adequate protection of the mentally defective in the community are so vastly important that they should be entrusted only to a Commission created especially for their performance and composed of the best-qualified persons whom the State can secure. We are convinced that the administration of institutions for the mentally defective and of laws for their protection and commitment is not a proper function of the State Board of Charities, and that the care and commitment of epileptics should be a function of a board created to deal with mental deficiency. As the present State Constitution places the supervision of the mentally defective in the hands of the State Board of Charities, an amendment creating a new Board is required. In our opinion, the adoption of such an amendment at the forthcoming Constitutional Convention is the most important and most urgent step in a program for dealing with the problem of mental deficiency in this State.

The composition of the central board is a matter for careful consideration, but we believe that the success of any comprehensive plan for dealing with the mentally defective requires that the head of such a board should be a physician trained in psychiatry and that medical men with especial knowledge of mental deficiency should fill the important executive and administrative offices. The salaries paid should be commensurate with the importance of the work to be done and they should be fixed with the purpose of attracting to these positions qualified men who will devote their lives to the solution of the difficult problems to come before them. No effort should be spared to safeguard this department and the institutions under it from political interference or control.

The head of this board and the chief executive of the State Hospital Commission, the State Board of Charities, the State Department of Education, the State Department of Health and of the Prison Commission should constitute a "joint-committee" to meet at stated intervals to consider cases which should be transferred from the jurisdiction of one of these State Commissions to that of another and to consider all matters in which the different Departments have a mutual interest. This joint committee should be given power to authorize such transfers under conditions specified in the commitment law.

It seems inadvisable to create new local authorities for the administration of a mental deficiency law if there are in existence any which can be utilized effectively for this purpose. The recent reorganization of the health service of this State has created an agency with great possibilities for usefulness. The responsibility for caring for the insane pending commitment has been assigned to health officers in this State with excellent results and we believe that the Sanitary Supervisors, provided with a sufficient number of qualified medical assistants to perform the new duties contemplated, should constitute the local authorities charged with the execution of a mental deficiency law. In those cities which have independent Departments of Health these functions should be performed by such Departments. Such a provision would do more than any other method which could be devised to remove the stigma which clings to the feebleminded. Mental deficiency has been linked to pauperism and crime too long and we believe that, in the new era opening for the mentally defective, a close association with health activities can bring only benefit to the feebleminded.*

The general powers and duties of the central board, which, for convenience, is called in this report the "Mental Deficiency Commission," should be supervising the work performed by local authorities, supervising public institutions for the mentally defective by methods similar to those used in the supervision exercised by the State Hospital Commission over State Hospitals for the insane, supervising the enforcement of the provisions in the mental deficiency law which relate to the commitment and registration of the mentally defective and their protection in the community, licensing and inspecting private institutions for the mentally defective and conducting and encouraging research into the medical, social and economic relations of mental deficiency. It should be the duty of this Commission to devise plans for the development of State care of the mentally defective and to present to the Legislature estimates for both their immediate and prospective needs. The Mental Deficiency Commission should provide for the deportation and removal of aliens and nonresidents who are mentally defective. It should see that the property of mentally defective persons is properly administered.

The powers and duties of the local authorities (special officers of the State and City Health Departments appointed for this purpose) should relate chiefly to the notification of mentally defective persons, their commitment and registration, their care pending admission to institutions and the enforcement of the provisions in the law for the protection of the mentally defective in the community. For convenience, these officials are called in this report "Medical Supervisors of the Mentally Defective."

Institutional Provisions.

It is believed that complete State care for the mentally defective—that is, full State support of all public institutions for the mentally defective—is essential and should be insured by a provision in the State Constitution. It should be specifically provided by law that no mentally defective person may be detained in

*The Child Welfare Boards provided by the Widows' Pension Act recently passed in this State might be used as the local agencies proposed in this report.

any almshouse, jail, prison, or institution for juvenile delinquents. We believe that the erection of the new institutions urgently needed at the present time should be made possible by a bond issue under provisions somewhat similar to those proposed in a bill for this purpose which was introduced in the Legislature last year. Future generations would reap great benefit from the adoption now of a broad State policy for dealing with mental deficiency and it is just that they should share in the heavy initial cost.

Two types of institutions are suggested, (1) State institutions for the continued care of committed cases and (2) State intermediate institutions for the reception, study, and classification of new cases.

1—*State institutions for continued care* of the mentally defective should each consist of a base or "parent" institution to which cases are admitted for study and classification and, in some cases, for preliminary training, and of a number of "satelite" industrial and farm colonies forming integral parts of the "parent" institution. All bed-ridden, infirm and strictly custodial cases should remain permanently in the parent institution and all other patients who on account of infancy or other reasons are unsuitable for transfer to the outlying satelite colonies. Existing institutions should be utilized for parent institutions and the location of new ones should be determined by the distribution of population and the possibility of establishing the satelite colonies under conditions most favorable to their development. Every effort should be made to increase and utilize the industrial capacity of patients. The care of the acutely sick and all medical and scientific features should be concentrated as far as possible in the parent institutions. Each of these institutions should be in charge of a medical superintendent and under the general administration of the Mental Deficiency Board.

Each satelite colony should be situated near enough to its parent institution to be within reach by a three or four hours' journey for an automobile truck. The maximum distance would probably not be more than 30 miles. Each colony should be in charge of a physician and a steward who should be an assistant medical superintendent and an assistant steward, respectively, of the parent institution. Patients should be transferred by the superintendent from the parent institution to the colonies and from the colonies to the parent institution as their condition or other circumstances require. The number of such colonies should be determined by the growth of the parent institution but, in general, not more than 20 per cent. of the total population of the parent institution and its colonies should be in the parent institution.

The law should provide for boarding-out patients in families, under the immediate supervision of any parent institution, and also for the temporary detachment of groups of patients from any colony to perform services in building new institutions or even to engage in the public works of the State in accordance with a broad plan for making the mentally defective self-supporting, as far as possible. Such undertakings should be engaged in only with the specific consent of the Mental Deficiency Commission in each instance, however, and they should be performed at all times under the supervision of physicians and attendants from the institutions.

One or more separate institutions for mentally defective delinquents should be provided and conducted in the same way and under the same administration as all other State institutions for the mentally defective.

2. A sufficient number of *State intermediate institutions* should be established for the reception and temporary care of mentally defective persons. These should be located in accordance with the distribution of population. All original commitments should be made to these institutions and, within a stated period, all patients should be transferred from such institutions to those for continued care, committed to guardians, conservators and committees or discharged. As the movement of population in such institutions would be rapid, they would be of small size. Such institutions should constitute centers for scientific and social work and should be located in cities or large towns. Each should have one or more out-patient departments which should serve as "clearing houses" for the diagnosis of mental deficiency, co-operating at all times with the courts and the schools.

Commitment and registration.—The law should provide two kinds of procedures in securing care and supervision for the mentally defective (1) commitment to an institution and (2) registration, or "commitment to guardianship," as this procedure might be called. The first sholud be based upon the best features in the law for the commitment of the insane in this State. The second involves no new principles of law, for at present insane persons may be legally committed to the care of guardians, conservators, or committees.

The law should make it the duty of poor authorities, police authorities, magistrates, educational authorities, and the heads of various institutions to bring all persons apparently mentally defective to the attention of the local health official designated to provide for their examination, commitment and supervision. In addition to those whose duty it should be to bring mentally defective persons to the attention of this official, parents, philanthropic organizations, teachers and others should be encouraged to do so whenever the existence of mental deficiency is suspected in any persons under their charge. It should be the duty of the local health official designated to act as "Medical Supervisor of the Mentally Defective" to cause all persons brought to his attention in this way to be examined, if possible at one of the "clearing houses" conducted in connection with an intermediate institution, and properly cared for pending their commitment. The law should prescribe the qualifications of medical examiners and forms of commitment. The payment of the cost of commitment, including observation when necessary should be made obligatory upon the local authorities.

The local educational authorities should be required to determine the mental condition of children of school age and to make provisions in special classes for the education of those likely to profit by such training. The State Department of Education should be given authority to require the establishment of these classes and should exercise general supervision over them. The educational authorities should be required to notify the local health authorities of any children of school age whose condition is such that they cannot be benefited by instruction in the special classes or whose environment at home is such that they are neglected or not afforded proper moral safeguards. In such cases the local health official should be required to take steps for commitment to an institution or to guardianship, but no child who regularly attends the special classes should be subject to commitment of any sort. When children reach the age when they must leave the special classes, the educational authorities should bring them to the attention of the local health official who should see that they are committed to institutions or to guardianship or discharged from supervision as the circumstances warrant. These provisions are in accord with the modern aim of the educational authorities to provide the kind of education best fitted to his needs for every child capable of receiving training.

The proper judicial officers should be empowered to commit persons to state institutions or to place them in the charge of those authorized to act as guardians or conservators. The duties and responsibilities of these guardians should be so definitely fixed that effective oversight and protection may be afforded at all times to mentally defective persons who do not require institutional care. It should be within the power of the committing authority to commit to an institution any mentally defective person who has been previously committed to guardianship when it is shown that such a person is not properly cared for or if he commits a breach of the peace.

Proper safeguards for re-examination, hearings, etc., should be provided and the constitutional rights of the individual should be carefully guarded.

All original commitments should be made to one of the intermediate institutions and transfer from such an institution to a place for continued care should be made by order of the Mental Deficiency Commission. Change from registration to commitment should be made only by an order of the court, but it should be within the power of a superintendent of an institution for continued care, a superintendent of an intermediate institution or the Mental Deficiency Commission to transfer patients from commitment to registration or to free them altogether from supervision.

The Menal Deficiency Commission should be required to have a mental examination made of all persons in prison, penitentiaries, jails, and institutions for juvenile delinquents in the State within a given period after the law becomes effective and to take the necessary steps for the commitment and transfer to an institution of all

found to be mentally defective. Thereafter it should be the duty of the chief executive officers of penal and reformatory Institutions to have mental examinations made of all inmates within a stated period after their admission and to bring to the attention of the Mental Deficiency Commission all found to be defective.

The effect of such provisions for the examination and commitment or registration of mentally defective persons would be to create a class in the community about whom especial safeguards are thrown. Lest it should be thought that this is an unprecedented proceeding, it should be remembered that this is precisely what the State has done to protect childhood and that mental deficiency is only the prolongation of mental childhood into the years of adult life. Such provisions would make it easy to enact laws dealing with many offenses against the mentally defective, very much as we now deal with offenses against children. This is just what is needed to make life outside an institution safe for certain classes of the mentally defective. The burden of public care would be lighter than if the impractical policy of permanent segregation for all were adopted, for it is undeniable that many mentally defective persons can be fully safeguarded under such conditions. A period of residence in the intermediate institutions or in the institutions for continued care would often result in fitting for such a supervised life those who would be unfit to live outside institutions, even with supervision, without such preliminary training.

When these provisions of the Mental Deficiency Act were proposed in England, zealous guardians of the liberty of the individual were loud in their protests, but the friends of the act were able to show, through the findings of the Royal Commission, what a pathetic travesty upon liberty the freedom of the feebleminded had been and opposition was silenced. As one writer said, the "Mental Deficiency Act was a real charter of liberty" to thousands of British subjects whose liberty had previously given them only the right to wander about the streets and highways of towns and villages—the butt of ridicule and thoughtless sport and the victims of lust or greed. They had come to the attention of the authorities only when the hand of crime, neglect, or debauchery had been laid heavily upon them and then they were treated by the authorities who had neglected them as criminals and paupers instead of children whose bodies had grown up while their minds had lingered in the age of childhood. In well-conducted institutions for the mentally defective these misfits are given for the first time a chance to live in a world peopled by their equals where they can find happiness, contentment, and security.

Conclusion.—There are many other factors to be considered in formulating a State policy for dealing with mental deficiency. Some of them are the adaptation to our needs of the excellent provisions in the English "Mental Deficiency Act" for the protection of the mentally defective in the community and provisions for the study of such important medical problems as heredity in mental deficiency and the relative value of different methods of diagnosis. Each of these has a bearing upon a State policy for dealing with mental deficiency, but it is manifestly impossible to do more at this time than to mention them.

We have endeavored to prevent some of the principal issues as they have appeared to us, with the thought that this society might wish, after discussion, to submit this report to the public. We feel very earnestly that the medical profession must lead in the movement to deal with the problem of mental deficiency. Legislators and judicial officers will demand medical approval of the drastic legislation which must be enacted and so we are convinced that this society has an important public duty to perform in shaping the laws upon which a sound State policy can be based and in moulding public opinion so that such laws will be enacted.

Such a statement as this of the fundamental objects which, in our opinion, should govern a State policy for dealing with mental deficiency will doubtless serve a useful purpose, but it is only an outline. To fill in this outline is a task not for a voluntary organization but for an official body empowered to obtain facts wherever they can be found and competent to weld them together into a report upon which a comprehensive mental deficiency law for this State can be drawn. This should be the first duty of a State Mental Deficiency Commission composed of the best qualified men obtainable and supplied with funds enough to enable it to make in this State an original study comparable to that made in England by the Royal Commission.

The adoption of a policy for dealing with mental deficiency in New York will involve the expenditure, ultimately, of many millions of dollars and the enactment of laws which will affect the liberty and happiness of many thousands of citizens of the State. We believe that such a policy is urgently needed and we believe that no time should be lost in obtaining the data necessary for its formulation. We recommend, therefore, that this society do everything in its power to induce the Constitutional Convention which is about to convene to provide for such a commission and to entrust to it the care and the protection of the mentally defective.

THOMAS W. SALMON, M. D.,
L. PIERCE CLARK, M.D.,
C. L. DANA, M. D.,
Committee.

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held March 18, 1915

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR

THIS program was arranged by the Section on Orthopedic Surgery.

The symposium consisted of reports from different hospital services on the recent operative procedures for the deformities resulting from anterior poliomyelitis, tuberculosis and rachitis, and on the use of silk ligaments, tendon transference, astragalectomy, stretchings, osteotomy, and bone grafting.

The Development of Orthopedic Surgery.—Dr. ROYAL WHITMAN read this paper. He said that at the present time it was generally recognized as the mechanical specialty not because it was restricted to mechanical methods, but because it was concerned with the mechanism of the body, and with the diseases that disabled it. Many of these affections appeared in childhood, and involved in their remote effects the development of the body. One who practised orthopedics, therefore, should be familiar with the natural history of diseases and deformities in order to judge of the proper remedy. Operative orthopedics had been hampered in its development by lack of opportunity, and by lack of inclination and training on the one hand, and by lack of knowledge and experience on the other. It had been suggested that comparison of the operative routine at representative hospitals might present the scope of the subject in a practical manner favorable for discussion. As a contribution to this end he submitted a report of a recent service of four months at the Hospital for Ruptured and Crippled.

The number of orthopedic operations was 399; 143 were open operations. In 136 the operation was of a minor character, including osteotomies, tenotomies and the like, and in 120 the deformity was corrected by force. For tuberculous disease there were two excisions of the knee in adults, and one excision at the hip. There were four transplantation operations for Pott's Disease, and 20 corrections of deformities complicating joint disease, including 7 osteotomies.

Forty-seven patients were operated on by osteotomy or osteoclasis for the correction of rachitic deformities. There were 20 reductions of congenital dislocations of the hip, including 8 open operations. There were three arthroplastic operations for ankylosed joints, two at the hip and one at the elbow. There were five operations for ununited fracture—two at the hip, and three of the leg bones, including two bone transplantations. There were 6 open operations for torticollis. There were 63 operations for correction of deformities of the foot, including osteotomies and the like. There were 42 cases of tendon and muscle transplantation including one of the trapezius and five of the biceps. The most important group of operations was one for paralytic deformity of the foot, and classed under the writer's name, consisting of the removal of the astragalus, backward displacement of the foot, combined in many instances with tendon transplantations and fixation. This procedure had proved to be most effective in assuring permanent stability.

Dr. ROBERT W. LOVETT of Boston reported on the operative othopedic service at the Children's Hospital, Boston, for the year 1914, analyzing the cases, and commenting on certain special operations that were done.

For infantile paralysis 116 operations were done, for tuberculosis of the spine and joints 80, for congenital dislocation of the hip 31, for club foot 60, for osteomyelitis 28, for the deformities of rickets 59. Other miscellaneous operations bring the total up to 436.

Misapplied Bone Surgery.—Dr. H. Augustus Wilson of Philadelphia spoke of the adverse aspect of the results of operative orthopedic surgery, since he was convinced that greater good might ultimately be accomplished by efforts to avoid misapplication of bone surgery. The operative craze which had manifested itself in Philadelphia as elsewhere had apparently superseded attempts to avoid the risks of operation, the post-operative uncertainties, and the possibility of the production of even worse conditions. During the past few years many operative procedures had been enthusiastically advocated and extensively employed, that had later been abandoned *in toto* or reserved only for use when peculiarly applicable to existing conditions. After referring to a number of these procedures the author said that the hysteria of the present time appeared in the form of operations upon bone, especially the application of bone grafts to ankylosed joints involved in bone tuberculosis, and applying metallic plates to fractures. While such operative measures, when skillfully employed, in well selected cases, possessed many advantages, over-enthusiasm had caused them to be resorted to when the conditions were unfavorable, with results such as might have been expected. Dr. J. Chalmers Da Costa in the Samuel D. Gross Address for 1914-15 said "The surgeon, the real surgeon, is something far above and beyond the mere operator. I am convinced that knifemanship is the easiest branch of the profession, the most readily acquired, the most admired, and the most profitable financially. Young men often seek it out as a career. A man may operate with admirable dexterity and yet do very bad surgery, operating perhaps when no operation should be done, or removing, it might be most skillfully, what ought not to be removed. Real greatness in an operation is never grasped or exhibited by the mere knifeman." In consulting a physician, patients had a right to expect him to analyze their condition carefully, so as to be able to advise the therapeutic measures best calculated to afford them permanent relief. Instead of deciding hastily upon an operative procedure, he should first exhaust all means of arriving at a correct understanding of the patient's condition, and see whether conservative treatment would not be better adapted to it. As a large part of the information needed in such cases depended upon radiography, it was becoming more and more important that this means of diagnosis should not be neglected. The radiographer and the physician should cooperate in determining the structures about which information was sought, and the best means of securing satisfactory plates for the purpose. The clinician should analyze the *x*-ray findings, but in no instance should he depend entirely on the report of the radiographer. The author classified radiographs as good, bad, misleading and worthless and cited illustrations. He pointed out that in order to obtain stereoscopic plates, the same part must be exposed twice, at different angles, upon two separate plates and that if these plates were properly placed in the stereoscope and viewed with both eyes simultaneously, one blended picture, having a depth of penetration that would reveal the structure involved, would be obtained. Photographic prints taken from radiographic plates were absolutely valueless for accurate study. Lantern slides appeared, at present, to be the most satisfactory means of duplicating radiographic plates; but if they were not properly prepared, they, also, were misleading and therefore unreliable. After discussing somewhat more in detail some of the failures of bone surgery, Dr. Wilson said that in view of the large number of unfavorable results in the treatment of these bone cases, he would suggest the formation of a national society or committee to be devoted exclusively to reporting the negative or bad results of every orthopedic procedure in order that they might ascertain the reasons for the postoperative disasters, and thus avoid them. Such a society might be called "The Adverse Society" and should truthfully report the disadvantages of different methods of treatment, their failures and the deaths resulting from them. In order to lessen or prevent misapplied operative orthopedic surgery the following facts should be remembered: (1) Operations were rarely necessary in cases of fractures that had been treated on scientific principles from the onset. (2) Before operating for non-union, definite radiographic information should be obtained concerning the presence of callus, as well as that of bone atrophy involving the fractured bone or neighboring bones. (3) Bone transplants, or other operations for securing ankylosis were not applicable to the early stages of bone tuberculosis, when functional recovery might be obtained with the control of the pathological process. (4) When it became apparent that the pathological process had proceeded to an extent beyond the possibbility of functional restoration, ankylosis might be secured by either the brilliantly conceived Hibbs' operation or that of Albee of broader application. (5) Ankylosing methods did not cure the bone tuberculosis; and, therefore, they must not be relied upon solely, but must be associated with prolonged fixation and other accepted methods of treatment. (6) Before resorting to any operation, except in an emergency, a consultation should be held, preferably with the attending internist. (7) When operative procedures were finally determined upon the patient should be told the truth, the whole truth, and nothing but the truth, concerning his operation. If this information were reduced to writing and duly signed by those participating in the consultation, the total number of operations might be reduced, but the impressions that patients often appear to entertain in regard to the functional results obtainable would be removed.

The Bone Graft in Surgery.—Dr. Clarence L. Starr of Toronto, Canada, presented this communication, which he prefaced by congratulating the Committee on the place it had given to the subject of operative orthopedic surgery, which too long had been considered a science of buckles and straps and its adherents, mere mechanics. He stated that the special object of his paper was to correlate the histological and the clinical aspects of bone surgery. What was the part played by the graft and what became of it? It had been stated by a member of this academy that it made no difference what the action of the graft was, whether it was osteogenetic or simply osteoconductive. The writer felt that this point was of more than academic interest, and that the whole clinical future of this important branch of surgery had its foundation on it, and the solution of it assisted not only in pointing the way to further advances, but also pointed out the limitations beyond which they might not venture without certainty of failure. With a view to the determination of this point his colleagues, Dr. Gallie and Dr. Robertson, undertook the experimental study of the histological changes in the graft at intervals of one week from the time of implantation until the process of change was apparently complete. The findings briefly summarized were that at the end of six days the graft already showed some adhesive fixity to the parent bone but was in all respects "dead"; that was, it had no circulation, no blood vessels being apparent in any part of it and the bone cells had almost entirely disappeared leaving the lacunæ empty. The next section recovered after two weeks implantation of the graft showed the first step toward rebuilding of the graft from the surrounding osseous structures, that was, revascularization. Blood vessels could be easily distinguished, though no living bone cells could yet be found, except at the periphery. This proved conclusively that it was not correct to argue that because a portion of graft bled on recovery after a short period that it had remained alive from the time of its transference. The next specimen recovered showed the commencing osseous regeneration, and here the osteoblasts were seen migrating into the substance of the graft. There was, however, still a large portion of the bone which showed no living bone cells and the lacunæ were still empty. The next succeeding specimen showed the gradual progressive onward march of the osteoblasts and the new living bone was readily distinguishable from the portion which was still unregenerated. With the laying down of the new bone a process of absorption of the original graft was observed. The bone which was originally compact tissue was gradually becoming cancellous and the longitudinal striæ were giving place to irregularly placed trabeculæ corresponding to the law of growth of bone depending on its strain. This explained why the radiographic pictures of bone transplants would at certain stages show a lessened density, and why ultimately they assumed the density of the bone to which they were contacted. The writer felt, however, that the graft though acting as a scaffold for the conduction of osteoblasts had an additional function. It acted as a stimulus to a greater osteo-

genetic activity than could be obtained without it, as witnessed in the large amount of callus thrown out around the graft into an ununited fracture. What this stimulus was might not at present be determined, but probably it was due to the calcium content. The experiments conducted also showed why the graft which contained both endosteum and periosteum were regenerated more surely and more quickly than one of compact bone alone, and suggested that cancellous bone such as found in the rib would make the ideal graft. The function of the periosteum was difficult to determine, but it seemed fairly safe to assume that under certain conditions it had osteogenetic power, as evidenced by the reconstruction of bone after extensive subperiosteal removal after osteomyelitis. That this reconstruction might be due to a migrating of osteoblasts into the areolar tissue under the periosteum seemed most probable. Experiments were being carried on in which one-half of the graft was boiled and the other transferred fresh and no difference could be seen, either microscopically or macroscopically, in the transplants, as they both united equally, readily, and surely. The clinical experience of the writer with heterogeneous grafts was that they underwent the same process of revascularization and oseteoblastic regeneration from the bone of the host into the graft that had just been described. In no case had he found a failure of a graft of this sort to unite. If by wider experience and by the observation of others this proved to be true, it would be of enormous advantage, because it allowed of the graft being prepared at one's leisure in the laboratory, of any size or shape, to meet the requirement of the individual case. It would also do away with the necessity of sacrificing the bone of the patient and would frequently be a factor in gaining the consent of the patient or friends to the operation, where one could not get it if the bone graft had to be obtained from the patient. The author cited a case which showed that in order to get bone regeneration there must be bone contact, and that apparently this regeneration could proceed only a limited distance, and also that the periosteum, while apparently capable of regeneration, required some stimulus, before bone would form. There seemed no doubt but that grafts of any length might be regenerated, provided they were in contact with living bone at both ends, and with a strip even of periosteum among its length. Dr. Starr cited a case which demonstrated that the statement of Albee that bone of lower animals planted into humans acted as a foreign body was not correct. The author then cited three cases selected from their operative treatment of Pott's disease. He stated that their experience led them to the conclusion that the patients should be protected for a longer time than advocated by Albee. After operation all cases were placed in a half corset of plaster, or "gypsbett" and kept recumbent for quite three months, and then were further protected when allowed up by a light plaster corset or Taylor spinal brace for a time. The growth in the length of the bone took place proportionately with the growth of the child and in no case had they seen any backward bowing of the spine. In very young children whose spinous processes were largely cartilaginous the results were not so satisfactory as in older children with possibilities of greater bone contact.

Dr. Russell A. Hibbs spoke of the operative work at the New York Orthopedic Dispensary and Hospital during the past year. Five per cent. of the total number of the dispensary patients were admitted to the hospital during the year 1913 and 1914. Seventy per cent. of the patients admitted to the hospital received some form of operative treatment in addition to other forms of treatment. Thirty-six per cent. of the operative work for the correction of the deformities of infantile paralysis. Twenty per cent. was for joint tuberculosis. The remaining 44 per cent. covered a large class of cases such as rachitic deformities, deformities of the hip requiring osteotomies, osteomyelitis, osteosarcoma, arthrotomies for non-tuberculous joint diseases, and others. Among the operations in connection with infantile paralysis, silk inserts were made in 38 cases, most of them in the foot. He said that any detailed discussion of the work was of course impossible in the time at his disposal, but he wanted very much, however, to emphasize the fact that most of these operations had been done with a perfectly clear conception of the fact that in most orthopedic conditions their operations rarely finished the work. In other words, the success of their operative methods would depend very largely upon the efficiency of their non-operative methods and the same effort should be put forth for the perfection of the one as of the other. The large volume of their work must of necessity continue to be non-operative. This was illustrated by the fact that at the Orthopedic Dispensary and Hospital last year less than 5 per cent. of the patients received operative treatment, although the service was actively operative.

THE NEW YORK PSYCHIATRICAL SOCIETY.

Regular Meeting, Held January 6, 1915.

The President, Dr. William L. Russell, in the Chair.

Report of the Committee on Legislation.—Dr. William Mabon reported for the committee that the committee on legislation of the State Hospital Commission had reported to the conference of hospital superintendents and managers with the State Hospital Commission its views concerning the constitutional convention, which were: That the constitution of the State of New York should continue the State Hospital Commission, but should more clearly define its powers. The name in the constitution should be changed to the State Hospital Commission in place of the State Lunacy Commission. The qualifications of the members of the commission should be stated. It further reported that a board of control seemed uncalled for and that such a procedure, if it came before the constitutional convention, should be strongly opposed. That some provision should be made in the constitution for a bond issue for additional accommodations for the insane, and that the conference should consider the advisability of placing under the State Hospital Commission all mental defectives. The committee of the Psychiatrical Association believe that the mentally defective should be under a special commission, but if this could not be done they should be placed under the State Hospital Commission rather than under the State Board of Charities. The committee recommended that some provision be made for the observation in a State hospital, or other suitable institution, of those charged with crime, and further recommended the passage of an act by legislature for the interstate rendition of the insane.

Dr. Thomas W. Salmon said that the National Committee for Mental Hygiene had collected a great deal of information regarding the care of the insane under State Boards of Control. There were eighteen States in which the public institutions for the insane were managed by a State Board of Control, in nearly all instances without supervision by any local boards of trustees. In general, the care of the insane in such States was not efficiently carried on. It was interesting that there were distinct movements in several of these States to adopt other types of administration. In Rhode Island the State Medical Society had passed resolutions favoring a separate board of insanity. In West Virginia a bill would undoubtedly be passed in a few weeks establishing a separate board for institutions for the insane. In New Hampshire the political board of control created two years ago had removed Dr. Bancroft, superintendent of the New Hampshire State Hospital, and put in his place a man who was the author of the bill creating this board. In Illinois great deterioration in care had taken place under a board of control and the same could be said of conditions in several other States having this form of supervision. On the other hand, the treatment of insanity had made great progress in those States which had separate boards of insanity charged with this especial work. Such States were Massachusetts, New York, Maryland, and California. There were no States in which the care of the insane had reached a higher level than in these. And still in these States there were definite movements toward the establishment of boards of control. In Maryland the movement came from purely political sources and the same was largely true of the efforts made in Massachusetts and New York. In California the movement seemed to depend upon other reasons, the care of the insane not being especially in mind.

Dr. H. A. Cotton said that Governor Fort has insisted upon a board of control in New Jersey, but that the friends of the State's charities had been able to prevent such a change.

Dr. Charles L. Dana made the following motion: That it was the sentiment of the society that it did not approve having a board of control and that the society should confer with other organizations in reference to this matter. This was seconded and carried.

Dr. Mabon said that $15,000,000 was needed to meet the demands for additional accommodations for the insane and this money should be spent under the direction of the commission. The need of this bond issue was very clear. The State undertook the care of the insane in 1890, but the State had never made suitable provision for the care of the insane. There was an overcrowding of 6,000. They could not expect to get from the Legislature in one year enough money for the accommodations needed. This must be done in some other way. The bond issue seemed to him to be the only rational way to meet the situation. The idea was to first study the needs of the insane and see the amount of the bond issue needed. This would avoid the necessity of going every year to the Legislature and asking for appropriations for the needed buildings. Such a move would provide not only for the present but for the future. Dr. Mabon suggested that the committee be directed to consider this matter in conference with other committees now in existence. If then in their judgment this was a proper method to pursue they should be authorized to proceed to aid in every way possible the passage of such a measure as proposed. The late Governor Glynn recommended the passage of the bond issue and if there had been a Democratic Assembly last year this measure might have gone through. They first, however, should consider the needs of the insane. It was an outrage that the State of New York should allow 50 in a room where only 20 should be. The rooms were so crowded that in case of a fracas the patients could not be separated because the beds were so close together that they could not be gotten at. Existing conditions should be put up to the people; then there would be no question but that the situation would be relieved.

Dr. William L. Russell said that the raising of money for the care of the insane year by year by legislation was not possible; it was not possible to get enough money to care for the excess of 6000 in the institutions. The question was what shape should this all take. This was a question that confronted the constitutional convention and what was needed was a broad policy. Action by the people was required. He believed it was hazardous to go into this subject too deeply at present.

Dr. Mabon said that this question of bond issue must come up in the constitutional convention. Whether the care of the insane was included in this was a matter which rested with the State Hospital Commission. If they pointed out the necessity of providing accommodations, such as were needed, the constitutional convention might consider whether or not it was right to make such provision. Dr. Mabon did not think they could go astray in recommending additional money.

Dr. Charles L. Dana offered the following motion: "We recommend the committee to draw up as strong a statement as possible regarding the condition of the State and the need of more money; that the sentiment of the Psychiatrical Society is that some means be devised for the alleviation of the conditions now existing."

Dr. Henry R. Stedman of Boston said that he could add nothing to the plea for an interstate rendition law for New York which he had made in a paper on the subject at a recent meeting of the society. Massachusetts has the only law of the kind, but it was of little use without the cooperation of other States. It would be a great help, therefore, if a large and leading State like New York should follow suit. It was to New York City that patients escaping from institutions in other States were apt to go, where they could best conceal themselves and where they could get employment and also give their propensities full play. If such a measure were to be adopted in New York the examples set by these two important States would undoubtedly lead other States to do likewise and then they should have an effective means of protection against a highly dangerous element.

Dr. Stedman said that Massachusetts had one hospital-observation law for the criminal mental case and another similar law for the non-criminal. During the last year 149 cases in Massachusetts had been sent by the courts to State hospitals for observation pending the determination of their mental condition. It was being availed of more and more each year and was proving to be an exceedingly useful provision. These cases were sent to the hospital for observation for 30, 60 or 90 days and it was usually possible to get an extension of time for further observation if it was needed. If such a law was drawn it should not be confined exclusively to the criminal cases, which were really comparatively few. In Massachusetts since 1909 when the law went into operation, 32 criminal cases had been committed to the Bridgewater State Hospital for Insane Criminals, in a number of which the plea of insanity had been raised. The number would probably have been considerably greater if the law had been applied to other convicts whose mental condition was not recognized until they had spent some time in penal institutions. The plan of hospital observation for ordinary non-criminal, borderland or doubtful mental cases which were so numerous, especially at the psychopathic hospital, was of the greatest value. It prevented too hasty commitments and at the same time furnished the only sure means for arriving at a satisfactory diagnosis in most cases. Seven or ten day temporary care acts, useful as they were, did not allow enough time for observation except in a limited number of cases.

Dr. Mabon said that they had a civil and a criminal law. The provisions made for the civil cases must be under a separate provision. There were two distinct and separate laws.

Dr. Russell believed that all were agreed that they should have better facilities for observation of these cases and that the details should be left to the committee. They should all be in favor of instructing the committee to draw up a suitable bill.

Dr. M. S. Gregory asked if they were supposed to send an alleged criminal to a State hospital or to Matteawan.

Dr. Mabon replied, to a State institution. The details had not yet, however, been worked out. They would have to be studied out later.

Outlines of a State Policy for Dealing with Mental Deficiency.—Dr. Thomas W. Salmon, Director of Special studies, The National Committee for Mental Hygiene, Dr. L. Pierce Clark, and Dr. Charles L. Dana presented this report. (See page 665.)

Dr. Stewart Paton of Princeton, N. J., believed it to be true that much of the success of such a bill would attend its appealing to the imagination of the people, and there was much in this report which would appeal to the people and, therefore, it should be successful. But he saw far ahead and far deeper than the problem of the mental defectiveness. There was the biological problem involved and they should approach the individual at a level where he belonged. They should endeavor to take hold of the popular mind. They as physicians did not appreciate the real problem with which they were dealing. At Princeton College the other day Dr. Lowell of Harvard College delivered an address and Dr. Paton did not believe that Dr. Lowell realized the significance of what he said. He was speaking on the subject of economy and during his discussion of the subject he said that they had found, in going through the grades, that the students that had been brought up on serious charges for offenses were those above the average age of their class. Those who had committed minor offenses were students whose age corresponded with the average age of the class. The significance of this statement he did not believe struck the man who uttered it. It was a striking statement. At Princeton Dr. Paton said his experience was startling. One or two years ago he took such students as were difficult in adjustment and what he learned was startling beyond measure. All forms of psychosis nearly were represented in these students. The problem that now confronted them had a peculiar aspect. This phase of the paper was what struck him the most. He wished to emphasize the biological problem with which they were dealing in presenting this paper to the public.

Dr. Smith Ely Jelliffe said that the program sketched by the committee was very attractive. He thought by way of suggestion that it would be worth while to scrutinize the terms used, with referenee to the future. It was well known that the terms insane and insanity had grown to be extremely unfortunate ones. They carried with them the medieval idea of a stigma of some kind, something uncanny, something to be feared. It was a movement in the right direction to try to get away from these terms and hence such terms as mental hospitals, mental disorders, mental health, mental hygiene were more than justifying themselves. The words insane and insanity would probably flounder about in the cumbersome machinery of the law for several more centuries before it would seem that

they expressed legal relationships and were not useful concepts in psychiatry. Hence the word defective in the committee's report should be viewed in the light of its probable evolution and great care should be exercised that in the outlining of so excellent a plan as had been presented the progress of the work would not be marred or retarded by inept and cumbersome terminology. Terms were only instruments for handling things; hence such terms should be avoided which had a tendency to be confused with the things. Dr. Jelliffe said that it was highly desirable that all such movements should be affiliated with the central health powers. It was a sign of a civilized community that its mental health should be recognized as a valuable asset. A State Board of Health affiliation was absolutely necessary. Health, hygiene, prophylaxis, were the watchwords and the degree of intelligence of a community stood in direct relationship to the recognition given to the importance of the mental health of its members.

Dr. MABON agreed with Dr. Paton and he also believed that the public mind recognized the term mental defective and it must be used when they approach the Governor. They must at present use the term mental defective; after getting what was wished, then they could change the name.

Dr. HENRY R. STEDMAN asked if the number of mental defectives in the State had been enumerated. He presumed they would be added to the committee's statement, as the large number which would appear would be a strong argument. In Massachusetts they had a somewhat similar problem to contend with. Although they had two good institutions for the feeble-minded in the eastern part of the State, there was a movement on foot to have another in the western part. An approximate enumeration was instituted and the result was rather surprising as it showed the number of mental defectives to be within one or two thousand of the number of insane in the State. A special medical agent was employed by the board of insanity who made inquiries from all sources: institutions, overseers of poor, schools, etc., etc., all over the State. The number of mental defectives was inquired into and little or no attempt made to obtain the life-histories of individuals. The type of defect was, he thought, noted in many cases. Of course the actual number of defectives could only be roughly approximated in this way.

Dr. MABON said there were about 20,000 people in need of institutional care. The number of insane was over 35,000 in the State, that was, the institutional insane. This was an approximate estimate only.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

AT a stated meeting held March 25 in the lecture hall of Jefferson Medical College Drs. A. C. MORGAN and E. H. FUNK presented a specimen showing "Multiple Perforations of the Chest-wall in Empyema (Empyæma Necessitatis)." The patient was a woman suffering from pulmonary tuberculosis, in whom, in connection with secondary empyema, a swelling appeared beneath the left breast and after a while a second swelling near by. A fatal termination ensued, and after death it was found that perforation of the soft intercostal tissues had taken place in three situations.

Dr. P. A. SHEAFF described "A Rapid and Accurate Method of Microscopic Localization." He demonstrated a device by means of which any point on a microscopic preparation can be fixed with the aid of a mechanism attached to one segment of a multiple nosepiece, a circular impression being made on a so-called master slide at the desired point.

Dr. A. G. ELLIS presented a "Tumor of the Mediastinum and Pericardium." The heart-muscle was itself uninvolved. There was, in addition, a small growth on the anterior abdominal wall. Dr. Ellis demonstrated also "Microscopic Sections of Uterine Fibromyomata." In one of these there was a distinct fibroma in the midst of the new growth, and in another also there was an unusual formation of fibrous tissue at one point in the growth.

Dr. H. A. HARTZ exhibited specimens of "Carcinoma of the Cervix Uteri."

Drs. RANDLE C. ROSENBERGER and P. PELOUZE presented a communication entitled: "Effects of Calcium and Parathyroid Medication in Tuberculous Guinea-pigs." It was found that tuberculous guinea-pigs treated with calcium lactate, 1 grain daily with the food, increased considerably in weight as compared with normal guinea-pigs and with tuberculous untreated guinea-pigs, while tuberculous guinea-pigs treated with parathyroid gland, gr. 1/100 daily, increased even in greater degree, while yet other animals treated with both preparations increased in weight to a still greater degree. On post-mortm examination it was found that while the treated animals presented lesions of tuberculosis these were in varying stages of retrogression, while in controls there were the usual evidences of progression.

Dr. ERWIN D. FUNK presented specimens: (1) "Tuberculosis of the Brain"; (2) "Aneurysm of the Undefended Space"; (3) "Hypoplastic Kidney."

Dr. RANDLE C. ROSENBERGER presented a communication entitled "A Study of the Linen Towel from the Sanitary Standpoint." Examinations were made of towels from varying sources, as the ordinary kitchen after a day's use, from different individuals in hospital and out, as the linen came from the laundry, after use by tuberculous subjects and by patients suffering from various diseases of the skin. From the clean linen only shreds of fiber were obtained, while from the others all kinds of dirt, as well as specific bacteria and other germs in the respective cases, were found.

Drs. P. B. HAWK, MARTIN E. REHFUSS, and C. C. FOWLER presented a communication entitled "A Study of the Gastric Residuum of the Normal Fasting Stomach." By the use of a specially devised tube it was found, as the result of a large number of observations, that the normal amount of residuum was considerably more than is currently accepted, namely, somewhat more than 50 c.c., instead of 20 c.c.

Drs. MARTIN E. REHFUSS and J. A. CLARKE presented a communication entitled "The Protein Concentration of the Gastric Juice in Pathological Conditions."

Dr. JOHN A. RODDY presented a paper entitled "The Wassermann Test in Congenital Syphilis."

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE MODERN FACTORY. By GEO. M. PRICE, M.D. Cloth; illustrated; first edition; published by John Wiley & Sons; $4.00 net; 574 pages.

MORTALITY STATISTICS. 1913. Cloth; 14th annual report; published by Government Printing Office; 631 pages.

CYSTOSCOPY AND URETHROSCOPY. By BRANSFORD LEWIS, M.D., and ERNEST G. MARK, M.D. Cloth; illustrated; published by P. Blakiston's Son & Co. Price, $4.50 net; 238 pages.

SECOND ANNUAL REPORT OF THE CANCER COMMISSION OF HARVARD UNIVERSITY. Paper; illustrated; 57 pages.

REPORT OF THE DIRECTOR OF SANITATION OF PORTO RICO, 1914. Paper; 166 pages.

ELEMENTARY PRACTICAL CHEMISTRY. By Dr. J. E. Meyers and J. B. Firth. Cloth; published by J. B. Lippincott Co. 194 pages.

LECTURES ON THE HEART. By Dr. Thomas Lewis. Cloth; illustrated; published by Paul B. Hoeber. Price, $2.00; 124 pages.

THE THEORY OF PSYCHOANALYSIS. By Dr. C. G. Jung. Paper; published by the Nervous & Mental Disease Publication Co. $1.50 net; 135 pages.

THE PROBLEM OF CANCER. By Dr. R. C. Savidge. Cloth; published by Wm. R. Jenkins Co. 118 pages.

AN INTRODUCTION TO THE STUDY OF COLOR VISION. By Dr. J. H. Parsons. Cloth; illustrated; published by G. P. Putnam's Sons. $3.75 net; 308 pages.

DIE TIERISCHEN PARASITEN DES MENSCHEN. By Dr. M. Braun and Dr. O. Seifert. Paper; illustrated; published by Curt Kabitzsch. Price M. 13; 555 pages. Part 1.

PROGRESSIVE MEDICINE. By H. A. Hare, M.D. Paper; illustrated; Vol. 17, No. 1; published by Lea & Febiger. $6.00 per annum; 382 pages.

PRACTICE OF MEDICINE. By H. A. Hare, M.D. Cloth; illustrated; 3rd edition; published by Lea & Febiger. 969 pages.

THE CURATIVE ACTION OF RADIUM. By Dr. S. Saubermann. Paper; illustrated; published by Radium, Ltd., U. S. A. 48 pages.

25TH REPORT OF THE STATE HOSPITAL COMMISSION OF NEW YORK. Cloth; 639 pages.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 17.
Whole No. 2320.

New York, April 24, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

ASTASIA-ABASIA.

REPORT OF A CASE EVENTUATING IN RECOVERY AFTER MANY YEARS' DURATION.

By JOSEPH COLLINS, M.D.,

NEW YORK.

(FROM THE FIRST DIVISION OF THE NEUROLOGICAL INSTITUTE.)

ASTASIA-ABASIA means, literally, lack of ability to stand and walk. The designation was applied by Blocq (*Arch. de Neurol.*, 1888) to a class of cases in which the only discernible infirmity or disorder was inability to stand and to walk, occurring in individuals whose muscle power was not detectably diminished. In other words, the individual when sitting or lying could perform all muscular acts with freedom, accuracy and power. It was recognized by Charcot and by other investigators, who soon took up the study of astasia-abasia, that it was a manifestation of the psychoneurosis which for so long had inadequate interpretation, namely, hysteria.

It is particularly since the general dissemination of, and in some measure, the acceptation of the teachings of Freud relative to the pathogenesis of the psychoneuroses (more particularly the obsessive psychoneurosis and hysteria), that a new interest had been taken in astasia-abasia.

Physicians and the laity alike are impressed when a patient who has been bedridden for years takes up his bed and walks. Narration of the following case may appease such interest and, at the same time, be a contribution to the genesis of hysteria and to its therapy.

The young woman who is the subject of the paper was 27 years old when she came under my observation October 18, 1910. She had had astasia-abasia in its completest form for four years, and for seven years she had been a confirmed invalid. In these long years transformation had been wrought in her character which I shall attempt to sketch in outline. At about thirteen years she began to suffer from "blinding" headaches, accompanied by disturbance of vision. These attacks became more frequent as she grew older, her sleep became poor, she became "whimmish" and weak. Menstruation began in the thirteenth year and continued regular for upward of a year. She had received no instruction concerning its significance. She does not recall that she was particularly frightened by its appearance. Her first knowledge of sex came soon after, but she does not admit that it made particular appeal to her or that she was curious about it or its significance.

About this time she had the first attack of hysteria, which was precipitated by a violent outbreak of anger accompanied by tumultuous profanity on the part of her father. She doesn't know why the profanity should have upset her, although she had been taught that profanity was wrong. It may have been her father's manifestations of anger and rage in other display than the profanity that frightened her and left her feelings shattered. Whatever it was, she pulled herself together very slowly after the occurrence. The hysterical manifestations were inability to keep still, twitching, crying, and profound mental agitation. These lasted the entire day, and possibly longer. About this time of her life she began to read poetry, and liked especially lyric verse; heroic love appealed to her very much, and she felt that her capacity to make love was comparable to that described in the poetry she read; love that leads to sacrifice, to superhuman effort and action, love characterized by unending devotion capable of display on proper appeal was latent within her, and only the occasion, the opportunity, was necessary for it to display itself. Her surroundings were not congenial to her tastes, and the young persons she met were not of her stripe, although they were of the station of which her parents were. She was not interested particularly in the young men she met, although she romanced about the coming of her special Lochinvar. She denies a knowledge of any particular sex interest at this time, or appreciation of sexual matters. She was conscious, however, of distinct libido on reading poetry and on romancing, and at times on going to church, but she does not admit any voluntary act that can be construed as masturbation. She had pleasure in her emotional states, induced in the way previously mentioned, but it was a pleasure she could have shared openly with others, had there been a worthy companion. It was about this time that she had first experienced difficulty in walking; her legs tired easily and she got tired all over. She began to have pain constantly in one place and another, chiefly the knees; the left leg seemed to shorten and she walked with a limp; the pain progressed up the hip, over the side and into the shoulders. She was able to get about the house all the time, but seemed very tired and fatigued upon very slight exertion. The fact that she could not work disturbed the atmosphere of the household and precipitated altercation between her mother and herself, but she could not see her way clear even to make an attempt to do it when she felt better. Self-indulgence came easy to her, and the more she coddled it the more righteous she felt. Sometimes, and especially at the menstrual period, she would lie up for a week. This interfered with her attendance at school, and she was not promoted. She felt a great disappointment in this, because she estimated herself very ambitious. She wanted to extricate herself from the social sphere of her parents; to become a writer, or a teacher, or in some way attract attention to herself and to her abilities. She is conscious now that at this period she was critical not only of persons, but of her environment. She was, moreover, censorious, but she

does not recall that she ever asked herself what she had to give to the one who should come along and help her to the stage or arena where her talents could be displayed and appreciated. She does not admit that she had any frights to her modesty at this period of her life, or earlier, and repeated prolonged investigation, under the most favorable circumstances, that is, when the rapport was fully established with the interlocutor, in favorable environment failed to reveal any incident in her life that could be so construed.

When she was thirteen years old she learned about creation of human beings. She had read physiology in school. She knew when people became married they entered into relationships which led the wife to have a child. She does not admit that she had any morbid curiosity about it, or that it fussed her very much when she thought that such might be her fate. She admits thinking about the matter, and about the intermediate phases of sex relation, and often to have had libido as the result; but she never indulged in masturbation in the ordinary acceptation of the term.

In February, 1903, she had an attack of severe pain in the right side. This occurred suddenly and she became unable to walk. Four months later she was operated upon for appendicitis. The right leg at this time was alone affected; the left remained as it had been and she was able to walk with a cane. At seventeen she began to have violent dysmenorrhea. The general pain that she had later was augmented at her menstrual period, which became worse and worse. At the time of her first operation she had been told that the right ovary was diseased; this was removed in June, 1906. The left leg became affected afterwards.

Before this operation she kept her bed about two weeks of each month. From now on she remained there more and more, so that for upward of four years she had been completely bedridden, and practically so for seven years.

She feels that everything has been done to make her well that can be done, and despite it all she is in this hopeless state. No one understands her, and every one who attempts to cure her does so by force. Nurses are cruel to her, doctors are mandatory, heartless, and obtuse. If she could only make them realize how important it is that everything should be done in the way that she is convinced is right things would go smooth and even—like with the dead, if they could only come back and be forgiven. "I am so afraid of people who have hard, cross voices, and who speak as though it were a great burden to do anything for me; as though I were a great trouble to them," she writes in one of her notes which I soon began to get daily. The physician who sent her to me wrote: "During the four years she was under my observation I regret to say no systematic effort was pursued, as she lived at considerable distance from the city. * * * Suggestion and hypnosis have been absolutely ineffectual. * * * She had been persistently urged to believe that her condition was one that would eventually be completely recovered from. Her mother devotes all her time to her, most conscientiously, but believes that the girl is feigning, and the girl knows it. She is thus, as it were, required to continue her symptoms to prove their reality."

For several months she was in a sanatorium, where it was noted that, when an attempt was made to have her stand, a nurse supporting her on either side, the knees flexed like a hinge and "it seemed the contraction of the muscles produced an opposite movement to the one that was attempted. In other words, there is a marked motor negativismus. She becomes angry when attempts are made to have her stand or move, and all such attempts cause palpitation of the heart and apparently profound dpspnea. The patient is most unsatisfactory to deal with. She must be lifted as a dead weight, and already she has worn out two special nurses."

When she came under my observation and care her chief symptoms were, in addition to the astasia-abasia, those of fright, terror, bewilderment, incredulity, and despair. Her attitude toward people and things was topsy-turvy. She was afraid of nurses, distrustful of doctors, and radiated the "nil admirari." Being completely helpless (save her hands, which in time she thought would become helpless also), she required much care, and if attention were not given to her at once she would become persecutory. These ideas took possession of her, and her conduct was entirely in conformity with them.

She was said to be of average intelligence, given to reading good literature, including poetry, and that she had "ideals" of life somewhat more ambitious or exalted than her comparative humble origin and environment would seem to warrant.

Physical examination failed to reveal any abnormality save an infantile, wholly undeveloped uterus; reduced corneal sensibility, fatigue fields, and a mild degree of astigmatism. (The right field was much contracted concentrically for color, slightly for white; the left for both white and colors.) She was fairly well nourished, and laboratory examinations of the blood, stomach content, and excreta were negative.

The first three months of her stay in the hospital were devoted to a study of her early mental and emotional life. The first shock that she was able to recall after many seances was one when she was seven years old. It was a game of hide-and-seek in the barn. Her playmate, a boy of twelve or thereabouts, "found" her in a remote part of the haymow and attempted to unbutton her drawers. She was terribly frightened, though she had no idea of the significance of the act then. She didn't tell any one, and was afraid some one might find out about it. She doesn't recall worrying about it. It made no profound impression on her and she forgot it. For the past few years she has realized that within herself there are at least three distinct personalities which are warring, and the combat is so incessant that she has no peace of mind, no time or capacity to do anything else, except give heed to the strife that is going on within her.

This in a brief and sketchy way must suffice to convey the mental and emotional state in which she was when she first came to the hospital.

After many "long talks" with her to display the pattern of her mind and emotions, and to elicit her attitude toward life, her obligations and her duties, and to give her opportunity to recount her disappointments and to project her ambitions, an attempt was made in simple language to describe the genesis of voluntary movement. It was pointed out that such movements follow excitation occurring through one of the special senses, an expression of the will, or the result of subconscious excitation. Fear may inhibit or prevent such movement, and particularly prevent movement which is initiated by the will. Simple examples were furnished, and

the patient seemed to fully understand what was said to her. It was further pointed out that such inhibition of movement is a protective, or a protecting, effort on the part of the consciousness to cover up some complex or conviction, which one side of the individual's mental makeup desires to have covered.

After this explanation, another pointing out the destiny of the individual was undertaken. A simple explanation of evolution, of the customary myth of creation, and of the reproduction of the human species was made. The manifest object of the individual is to discharge his physiological destiny—to live and to reproduce. His moral destiny is a varying quantity and depends upon the enlightenment of the individual, and upon his intellectual and emotional possessions. One should have no more hesitation in discussing the physiological destiny than social destiny or moral destiny. We make the closest approximation to our Creator by perpetuating His image; the creative capacity links us to God, and our chief pride of existence is to be taken in this possession. If this reasoning is sound, then everything connected with creation should be a matter of pride, not of shame.

On another occasion an attempt was made to explain to her that her disease was a functional, not an organic one, that it was called hysteria, and that hysteria is not so mysterious or the reason of its being so unsolvable a riddle as is currently believed. It is in reality a splitting off of personality from that composite possession known as individuality or personality, until the individual may seem to have not only a double but a triple, or even a quadruple personality. Each of these personalities may be distinct in its delineation, imperative in its activity and determination, and uncompromising. An attempt is made to explain that it is the warring of these errant personalities, plus the fright, that are at the bottom of the excitations and inhibitions that constitute the framework of hysteria, and which are the direct fundament of hysterical manifestations. The patient is assured that as soon as these wandering, malign, errant personalities are brought back into the fold, and welded together to form the composite which constitute the individual, the ego, that the normal personality will then dominate the actions of the individual in a harmonious way, or at least with such harmony that it may be called normal. As soon as this occurs the individual is well; that is, he or she does not display phenomena that are abnormal.

This conversation was repeated to her many times when she was found in receptive mood, and many simple illustrations were cited to facilitate her grasping the underlying principles. Diagrams, models of the nervous system, the skeleton, patients that presented paralysis of one or more extremities were made use of, until finally she seemed to grasp what we were trying to convey to her.

Many efforts were made to have her narrate her dreams. At first she had some difficulty in doing so. She would say: "I dreamed something very disagreeable. I remember seeing a coffin with my brother lying in it outside the dining room window. I dreamed of seeing my father and my brothers, and saw them doing things as though they were alive, and yet in my dream I knew that they were dead."

Gradually she developed more facility in expressing the transpirations of her dreams, and would write the details of them. A few of those are herewith appended. Any one who can trace the genesis of her infirmity and its manifestations in these will find documentary proof of a beloved theory; others may find in them simple parallels to their own experience.

I.—I was alone in a large place that was dark and empty with many long, winding passages in which I could not find my way. I kept trying to find a way, but my head only went around and around and I only got confused and bewildered.

II.—I dreamed I was at the ———. We did a great many strange things about the house, and when we went out on the veranda it was all mud tracks. I started to go home, and out in the roadway I met a drunken man. He stood right up in the middle of the road and voided. I tried to run back to the house, but he would not let me, and he chased me back and forth from one side of the road to the other. Finally he made a "grab" for me and I screamed and woke up with my heart beating so fast, and I was wet from a profuse sweat.

III.—I had another dream after that. I was at a business house alone in a great empty place, where it was dark and cold, and I had lost my way, and I kept wandering around and around, but I could not find my way out. Often I dream of falling from high buildings, and I can feel myself falling down, down, down—sometimes I never strike ground at all; I wake up while I am falling, and sometimes I wake up just as I strike something.

IV.—I dream so often of doctors, especially of Dr. ———, who operated on me the first time. He was so rough and brutal and frightened me so. He was always trying to *make* me walk, and sneering at me, laughing and making fun of my attempts to walk, and telling me I could walk if I wanted to. I am so afraid of doctors. In my dreams they are always bullying me and making me do everything, and they speak so cross and scold. They are trying to operate on me, and they are giving me ether, and they are holding me down on the bed and I am suffocating.

V.—Sometimes I am in deep water drowning, or rather struggling against drowning, or I am getting smashed in railway wrecks, and I am covered with blood. I can see the blood streaming over me. Often I dream I'm dead. Once I was lying dead in a coffin. I could see it just as plainly, and could see just how I looked and the white dress I had on. But I was not buried; the coffin was standing on top of the ground in a lot in a cemetery. Outside there was an iron fence, and shrubs grew close to it. Then "living" I was standing by the fence picking flowers off these shrubs. Often I am that way—living and dead at the same time.

VI.—There were two high towers made of lattice work. They were on the bank of Trout Brook. All the pictures in my room were off the walls and I couldn't find some of them. Mother was rearranging those on the east wall and there was not room for the "water color" or the Dutch scene and I wanted them on that wall. I was on the long lane that leads to the little red house that is set way back from the road on North Main street. There were people with me, but I don't remember who they were. I saw a fence and some one sitting on it. The grass in the fields was very long. The wind was blowing across it, and I saw the grass swaying. Some one was trying to do something to me. I saw snow. They were making me go somewhere. I saw my brother and ——— and a number of other people.

I was at home and was sitting out in the bathroom. The door that led into the kitchen was closed, but I could hear the voices of people who were talking. I thought ——— (a person whom I have not seen or thought anything about for years) was there, and he was smoking a big cigar. The people seemed to be waiting for something that was to happen, and ——— wanted my brother to go for a drive. Then I saw the interior of a big public building. It looked like a theater, and some entertainment was going on. I saw a great many children as I passed down the aisle to find my seat. I was with some one and we were in the upper balcony trying to find our seats. I heard water dripping and every one seemed to be looking around to discover where the sound came from. Next, I was right in this room, in this bed. I was lying on my side and my knees were drawn up. Two nurses were standing at the foot of the bed and they were putting some sort of machine on to the soles of my feet and screwing it into the flesh so it would hurt me. I screamed and

screamed and tried to draw myself away; but they only pressed the screws in tignter and bent my knees until they touched my body. And oh, how they laughed because they hurt me! I struggled and struggled and tried to call for the night nurse, but my voice wouldn't come. I couldn't make a sound. I woke up and saw the light in the room. I was just in such a position and I couldn't move a muscle. I thought I must be paralyzed. I wanted to ring for the nurse, but I couldn't move my hand to reach the bell.

Sometimes after relating a dream she would pen a few reflections or desires, such as the following:

I don't like to leave Miss ——— (the head nurse), but I would like a room with some sunshine in it. It would be more cheerful and I could see to read and write without straining my eyes all the time. I wonder where that car goes! It makes a lot of noise. The window ought to be open more. Miss ——— has a very nice voice. Sometimes I am afraid of Dr. ———. I was not to-night. I wonder if I have got to tell him everything! If I tell him what I can't do, or where I can't help myself, I am afraid he will make me do the things, and that only makes me nervous. I will never get well that way. It is just what Dr. ——— did to me—all the time—just give orders and make me do things. That is just plain bullying and nothing else.

VII.—I dreamed of a dense wood, where I was trying to find a path. I remember looking up to the sky and seeing the sunshine. It was so bright as it streamed through the opening over my head. Suddenly I saw straight ahead of me a long, narrow path. There were trees on either side of it, and they were glorious with autumn colors — red and gold — shimmering in that brilliant sunlight. It seemed to be near the Bishop's house, and I remember seeing Gertrude. Later I was up on a hill, looking down on a large expanse of water. It looked very dark and cold. There were boats on it, but I can't remember what sort they were. Helen was standing beside me and she was urging me to do something. It seemed to concern the water in some way. I thought we were waiting for her husband, and he was coming on the water.

VIII.—One night I dreamed that Dr. ——— was standing over me with an ether cone and was making me take ether and I could not take it. I tried to breathe in it, but it choked me so and something seemed to be cut right off in my nose, and I heard an awful screaming, yelling noise in my ears. Something was pressing down on my stomach, and I tried to push it off and called Dr. ——— to please take it away. Then I woke up, wet with sweat, and my heart beating so fast I could scarcely get my breath. I was so frightened and I didn't know where I was. I thought I was on the operating table down at the ——— Hospital. It took me such a long time to find out that I was at my own home in my own bed and that the furniture in the room was all there, just as it always was. After a while I went to sleep again and I had the very same dream all over again, and woke up in the same fright. I did that same thing five times that night, and the last time I waked up, I burst out crying and called for mother and told her that I would not try to go to sleep any more, because I only dreamed I was taking ether just as soon as I got to sleep and it wasn't any use. It was all so real and distinct. I could hear the doctor's voice and see everything around the operating room and hear the rattle of instruments.

IX.—Another time I dreamed I was in a room that was strange to me. I had never seen a room like that anywhere. It must have been a doctor's office, only there was a bed in it. The bed was standing along the east wall—a little white bed and I was in it. I had been having a baby. On the south side of the room there were two windows and between the windows was a white sink that stood quite high. Dr. ——— stood there washing his hands, and beside one of the windows stood a strange man. He was very stout and had red hair and little squinty eyes. He was talking and kept insisting that I had had a very hard time. "Oh, no! It was nothing in comparison to what I had suffered at my menstrual periods." And I got out of bed and walked all round the room with the doctor holding me by the hand, just to show that man that I was all right. I woke up just as the doctor was leading me up to the side of the bed, and I looked all around the bed for the baby and the doctor, but I couldn't find either one of them.

It is not my intention to attempt other interpretation of these dreams than the obvious.

The substance of the first dream is the predicament in which she finds herself as the result of her illness. The second is concerned with an actual experience that shocked her. The third her predicament again; groping to find her way out. The fourth reveals the conflict which endeavors to bolster her position, viz., that she will show the doctors that she is right. The fifth that she is no longer able to support her state. The sixth her predicament to find her way out appears again. As a matter of fact all her dreams have the same theme: groping to escape from her prison and revival of her experiences, or furnishing contrasts to convince others of her profound suffering.

"Telling everything" resolved itself into discussing freely her multiple personality. After long and repeated discussions about this matter it finally crystallized into her admitting that she (one of the personalities) was going "to tell" on the other two. "It is really taking a mean advantage of the eight year old—giving it against her wishes. But I had to, because I promised to send it, and I never, never break my word." "You know, she destroyed the other list I made for you, because she didn't want you to have it." "Please remember when you read this that the eight year old furnishes all the comedy part of existence." "Without her life would be only heavy tragedy."

Person No. 1.—She is about eight years old, and physically she is pretty weak, but she has a much stronger will than the others, and she has a very determined way with her. She has an enormous appetite, sleeps well, but dreams continuously, and her dreams are a jumbled mess of silly things. Whether this is the one that suffers least of all, I am not certain.

She suffers intensely with her head and nerves. She is very, very sensitive; indeed, she seems to have the power of feeling things that are going to happen to her, and she can feel people near her even when she cannot see them. All her senses—sound, sight, taste, feeling, etc.—are highly developed, but she seems insensible or highly indifferent to the higher, bigger things of life. She has a passion for clothes and jewelry; nothing pleases her more than to dress up and curl her hair. Childishly frank and affectionate, she craves the affection of other people. If she can have her own way she is pleasant and agreeable; but when she is crossed she is irritable and shows a decided "fighting" spirit, and she is often rude and quarrelsome. She is terribly suspicious of people whom she dislikes. She is tricky, very imaginative, bold, dashing, and very witty.

Person No. 2.—She is very, very old, about ninety I think. Physically she is so weak she can scarcely move. She cries a great deal, but I think she suffers the least of all. She has no appetite whatsoever. She lies awake at night for hours, and sleeps only from sheer exhaustion. Even then it is only a very light sleep, and she has hideous dreams that terrify her. She has the same degree of sensitiveness that No. 1 has, and she can feel things that are going to happen to her. Although she feels people who are near her, this sense is not so acutely developed as in No. 1. She is abnormally good, but thinks she is an awful sinner. She is very morbid, filled with anxiety, and worries and broods over everything. Although she has an excellent mind and a good memory she is timid, afraid of everything and everybody and most fearful of losing people's good opinion. She is yielding to the point of weakness; always gives in when there is any argument or discussion. She never quarrels and never explodes. Quiet and reserved with acquaintances she is quite frank with her friends, and is pleasant and kind to everybody whether she likes them or not. She is interested apparently in everything that concerns others, but her interest is really superficial. She suffers terribly with her head.

Person No. 3.—This one is twenty-seven years old (the patient's age). She is the strongest. She has a fair appetite, sleeps moderately well, but has hideous dreams which she does not seem to mind at all. She has a splendid thinking, reasoning mind, but a poor memory. She is very practical and sensible. She is not at all sensitive. She seems quite normal in every respect save

one—she doesn't care about anything. She is perfectly sensible of everything, knows right from wrong, and good from bad, but she merely doesn't care. Nothing ever seems to make any difference—she doesn't care whether she lives or dies; it is all one and the same to her. She suffers terribly. Although she has a consciousness of having existed before in some previous state, ages and ages ago, she has known every human experience; she has felt every human emotion and passion. For her there is nothing left in all the world—nothing! There are days when she feels as though she were walking in a dream, her mind dazed, and not consciously connected with anything. At other times her mind is clear and fine and as strong as a mind can be.

Person No. 4.—There is a fourth one—the "nice one." I do not know anything about her except that she laughs right out loud when she comes on the scene.

At another time she writes: "I do not know whether it is No. 3 who suffers most during the menstrual period. There is one thing the three are agreed upon: they all have a passion for art. They like the same pictures, and all like to read about art, though, of course, it is above No. 1's mind. They are all fond of poetry. In their 'wild' moments they contemplate writing a book. They do not like the same people. No. 1 and No. 2 have strong likes and dislikes, whereas No. 3 has a different opinion of the others. No. 3 hates No. 2, No. 1 hates No. 3, but No. 2 thinks No. 1 is a nice little child and should be left alone and not bothered."

At another time she writes: "No. 4 was on last night, and she is a glorious creature. I wish I could always be here and never any one else. The other hateful twenty-seven-year-old one had been 'on' during the day with her tremendous mind and her still more tremendous indifference, and then something happened, and as quick as a flash the other one came on—the eight-year-old one." . . . "Oh, but she is quick and strong, young and glad of life, with the sunniest disposition in the world and a beautiful character. She is perfectly normal and natural, except she has an awful grudge against Dr. —— [the physician in her home town, who has taken care of the patient for many years]. When she came she just wouldn't write anything, and now that she is gone I cannot remember a thing, she tired me so; I just feel dead and my head hurts frightfully." . . . "She is so strong and moves so rapidly and does things so like a shot that she keeps me gasping for breath. I think it would be the easiest thing in the world for her to get up and walk and dance or do anything else she wants to. Why doesn't she do it, I wonder? There is something in the way.

"Was I that one before I got sick? Everyone says she was bright and clever, jolly and sweet. Now she is so full of mischief, with a keen sense of humor and so interesting in everything and everybody. She is strong in her passion for she loves and hates, but somehow there is a good deal of charity in he opinions of people. She sees all their good points, except perhaps those of the doctor. She is gone now, and I can't get her back. She is just as illusive as the pot of gold at the rainbow's end. The doctor says that I can control her, but I cannot. If I could, I would be her always. I would give anything in the world to be her, because life means something to her, and she wants her life to mean something. You see, I am 'on top' now, and I don't believe I want to be all 'cast iron' self control anyway. I'd like my mind to control the movements of my body, but not my feelings or emotions. Why! if I did, I'd be as hard as *nails*. No, I'd like to be something besides a body and mind and self-control. I'd like to be just a *human being* with a strong, well body, an eye that sees, and a heart that understands and a *soul* to rule over all.

"No, it's an impossible standard that Dr. —— has set for me and then, when I fail to reach it, he will sneer (inwardly) or, worse still, be disappointed, and that's the last thing to finish me. The real thing of it is that he is perfectly helpless. Queer, isn't it, that any one as clever as he can't find a way to help me out of this awful misery!

"A long, long time ago, I read somewhere that 'human misery is as much of a disease of mankind as any of the other ills to which flesh is heir, and that there should be physicians for human misery just as there are physicians for disease.' And who, but a doctor, would be better suited to heal sick bodies and sick minds and sick souls! Why dissociate the three? Oh, I know that a doctor would say that it is outside his sphere—leave that to the minister; but the ministers don't know 'life' the way a doctor does. Theology teaches them a lot about divine nature, but when it comes to plain every day, *human* nature, they are mostly always 'stuck.' They worry along just the same as the rest of us do—worry and fret and grumble, too, and try to preach Peace, when they haven't got it themselves. Except the dear old duck of a chaplain. He had 'Winter' on his head, but there was 'Summer' in his heart and a whole lot of it, too. Every human being was his brother and he *lived* and talked and fairly radiated peace—a sort of a 'living benediction.'

"I'd rather pay a doctor five dollars for bringing me peace of mind than for giving me a handful of pills any day; for the pills would only last a couple of days, while the 'peace of mind' would last a good while. What's the difference between a sick body or a sick mind anyway? I've no right to his 'personal' time, but I have a right to his business time, if it's paid for, and there's no reason under heaven why it should not be.

"But the 'angel' doctor is gone, and this other one will never in all the world be able to help. And so he shoves the whole thing off on to my shoulders and calmly 'washes his hands' off the whole affair. But it is too big a contract for me to tackle all alone. It gives me just the sort of sensation that I'd imagine would come to a prisoner at the bar, when he is given a verdict of 'life imprisonment.' Oh, yes, I know that I am the architect of my own soul, but the architect's dream never becomes a reality, all of itself. He has to have a lot of material aid—many kinds of building material and many workmen to help, before the dream takes form. And I cannot even hire help—there isn't any, anywhere. No one will *take the trouble* to help, and I am so utterly alone!

"I've waited and waited—past hope, past patience, past caring—until the heart in me is dead, and Oh! how I wish my body were so, too! No, I don't want to be pitied—I hate that! I'd only like a little 'understanding,' for I haven't had a bit since I lost brother.

"Oh! I'm so bored with life! It isn't right to be so bored with life, but somehow, I can't seem to help it. Nothing in the world has any meaning any more, nothing seems to make any difference. Everything I used to love has gone stale, it's all just alike. There's no taste left to anything; all the fragrance, all the rhyme, all the harmony has gone out of life. There isn't anything there! It's just empty, empty, empty.

"And besides, my head isn't right—it pains so, and is so queer and confused and dazed—feeling all the time. Sometimes, when people are talking to me I don't know what they are saying—there's nothing but a hideous blank. And sometimes, I can't 'remember' at all. And I can't sleep at night. I worry and worry because I can't get out of this awful condition I'm in, and I worry because Doctor 'preaches,' and I worry about mother, and I worry for fear something will happen to Billy.

"And then, when I do get sleep, I have such hideous dreams: I dream I'm dead, and it feels good; and I dream doctors are cutting me up, and it feels good; and I dream they're 'etherizing' me, but I don't mind; and I dream of jumping off from a high building, and I dream of drowning myself, and I dream of throwing myself under railroad trains, but I never, never seem to mind. Nothing in the world seems to matter. Oh! this awful emptiness! I can't stand it any longer, I simply *can't* stand it. I wish I were dead, but I can't seem to have even *that*, and yet there are so many easy ways to make one's self dead. Oh! *make me*, make me want to live!

"Once upon a time (that is the way in which all nice stories begin)—once upon a time, there was a doctor who was an 'angel' doctor. How do I know? Oh! once when I was very sick, he took care of me—the very best care that a doctor ever took of a patient—and I found out all about him. He was young and *alive*, so thoroughly alive—just brimful of joy of living! And he had the nicest face, with sincerity, and sympathy and integrity, written all over it. Kind, honest eyes, and a wonderful health-warming smile, and a voice that could tie one to life—one couldn't have gotten away from it (life, I mean) if one had wanted to; but there, no one ever would have wanted to die—one longed to live, grandly, superbly!

"Somehow he made it such an awful lot easier. Life seemed less of a drudgery and very much more of an opportunity—living wasn't just a *necessity!*

'Twas an art, and the highest art of all was just this: To take life the way it was and make the best of it.

"And he was clever—oh! so clever, and as good as he was clever (and I never knew any one half so clever). Kind and courteous, with a fine big 'friendliness' of manner that went with it all—*he* never laughed in the wrong places, he was too considerate for that—so fair and just to everyone, always. I think, he tried to 'put himself in the other fellow's place' and when he couldn't do that, when he just *couldn't* understand, why—he waited, until he could, or the 'other fellow' did; just waited, all patience and gentleness, and compassion—ah! one knew instinctively, that he was a 'working partner' of the great Physician.

"And then one day something, something (?) happened and he went away—and that's all—except that he wore blue suits and red neckties.

"When I get well, I'm going to have a big black hat like the one Selma had on with two long plumes drooping off the brim on one side—one black one and one pale blue one, and just too soft and silky for anything—and a wreath of green leaves around the crown. She let me put it on, and the girls said it looked simply 'stunning' on me. I turned around and looked in the mirror and it did! It is so long since I've had any 'clothes' I'd forgotten that I could look like that in anything—say nothing about a hat!

"But come to think of it, if I'm going to be a trained nurse, I don't suppose I'd have much call to wear a hat like that. Still I guess I'll have it anyway—it would be a perfect pleasure to take it off the closet shelf and look at it, and besides, I could wear it when I was 'off duty.' Then I'd walk in to my patient and let her see how I looked with something else on besides a uniform.—I always liked to see how nurses looked in street dress. Some of them would look just great and some of them would look like the same darned old maids—I never said that word before, but then, I'm not saying it now, I'm writing it —but, I never wrote it before, either. It looks lots better than 'the dickens'—I guess I'll say it again, sometimes it will make the others awfully mad— They're such pious parties they don't like people to talk that way. But, I guess I hadn't better say it, either, for they would probably be so mad, there would be no living with them, and they almost drive me crazy now.

"Do you know, I know just how those people in the Bible, who were 'possessed of devils,' felt—I have got three devils and one angel. I guess we devils are 'running things' most of the time—but I don't mind being a devil one bit. I'm tired of those goody, goody saint things. Say, did you ever go to church four times on Sunday and the way I used to do? (*Every* Sunday). Then sometimes I'd go downtown to 'vespers,' besides, to hear the music—which made five times.

"Out at tht sanatorium, they had prayer meetings sixteen days a week—but I never went. I stayed out in the park and flirted with Prof. L. But it was a grand old place, just the same, and they had ice cream every day. I liked that. Today we had corn fritters for dinner. I ate seven. I expect I'll have the stomach ache.

"If I were well, I'd take a hospital training and work and work and work, so I'd never have a chance to think. Oh, I'm so tired of doing nothing but thinking and 'loafing!' I want something that will fill up all my time and mind and life. And I think nursing would be just about as hard as anything I could get —I'm sure that would keep me busy all day long and get me so dead tired, besides, that I'd just *have to* sleep at night—sleep from sheer physical weariness and only wake in time to dress and then go at it again—day after day after day, just *work!* I believe it would be the making of me—I'll bet i could do it—just you wait and see! Oh! I have promised Martha for ages and ages that I'd live with her and nurse her 'heathen'; but if she doesn't go back to 'Grandview' I don't see how I'm going to—maybe she'll go in for settlement work, tho', she spoke of that once; then I could nurse her 'street kids' for her—which would be very much more to my liking. Oh, I love them, dirty and ragged and 'tough!' The class always said I'd land in a mission kindergarten, but I didn't get there. I guess now I'll nurse them instead, and Martha can teach them—I believe I'll have to suggest it to her. It's time she made a change anyway—those Grandview 'heathens' have had her long enough. Then, maybe, I could be useful for once in my life. I think that more than anything else in the world, I'd like the feeling of being *necessary*.

"I do wish that Blanche would come and take away her pet Madonna. It's positively painful to look at and yet, I can't seem to take my eyes away from it, while I have it here. It's so dreadfully fascinating; just like watching a fire you know all the while that it means death and destruction, and yet you keep on looking. Oh! 'love' never *made* that woman's life, it spoiled it, and that isn't a Christ child that she has in her arms—it's a roguish, mischievous, heartless little Cupid; He has torn the heart right out of her and laughs in high old glee; He's her 'pain' and she is hugging it tight—she just *can't* let it go.

"Queer, I've never before setn any of his pictures. Of all the books and books on art that I've read and studied and 'pored' over, I've never seen anything about Del Sarto, or a copy of any of his pictures; this is the first one I've seen. I must try and see if I can get a history of his life, or something that will tell me about him. I wouldn't be afraid to bet on it, that love spoiled his life, for an artist always paints himself into his pictures. I wonder was *this* the woman's face and he painted it with his soul looking out of her eyes? Beautiful enough, but cold and hard and the eyes and mouth look better, her soul had been betrayed—poor, poor thing.

"No, thank you, Blanche—You can keep your Del Sarto—I'd rather have my own little 'Ferruzz'—She would never spoil any one's life—She's lived and loved and suffered and glorified it all, and the baby is such a dear! Why, you could hold him yourself and feel sure that he would let you know when it was hungry-time, sleep-time and that he'd want to be loved and coddled.

"And I do like my 'Tennessee' awfully well, too; but that doesn't *mean* anything—she is merely a beautiful woman and the baby is sweet and cunning as all little babies are, but well, he isn't a wonderful baby like little ——— for instance. Oh, how I'd like to see her and get hold of her, this very minute! I never saw a baby like Jeanette—she's simply fascinating. I guess she is the one thing that can *absorb* me. I'm 'dead to the world' when I get hold of Jeanette. Fate is just too hard and cruel and tricky for anything, to give Rebecca two such babies and not let me have any. Heigh-ho! It's a funny old world methinks, you never can have anything you want."

When we come to analyze or, perhaps better said, to dovetail the diversities of these four persons that she believes to constitute herself, we find that she and they all have certain things in common. In the first place they all suffer terribly, to use her own language; they all dream a great deal.

No. 1 dreams continuously a jumbled mess of silly things.

No. 2 has hideous dreams.

No. 3 has hideous dreams and dreaming mental states.

No. 4 is not very strongly delineated; she is simply an ideal.

Person No. 1 has the personality of a child who is physically weak and morbidly sensitive, and who is determined to have her own way. This person may be construed to represent the desire or determination of the patient to be treated as a child, and especially to have her own way.

Person No. 2 is an old, weak, sensitive creature who has attributes which she has been told that she should develop—humility, modesty, self-sacrifice, the turning of the other cheek when the one has been smitten. She always gives in after discussion. Obviously this was the phase of her personality to treat, it was susceptible to argument, and it was not stubborn.

Personality No. 3 is the healthy one which is indifferent to existence. This is the one which indicates the real wish to be indifferent to the world's affairs even if the health is all right. She is the one who has a splendid thinking and reasoning

mind. She is the one that knows right from wrong, and good from bad. She is the one that has run the gamut of every human experience; she is the Mona Lisa of her imagination. When she says she has fathomed every emotion and passion, when she reads into her story what Walter Pater read into Mona Lisa, "Here is the head upon which all the ends of the world are come; the eyelids are a little weary, * * * the thoughts and experience of the world have etched and molded there. She is older than the rocks among which she sits; like the vampire, she has been dead many times and learned the secrets of the graves; she has been a diver in deep seas and keeps their fallen day about her * * * ." She is merely trying to convey that she has been subject to every tantalizing emotion by her illness and those who have endeavored to cure her to which a human being can be exposed.

Personality No. 4 is the one which is going to overcome the faults of all the other personalities. She has such qualities that every one loves her. She is the blend of virtue and vice which makes the perfect human being. She is the one who sometimes laughs "right out loud" at the others, at their obstacles (in remaining bedridden), their tenacities, and their puerilities. "She is a glorious creature." In reality it was by identifying (to the patient's satisfaction) this personality with the patient that the first secure steps of her recovery were made.

Her attitude toward her doctor is clearly revealed in her confessions "telling everything"; no one can mitigate her suffering, nothing can appease her misery; not only is she utterly alone, but she is adrift like the hulk of a wrecked ship that has been abandoned and of no service to anyone and a menace to others. She has made Herculean efforts to get well, and failed largely because, like Colenoges, solitary hearted, no love hath she, no understanding friend. Physicians particularly misunderstand her. No one commends her, and this adds to the burden of being misunderstood, maligned and maltreated. She will study to be a nurse when she is well, that her life may be an example to nurses and its conduct a spinning light to the whole world. There seems to be a piece of copy missing here! could she improve upon the quality of the medical profession, but even matrimony and its entailments would go smoothly if she could do as she pleased.

To the unprejudiced who came in contact with her she seemed the apotheosis of self-consciousness. Critical, complaining, ungrateful, encountering nothing that was worthy, and experiencing nothing that was deserving of praise. Complaint, destructive criticism, and ingratitude were her chief characteristics the first few months that she was in the hospital. The most important steps in her reeducation were to convince her that these qualities would have to be replaced before she could hope to recover. How this was accomplished it is very difficult to convey verbally. It need scarcely be said that it is not a subject that goes by hard and fast rules. That it was accomplished, that the results have been lasting, is shown by the permanency of her recovery.

During the weeks and months that an analysis of her mental and emotional make-up were being made, she was subjected to a carefully arranged discipline consisting of the utilization of physical measures for the restoration of her health, and the development of her strength, such as salt rubs, cold packs, massage, electricity, and graduated exercises, first while lying down, then when sitting up, and finally while standing by means of support, such as a rolling crutch. An endeavor was made to keep her in an atmosphere of hope that she would recover and every indication of progress was accentuated and magnified. She was encouraged to believe that because she could stand when supported was in indication that she would be able to stand unsupported as soon as she had regained sufficient strength. Small progress was made during the first few months, and the little that was accomplished in getting her to stand, or to walk while she was in the rolling crutch, her knees splinted to keep them straight, seemed to be undone by each succeeding menstrual period, at which time she appeared to suffer insupportable pain. Dr. J. Clifton Edgar reported that her uterine organs were of the most profoundly infantile type, and that child bearing was beyond the question. The uterus was divulsed. She was given ovarian substances and other animal extracts for a protracted time, but no impression was made upon the dysmenorrhea. After much deliberation, and counsel, we decided to advise ablation of the uterine organs, and this was done. For the subsequent two or three months no effort was made to get her to stand and to walk, but our pedagogical efforts were kept up with renewed vigor.

She was encouraged to identify herself with "Personality No. 4," and assured that though the other three had many desirable characteristics none of them would make a heap of all their winnings and risk it on one turn of pitch and toss, and that in reality their attractions, so alluring at first sight, were not the sterling ones to endure the tedium vitæ.

Aided by Mr. F. W. Ellis, Director of Social Research of the Neurological Institute, we had daily prolonged interviews with her, during which the ideals of life were exposed to her intelligence. Personality No. 2 was argued with and convinced, while No. 1 was disciplined, its misdemeanors winked at and its maturity forecast to be identical with No. 4, that it was in reality a sublimation of No. 3. She was encouraged to believe that she would not take up her bed and walk as if a miracle had happened, but that she would reacquire the capacity to stand and to walk. In conformity with this our first efforts were to get her to stand alone, which were successful about two months after the panhysterectomy.

At the end of four months she was able to leave the hospital. During the latter part of her stay there she walked in the streets, finally unaccompanied, and we felt assured that her improvement would continue at home. Two months after her return home she wrote as follows:

"My one excuse for not writing is that I have not made any marked progress; I have to fight hard to keep from losing ground, just drive myself to all the things that I must do in order to get well. You see I am working hard to prove myself a worthy subject for all the thought and time which you spent on me." In another letter two or three months after: "I am so happy to get my walking thoroughly restored. I am now able to take long walks in the country; I do the housework, make beds and wait on the table, and, in fact, do everything around the house. Last summer I worked in the garden all the season." In her last letter she writes that her townsfolk look upon her as a miracle, which undoubtedly gratifies her vanity.

PSYCHIC THERAPY, CLINICAL PSYCHOLOGY, AND THE LAYMAN INVASION.

By J. VICTOR HABERMAN, A.B., M.D., D.M. (Berlin),

NEW YORK.

INSTRUCTOR IN PSYCHOTHERAPY AT THE COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY, AND ATTENDING PHYSICIAN, PSYCHOLOGY ROOM, VANDERBILT CLINIC

Repeatedly the question is put to me "what are the methods of the psychotherapist who has remained free from the Freudian contagion, and how does his work differ from that of the assuaging analyzers of dreams and complexes?" Or again, the less intellectually elegant—that is, such who have not taken recent psychology courses at the colleges—will ask "Isn't psychotherapy just plain Christian Science?" Or finally, some will say, "Now you know you can't practice psychotherapy on everyone because you can't hypnotize everybody, can you?" Freudism, therefore, or Christian Science, or hypnosis is the connotation in these various minds, a something ostensibly insulate and cultish, and you a member of a "special" class. These questions have been asked of me in different form over and over again by students, physicians, and laymen, and show the very narrow conception of this important subject by our colleagues—and our new confidants, the girl undergraduates and graduates and the Sunday newspapers.

And surely these new confidants are making real headway and must be taken seriously. Who knows how soon they will outrun and outwit us, or possibly set up a new healing sect of their own, for at the girl colleges, seminaries, summer schools and in extension teaching work, courses on Psychoanalysis and the "deeper psychology," "inclusive of hypnosis," "sexual hygiene" and other matters psychic and medical are being given[1] while the medical schools cannot find time to teach aught of the psychologic, not even psychic therapy. In other words—and these are actual facts—young women and young men not students of medicine, nor meaning to become such, are being taught medical, sexual and psycho-clinical matters (all under the guise of the "deeper psychology") matters which after all have strong potential therapeutic possibilities, and which are being utterly neglected by the medical schools whose students hear nothing of clinical psychology or child-psychopathology, and next to nothing of the psychic in therapy. So a recent graduate told me that the course given at her college was "terribly popular," and was well attended, and that no doubt some of the girls "will go in for that sort of work" when they graduate.

Now, there can at least be no denying of the fact that the non-Shakesperian stuff that Freudians tell us dreams are made on is strongly inveigling stuff indeed and that a tolerable dose of it and the "deeper psychology" in a seminary or college course would make it vie with tanglefoot in its lure of attraction. Besides, as the young graduate said, "If it's so, every girl ought to know about those things."—They are learning fast, of that there is no doubt, and psychoanalysis has already become a topic for discussion in the parlor, and at the table—with an occasional interpolation, maybe, of the more recent "twilight sleep," or "Maternity" (now playing).[2]

Such of late has been the rapid spread of medical facts among the laity, especially the unbaked and unwholesome facts; and as to the girl colleges, seminaries, and especially those undergraduates who "will go in for that sort of work," and the other grads who must needs soon seek some remunerative employment, heed for a moment the female invasion of our clinics, of so-called "workers," psychologists, speech-orthopractics, clinical-psychologists, and whatnot! Why the major proportion, if not all, of those looking after abnormal children at our clinics and hospitals are young ladies who have learned to make a Binet-test[3]—though the remarkable fact is that a Binet-test will tell you nothing whatsoever of the abnormality of an abnormal child nor give one the slightest clue to mental evaluation in clinical terms. But the startling thing is not that this Binet-testing, because of its easiness and popularization, has cheapened clinical psychology and degraded it from a dignified major calling (as it is reputed in Europe) to a school-girl pastime, and a procedure to be accommodated somewhere in the back yard of Neurology or Psychiatry, but the progress of these testers into the very heart of our institutions, for that is no longer a mere menace, but an amazing fact, and a physician, though he have specialized training and a record of considerable practice and service is scarcely a match for the newcomer, though she be no physician at all nor specially trained, but who comes with the telling lurch of momentum set going by this latest fadism, and its acceptance by those to whom, evidently, after all, the whole matter is a negligible affair.

But to return to those insisting questions and essay an answer:

[1]In one such course I find that even the psychoses and psychoneuroses are to be taken up. In another "dreams in connection with psychoanalysis." In still another "sexual hygiene, psychoanalysis, hypnosis," etc. The magazines evidently are also beginning to give similar courses. *Good Housekeeping* had an article on psychoanalysis in its February number. In the March number this subject is continued under "Diagnosis by Dreams," in which the *libido* gets an airing. We read under the title that this is "of the utmost importance to mothers and fathers. * * * It is obviously impossible to discuss fully in these pages a subject of this nature; but discerning readers will recognize the dangers here pointed out and the warnings given—and will take care to post themselves more fully."

[2]The topic of Eugenics has already become passé in public gossip, while "Damaged Goods," a moment ago on the lips of everyone, is giving way to newer themes of Brieux.

[3]Since the above was written, my attention has been called to the fact that young men were also engaged in this work, and even such who had medical degrees; and that if there be any reproach it falls to the door of the physicians who indulge and publicly proclaim this sort of thing. And the following was pointed out to me: In a half dozen newspapers recently there appeared the announcement, supposedly, of the opening of a certain school for atypical children—in reality, however, apparently so, the press notice of certain physicians connected with the school. Here again was stated that each child gets a Binet test, and that through this cases of abnormal development were discovered, etc. This, of course, is the rankest nonsense, and flaunting it before the public, in keeping with the kind of medical advertising which, in the hands of the Freudian propagandists and these Binet testing "experts" (what a catastrophe would occur if the Carnegie Foundation were to investigate our so-called "specialists" of to-day as it did medical schools some time ago!), has reached the high-water mark of efficiency. This kind of *press-noticing* is the source of the pseudo-enlightenment and bemuddlement of the public and a hoax to physicians themselves. The criticism of my paragraph above, I am sorry to say, is therefore justified. "Old Dr. Gindle" is no longer a G-U specialist; he is to be found among the neurologists, and especially those of the Freudian and Binet-expert types—and alas! not so much among the free lancers as among those connected with some of our best institutions.

One has symptoms and back ground tendencies (inherited or acquired) to treat, and possibly an individual with ultra-moods-feelings-affects and unauspicious life viewpoints to administer to.[4] Symptoms must be cured first—it is for that the patient seeks our aid—and this is probably best accomplished by suggestion in its various forms. It may be the suggestion of word or of such substitutes[5] as electricity, massage, exercise, manual-work, thermic-light, drugs, etc.—which frequently suffice. Or the more potent form of suggestion, namely, hypnosis, may be employed. Freud himself formerly used hypnosis in his own work, and many of his followers still continue to do so. It was the method of the great Nancy school, where the scientific psychotherapy of modern times was inaugurated, nurtured, and first taught. And where deftly applied, it is perhaps the surest and most rapid way of nullifying psychogenic symptoms known to us to-day. Yet that does not make hypnosis synonymous with psychotherapy. It is merely *one* of the psychic methods, and in trained hands, useful, safe, and potent.

There is much misapprehension concerning this method among physicians, many of whom think that by hypnosis one induces unconsciousness, and then forces ideas upon the mind as one might mold or impress wax. Nothing could be less true—just as nothing could be less true than the old superstition kept alive by stage performers of the subjugation and weakening of will, and of the "power" exerted over the patient.[6] Think first of all of the great and inherent calming effect of hypnosis. If it had no other value whatsoever than the deep mental and physical quiescence attained at each induction, with the *tendency* given to continued calm, this would be its own excuse for being. Hence its value in instilling composure in the minds of the high-strung neurotic or the obsessed. In the neurasthenic Geijerstam pointed out that a brief seance proved far more easing and refreshing than several hours of sleep.[7] It is not a state of subjugation, nor of unconsciousness, nor even of subconsciousness, but one of peculiar neuropsychic inactivity and tranquillity. Even where not attained, though attempted, the mental placidity produced soothes and allays the anxious patient, and serves an excellent therapeutic end.

The second equally great value of hypnosis lies in the hypersuggestibility momentarily induced, so that one's "logic" will here take root and ripen (post-hypnotic suggestion), where in the waking state the veriest fineness of logic with such patients at times proves unavailing. One does not proceed as on the stage, "now your nose is of rubber," whereupon the subject draws out his hallucinated elastic proboscis and goes through antics of delight. One reasons and enjoins in the same rational way, and infuses *conviction* precisely as in the waking state. It might be remembered, too, that in this condition the field of memory may be widened, that is, the associational play be more unconstrained, be deeper and more agile (though the contrary may also be the case), and a patient may tell you much that does not occur to him in the normal state. Even Freud used hypnosis for this purpose, thinking he got to subconscious material in this way.

The hypersuggestibility gives easy reception to your word, and symptoms rapidly, often at once, disappear. Now, why "analyze" a symptom for several months if you can dissipate the same in a few minutes, or a few visits? Does one think it will recur more readily if suggested away than if analyzed away?[8] It makes absolutely no difference what started such a symptom, or habit, a tremor, a tic-movement, a stuttering, etc.; once become a habit the causating impulse must be obviated, or sidetracked, or counter-impulsed. *Learning* the cause does not in itself make such symptoms, etc., disappear—cannot in fact influence it in the slightest, unless one again employs suggestion saying "now that we have hit upon the cause, the trouble will disappear." Or again, if a patient has his attention and expectancy keyed up to their highest during an analysis, and is told directly one comes to the "causative psychic trauma" the symptom will disappear, of course it may disappear, and this very intense suggestive procedure is in large measure the reason for the success of psychoanalysis when it succeeds.[9] (Dubois).

How one can little by little "bend" the background tendencies and so change a pathological "disposition" by suggestion, more slowly in the waking, more rapidly in the hypersuggestible hypnotic state, is evident. And in this social world of ours more individuals are stirred and affected by the influence of others working suggestibly upon them than by any other or all other methods combined. This is

[4] It must not for a moment be forgot that one has to think of the physical and physiological of the individual as also acting upon the mind, as well as the mental *reaction* upon the body—and the further continued interplay of one upon the other. Only he is a good psychopathologist and psychotherapist who is a thorough all-round physician. And he who in his enthusiasm for the psychic forgets or ignores the other branches of medical science, becomes an unsafe or even dangerous fadist.

[5] These substitutes, of course, have other effects beside the suggestive; but the suggestive element may be made most powerful.

[6] Aschaffenburg writes (in Curschmann's "Lehrbuch der Nervenkranheiten," p. 796), "The fable that hypnosis paralyzes the energy of the patient still more, can only be seriously held by one who has never tested hypnosis. I am assured that many people on whom all methods of treatment were tried without effect, finally and only regained their vitality (Lebensenergie) through hypnosis." Interesting are also the words of Friedländer on this point, who said: "Den Wert der Hypnose sehe ich nicht allein in den sinnfälligen Erfolgen, sondern mindestens ebenso in der durch sie ermöglichten dauernden Beeinflussung des Seelenlebens, *in der Selbsterziehung, Eigenkontrolle, Konzentrationsfähigkeit, Willenstärkung*, nachdem der Arzt vom Schauplatze abgetreten ist."—*Jahresversam. der Gesellschaft Deutscher Nervenärzte*, Frankfurt, Oct., 1911. See also the present writer's study of Hypnosis, *Internal. Clinics*, Vol. IV, Series 10.

[7] *Zeit. f. Psychotherapie und med. Psychologie*, Bd. III, Heft. 5 & 6.

[8] Freud himself has written ("Studien über Hysterie," 2nd edit., 1909, p. 14): "Of course we do not cure the hysteria; inasmuch as it is constitutional we can do nothing to effect the recurrence of hypnoid conditions. Nor can our methods during the productive stages of an acute hysteria keep new symptoms from appearing and taking the place of those made to disappear with such great pains and difficulty." Again, p. 228, "It (the cathartic method) does not affect the causal conditions of hysteria, cannot therefore inhibit the occurrence of new symptoms on the ground of the dislodged ones."

[9] One must remember there is the added factor of "belief" in the physician, one of the strongest of psychotherapeutic factors. (Ziehen). This belief is increased by the fame of a physician, or by the knowledge of his *having cured* cases "just like" that of the patient. We try to increase it by our manner, by the care and thoroughness with which we examine the patient, and finally by the firmness with which we express ourselves. Of greatest importance in getting a patient to believe in us (as Dubois has pointed out) is belief in ourselves and our work.

the great impellant of the stage, the book, the example seen or heard of, and in largest measure of news that is read.

But suggestion is by no means all, is in fact only the minor part of our psychotherapy, just as we may term minor adjuvents to treatment our counselling the patient to avoid fatigue and irritability, or those factors (scenes, people, environments, etc.) which prove sources of irritability, of disphoria, or of affect-explosions: (change of environment may however be of the greatest importance in the treatment of cases, especially in children); or as we divert attention by giving manual occupation or study, or add hydrotherapy, feed up, tone up,[10] attend to elimination, etc., all of which also act forcibly upon the mind, or prescribe "will gymnastics" to counteract idea-habits and abnormal impulses. The symptoms once cured, one must strengthen the resistance of the patient so that he becomes equal to the task of coping with his life conditions—so that symptoms do not reoccur. One must induce in him a "philosophy" which will place him above his maladies or shortcomings, for all time, or until he outgrows his psychopathies, so that he himself grasps the helm, knows how to keep within latitude of his own limitations, and learns to clear the reefs of "affective" excesses, upon which many a psychopath has rasped and gone to splinters.

But just here one will be asked by those leaning to the Freudian, how will you learn that patient's inherited trends or such acquired by fallacious training or "affective" conflict or accident; how get to know the coloring of his subjectivity, that which characterizes the background disposition of the man, and so his false evaluations of and maladjustments to life? How will you ferret out the causes of his psychopathy or come upon those so-called complexes which, without his knowing (supposedly so), lead him emotionally or ideationally astray?[11]

Let it be remembered (the Freudian movement seems to have driven it completely out of the minds of physicians) that every psychotherapist and probably every psychiatrist worthy of the name, analyzes the mental make-up of his patient and probes by judicious questioning his life story with its domestic, social, sexual, and other trends and thus endeavors to understand his patient and his reactionism, and tries to unravel his psychopathy and come to its underlying causes when possible.[12] I have spoken of this method as *anamnestic analysis* (ὀνάμνηστος, *i.e.* that is remembered, that can be recalled to mind) to differentiate it from that psycho-(sexual-) analysis which does not honestly bring out the memories of the patient, but suggestively interprets *into* the mind and distorts data by subjective "translation" so that the resulting story is fundamentally out of the physician's mind, not the patient's.[13]

As I have already intimated, such analysis has always been essayed by psychiatrists and neurologists. To aid in the work various psychologic methods were evolved, especially the association tests of Kraepelin, Ziehen and their students (so especially the studies of Aschaffenburg, Levi-Soul, Isserlin, etc.), also kymographic e-motor registrations, like those of Sommer, the plethismographic tests, the psychogalvanometer tests of Veraguth, etc. We might speak of all these as psychological aids (psychological analysis) to a better comprehension and evaluation of the patient's present state of mind by understanding the nature of its associations. Along these lines an immense amount of work has been done by Kraepelin, Ziehen, Sommer, Bechterew, etc., all using strictly scientific methods to the exclusion of metaphysics and fantasy. That headway is being made but very slowly with such psychologic methods is only too true; the subject, however, is just in its infancy, and phychology itself has as yet given scant aid.

This is not the place to go into the matter at greater length. Let it suffice to state that by means of *anamnestic analysis* one may gain as deep an insight into the personality of an individual and his mental environment as with the rational methods at our command today this is actually and veritably possible. Together with the physician's receptive attitude and guiding counsel, it proves the strongest weapon in our psychotherapeutic armamentorium. Through this the patient attains an immense relief by the unburdening of himself—the affiance of the confessional, as it were, for surely the physician admitted to the full confidence of his patient becomes the most intimate of confessors—gets a kind of start in the regeneration of his self-reliance by feeling he has found a helping, compassionating friend, who "understands," who will assist in the allaying of the obtaining difficulties, of whatever nature they be, realizes an immediate gain in the advice received as to how to obviate these difficulties or meet them, should there be such, and above all, in the cogent insinuations to enter the path of right living and right thinking, by maintaining calm and restraint, by emboldening his spirit to be master, not mastered by fate, by inviting an attitude of hope and expectation (so absolutely necessary in the cure of the nervous and

[10]A patient who is in bad physical condition is a very poor subject for psychotherapy and must first be "built up."

[11]The supposition that one must know all this in order to cure a patient is an affectation. The assumption that one *does* learn all this about every patient is likewise an affectation—one doesn't and still cures him. We have been told that not all but certain cases only are suited for psychoanalysis—those young enough, intelligent enough, co-operative enough, and having money enough to afford such a treatment. (Clinic patients do not seem to have the qualifications either—it being but rarely if ever tried on them.) How are the remaining cases treated? The Freudian doesn't say much about it. Can they not be cured, or only their symptoms? Or is some other method then to be tried—which?

[12]At the present state of development of our science it is not the usual but rather the unusual thing to come upon the underlying causes in the psychoses. Even in the psychoneuroses one remains quite as often in darkness. We have not made much advance in *results* even though considerable has been done to advance methods. When writers, as one recently in the *N. Y. S. Journal*, talk about our having recognized the psychogenetic mechanism underlying Dementia Præcox, or, as another stated, that Jung has given us the key to this psychosis, or where anyone says psychoanalysis has cleared up any of the psychoses, they state utterly untrue facts. The great psychiatrists of Europe have not found that psychoanalysis has aided psychiatry at all (Kraepelin, Ziehen, Hoche, Anton, Sommer, Aschaffenburg, Isserlin, etc.). Through these methods some of these mechanisms *may* in time be made clearer, *maybe;* as yet *nothing* has really been cleared up. It is almost dumbfounding how these things are continuously repeated in journals until everyone takes up the delusion and accepts it without a doubt. Even Bleuler now only goes so far as to say of psychoanalysis that "it represents an *experiment* out of which one may often infer correctly certain definite psychic processes," etc.—*Jahresver. Deut. Ver. f. Psych.* at Breslau, May, 1913.

[13]See the author's "Some Recent Criticisms of Psychoanalysis," *Med. Rev. of Rev.*, October, 1912; "The Psychoanalytic Delusion," MEDICAL RECORD, September 6, 1913; "A Criticism of Psychoanalysis," *Journal of Abn. Psych.*, October-November, 1914.

neurotic)—and the final awakening of joy with its salutary stimulations because of the encountered relief and renewed faith—again reclaims trust in himself—that iron string to which every heart must vibrate, as Emerson has said, for after all "nothing can bring you peace but yourself."

This, then, is real psychotherapy, and is the method we have tried to employ and encourage as fully as time would permit, in our own psychotherapeutic clinic—and with the most gratifying results. Here you have suggestion, persuasion and re-education compounded and raised to their highest potence, and in the sincere practice of such one shall find the physician ennobled to that superlative stage of the healing art where he may verily be deemed as the Germans term it, *Seelen Arzt*—soul-physician.

But this does not complete the story of psychotherapy. Its most consequential chapter, that dealing with the prophylaxis and early assuagement or eradication of half the ills that humanity is burdened with, must still be factually written. At some future time when possibly physicians have awakened to the seriousness of judging the child's neuro-psychic abnormalities as important as that of its intestines, or lungs,—often indeed as portentous in its incipience as the first gray tubercle intrenched in those lungs—when the school authorities shall have been shocked out of their long years' sleep, and ask the why and wherefore of the six or seven million retarded children in this country, and apply to us—or those laymen invaders who may by that time have long since displaced us—for a diagnosis, a prophylaxis and a therapy, when the civic and state authorities come to realize the immense gravity of the fact that here lies germinant the whole problem of the psychopathic constitution and here and probably here only, therefore, the source to be reached of those contaminations of society, delinquency, prostitution and in largest measure of criminality and insanity, and that at this source, and this source only, shall one ever be able to dredge out the pollution and lessen the hordes of human derelicts and decrease the millions in expenditures used and misused in finally housing and maintaining them—possibly then, at that belated time, the work begun by Ziehen abroad may come to leaven, and the universities have departments devoted to the careful study, examination and analysis of abnormal children and the neuropsychic abnormalities of normal ones, and in close association the means of treating, training and coercing by psychic urgence their abnormal mental functioning into normal paths—and this not in the hands of men just graduated from their medical school, or untrained girl workers who are neither physicians nor psychopathologists, or indeed physicians and so-called "experts" whose chief qualification lies in their having had ample advertisement on several occasions in the Sunday papers, but under the direction of those competent and qualified and pursuing this work as a momentous and serious calling.

60 West Eighty-fifth Street.

Varicella with Two Eruptive Stages and Accompanying Erythema.—O. Silberknopf reports the case of a seven-year old girl in whom an attack of varicella was marked by the appearance of the eruption in two main crops separated by an interval of eight days, during which there was observed a widespread erythema on the trunk and extremities.—*Zentralblatt für Kinderheilkunde.*

INDICATIONS FOR TREATMENT OF HEART DISEASES.*

By Robert Abrahams, M.D.,

New York.

Adjunct Professor of Medicine and Adjunct Visiting Physician in the New York Post-Graduate Medical School and Hospital; Consulting Physician to the Manhattan State Hospital and the Home of the Daughters of Jacob.

Every physician who examines an abnormal heart must hold before the mirror of his mind two truisms: First, not every diseased heart needs treatment; second, not to regard the murmur as

"The rift within the lute
Which soon shall make the music mute."

This idea may be further developed by stating a broad and comprehensive principle in the treatment of heart disease, namely, that signs which mark the presence of disease do not indicate the necessity of treatment; symptoms which are the expressions of the failing functions of the weakening heart are the sole and sure indications of treatment. The question, therefore, at once arises: which are the symptoms and what are the indications? Serially they are as follows:

1. Dyspnea.—Cardiac dyspnea is a dyspnea of exertion. If a patient gets out of breath after walking a short distance, or by going up a flight of sairs, or by bending to take his shoes off, or by any slight exercise, the patient's heart needs treatment. Such a patient, in all probability, has mitral disease with beginning failure of compensation.

2. Cyanosis.—This symptom, like the preceding one, is produced by exertion; it disappears after rest, and it indicates a failing heart and, most likely, a lesion of the mitral valves.

3. Edema.—Edema resulting from heart disease is an ascending edema; its appearance around the toes or ankles is an indication of commencing decompensation.

4. Cough.—The "heart cough" may be dry and harassing, may become spasmodic on exertion, or it may be attended by mucous expectoration. "It is due to the congestion of the bronchial veins and is a serous oozing from the venules." This cough denotes failure of both right and left hearts and calls loudly for treatment. The heart cough occurs most often in mitral disorders.

5. Enlargement of the Liver.—In many cases of failing heart, the border of the liver extends down to a line with the umbilicus. This denotes hypertrophy; the hypertrophy results from congestion; the congestion is produced by a failing heart which hinders and interferes with the portal circulation. It is to be noted, and perhaps remembered, that in some instances the enlargement of the liver is the first and only indication of cardiac failure. (I have seen and known this pure hepatic congestion to be mistaken for cirrhosis, although very prolonged congestion may actually lead to cirrhosis of that organ.)

6. Anemia.—Anemia which does not yield to treatment but which, on the contrary, defies treatment, indicates a failing heart, a heart that cries for treatment. Anemia of this nature points to aortic disease.

7. Hemoptysis.—Raising of blood in small or in large quantities not infrequently occurs as an early sign of heart failure, and as such it constitutes an

*Read by invitation before the East New York Medical Society, December, 1914 and the Bronx Medical Society, March 10, 1915.

indication for treatment. Hemoptysis is an incident of mitral trouble. The blood finds its way into the lungs in different forms. One form constitutes pulmonary apoplexy, which, according to Rokitansky, "is very frequently found to be associated with active dilatation of the right heart and it seems to bear the same pathogenic relation to the cardiac affection as cerebral apoplexy bears to active dilatation of the left side of the heart."

8. Vertigo.—Vertigo, in the presence of aortic disease, means poor compensation calling for attention.

9. Insomnia.—Sleeplessness, restlessness, and nightmares appearing in aortic insufficiency indicate broken compensation, necessitating therapeutic help.

10. Dilatation.—Cardiac dilatation resulting from valvular or structural defect embraces all indications, those that were mentioned and a few which are omitted, because it gives rise to all symptoms, singly or combined.

Treatment.—The treatment of disease of the heart is bound up with, and is a part and parcel of, the history of digitalis. William Withering, a Birmingham practitioner, gave his "Account of Foxglove" in 1785. Since then no writer has penned a line on the management of cardiac affections without mentioning this epoch-making drug. Whatever methods and measures are employed in the treatment of lesions of the heart, digitalis is used at one time or another and in one form or another. It is the equal of mercury in syphilis and quinine in malaria, and he who knows the use and abuse of digitalis is competent to treat diseases of the heart.

In approaching the subject of treatment, the natural inclination is to follow the etiological factors of the different types of diseases of the heart. This would be extremely advantageous provided one could inform oneself on the causation of every heart lesion which comes up for treatment. This may be possible in the future, although an attempt can be made in the present.

Syphilis and rheumatism are the two prevailing agents in the production of heart disease. Both affect the muscle and both destroy the valves. Some differences exist between these two mischief makers which it may be well to mention and important to bear in mind. Rheumatism frequently produces acute endocarditis, while syphilis very seldom does. [illegible] fers to lay hands on the valves, [illegible] kes to damage the musculature. [illegible] ws a predilection for the mitral apsyphilis is attracted by the aortic system of valves. Armed with such clinical data concerning the etiology of some lesions of the heart, an attempt to capture and destroy the causative enemy is not only mandatory but may prove highly successful.

Spurred on by modern methods of diagnosis and impressed with their great value, we should avail ourselves of laboratory assistance, namely, the Wassermann test and blood culture. The latter should constitute an essential element in the examination of a patient who suffers from acute or subacute endocarditis coming and going at shorter or longer intervals. A blood culture may result in the discovery of the *Streptococcus viridans,* and then the treatment can be specific, either autogenous vaccine or autoserum intravenously.

Again a proper study of all heart lesions is not complete, both from the standpoint of etiology and treatment, unless, and until, a careful search has been made for small pockets of pus stored and hidden in some nook or corner of the complex machinery of the human body, principally, however, the mouth and anus. It is neither a subject for laughter nor matter of skepticism to read that the removal of the appendix resulted in the cure of an obstinate trigeminal neuralgia. We rather should stand in amazement at the evidence connecting ulcer of the stomach with a few drops of pus under a tooth, and admire the man who traced the connection. That endocardidtis, valvulitis, and arthritis are due to *Streptococcus viridans* found in purulent and spongy gums, I have not the least doubt. Neither have you. Now, here is a fruitful indication for treatment and prophylaxis of heart disease. In search for the enemy, one should not stop at the gums, but stray lower where the tonsils grow. The tonsil, like the appendix, was born to make trouble. Scrutinize it; if necessary use a searchlight; examine its secretion and perhaps luck will crown your efforts. The comparison of the tonsil to the appendix is not far-fetched. What the appendix is to the peritoneum, the tonsil is to the endocardium. Many and many a case of endocardial disease can justly be laid at the door of the tonsil. In the treatment of cardiac disease associated with attacks of tonsillitis, the pesky organs must either be ablated or else frequently bathed with a solution of permanganate of potassium 1/5,000. This is the best antiseptic for that purpose and its employment should be considered part of the daily toilet.

If syphilis be found to be the etiological factor (80 per cent. is the accepted frequency of this infection in aortic disease), then mercury is the redeeming drug, the sheet anchor; mercury by inunction. The iodides are of little value even in the face of arteriosclerosis and high blood pressure. Salvarsan is permissible and at times desirable, rarely, however, urgent. A syphilitic heart stands salvarsan very well. After the salvarsan, one rubbing of five grams of blue ointment should be made every day for fifty days in succession.

This method of treatment is indicated in cases of aortic disease even in the face of a negative Wassermann reaction at the beginning of the treatment. The Wassermann may become positive during the treatment. It is a waste of time to wait for the autopsy to confirm the diagnosis of syphilis. No patient was ever benefited by autopsy findings. Action must sometimes be taken on the flimsiest suspicion, for syphilis is a disease of the hovel and the palace, of the sanctum and the saloon, of the wise and of the foolish, of the innocent and the guilty.

These considerations make it evident that the ideal treatment of heart disease rests in finding and removing the cause. But is this ideal attainable? It must be admitted that, excepting in particular instances, it is not, for the reason that the present status of our knowledge of etiological agents is still hazy, nebulous, uncertain. Besides, even in the case of lesions which are known definitely to have been produced by spirochetes or streptococci or any other of the multifarious denizens of the microscopic world, if such lesions remain unrecognized and specifically untreated for a long time, specific therapy subsequently applied will not cure them. Changes which were wrought in the valves will persist, and changes which have occurred in the muscle of the heart will remain, notwithstanding the application of specific remedies. Etiological treatment may, and does ameliorate, in these late and distressing cases, annoying symptoms; it may also

for a time stay the downward march of destruction of tissue, but sooner or later the diseased organ has to be considered and treated, from the standpoint of *functional* derangement.

To such consideration I invite your attention for the next few minutes.

Valvular lesions constitute the great majority of cardiac affections; it is fitting, therefore, to take them up first for consideration. To treat a valvular lesion intelligently, or to permit it to go without treatment, also intelligently, one must know the stage of the lesion which is present at the time of the examination.

Mitral insufficiency being the most common lesion, it merits first attention. There are three stages of mitral insufficiency. The first stage is characterized by one sign, and that is a systolic murmur which is heard over the apex and is limited to it. This murmur, in the absence of other signs of the mitral defect, is frequently mistaken for a hemic murmur. The size of the heart in this stage is normal, and subjective symptoms are conspicuously absent.

The second stage is characterized by the murmur mentioned plus its transmission; displacement of the apex; systolic thrill; hypertrophy and dilatation; accentuation of the second pulmonic sound and diminished pulses (90 per cent.) when taken while the arms are held in an upright position. Subjective phenomena may or may not be present in this stage.

The third stage embraces all the physical signs of the second stage with the addition of edema, anasarca, dyspnea or orthopnea, cyanosis, bronchorrhea, insomnia, etc., that is to say, symptoms as well as signs.

Mitral stenosis has but two stages, the bad and the worse.

The first stage is characterized by a presystolic thrill or presystolic murmur, sometimes one, sometimes the other, occasionally both; accentuation of the second pulmonic sound and a diminution of the pulses in the arms raised above the head. There may or may not be symptoms present at this stage of the disease.

The second stage is characterized by all the signs of the first stage, including distressing symptoms, such as dyspnea, cyanosis, tachycardia, harassing cough, dropsical effusions, "sinking spells," etc. The condition known as auricular fibrillation is frequently associated with the third stage of insufficiency and the second stage of stenosis of the mitral valves. When this condition occurs, then the whole gamut of arrhythmia becomes a noted and notable feature of the valvular affection. The distress and annoyance resulting from this cardiac irregularity are added to the long list of subjective misery.

Three stages are assigned to aortic insufficiency.

The first stage is indicated by the diastolic murmur.

The second stage has the murmur, but it also has displacement of the apex, hyperthophy, Corrigan pulse, increased pulsations of carotid and other superficial arteries and capillary pulsations. The interval between the first and second stages in this disease is comparatively brief.

The third stage embraces all the physical signs of the preceding stages plus anemia, vertigo, anginal pains, insomnia and nightmares, dyspnea, edema, and dropsical effusions in membraneous cavities, all these form the closing and terminal incidents of this serious cardiac trouble.

Aortic stenosis has no stages. This disease is always benign. When the perfect hypertrophy which is typical of aortic obstruction yields to dilatation, then the lease on life becomes extremely short, regardless of any form of treatment.

The division of valvular disease into stages and a thorough appreciation of the signs of each stage is the most useful thing in treatment, to say nothing of the moral and intellectual satisfaction one derives from accurate knowledge and information.

There can be no objection to such a division. Tuberculosis is divided into three stages, although at times one finds all stages in the lungs. Yet the division is very useful. Pneumonia is divided into stages, so is cholera, so is smallpox, so is bigpox, syphilis. I advocate the division of arteriosclerosis into three stages—a very helpful division.

The purpose of presenting the treatment of chronic heart disease may be better fulfilled by taking up concrete, though hypothetical cases, one after another, beginning with the simplest and ending with the complex, as they appear in each separate lesion.

Mitral Insufficiency.—Case I.—Physical examination discloses a systolic murmur at the apex. No other sign present. Symptoms are absent. Diagnosis, mitral insufficiency in the first stage. A case like this imperatively forbids the use of cardiac drugs. It may need an antirheumatic remedy if there be pain in the joints; it may need iron if there be anemia, or, most often, the mixture of rhubarb and soda supplies all the necessary medication. The very important points to remember in a case like this are: First, not to get alarmed over the murmur and in consequence belabor the heart with digitalis, and, second, not to tell the patient that he has a "weak" heart and thus throw him into unnecessary anguish.

Case II.—Physical examination discloses a systolic murmur at the apex, a systolic thrill, apical displacement, accentuation of the second pulmonic sound, and some enlargement. Diagnosis, mitral regurgitation in the second stage. However, no symptoms are present, which signifies that there is no indication for treating the heart. The latter is a guarantee that compensation is perfect.

Now, though the diagnosis is unmistakable, yet the treatment should not be directed toward the heart. As in the preceding case, one must allay rheumatic pains if they are present; for that purpose there is nothing better than novaspirin gr. x, *t.i.d.*; anemia may be more perceptible in this stage, then iron, either in the form of Blaud's mass, gr. v, *t.i.d.*, or the aromatic tincture of iron of Atthensteadt ℥ss., *t.i.d.* This patient will be constipated so that a saline or other cathartic once or twice a day will be called for.

Should there be any of the above-mentioned indications for treating the diseased heart, such, for example, as dyspnea or cyanosis, or edema of the ankles, then the patient is put to bed. Rest in bed is the best restorative for a failing heart. Rest in bed frequently dispenses with cardiac drugs. However, should the patient refuse to go to bed, or should rest in bed prove inadequate, resort must be had to a cardiac tonic. The best cardiac tonic in mitral regurgitation with broken compensation is digitalis. Twenty minims of the tincture or a half ounce of a good reliable infusion three times a day will accomplish the desired result. This dose of digitalis must be kept up until the signs of decompensation have disappeared or considerably abated.

After that the dose is reduced to half and continued, with few intervals of interruption, indefinitely.

Case III.—Physical examination reveals all the signs of the valvular disease plus the sequelæ of a dilated, maybe degenerated, failing heart. In this instance the patient has no other choice but to go to bed. The best posture is, perhaps, the semi-recumbent, because the dyspnea may be intense. This posture is better borne by the patient. Treatment is begun with one grain of calomel in divided doses followed, shortly after, by a saline laxative. As soon as possible one drachm of the tincture of digitalis should be administered; then wait twelve hours, at the end of which time, if there is no improvement in the dyspnea or cyanosis, another drachm is given. The next day the dose of the tincture is to be reduced to half drachm. This reduced dose is kept up for three days and is then further reduced to twenty minims. The last is to be continued indefinitely, save for a short interruption, here and there. In case the dyspnea is very severe, prompt relief may be obtained by a subcutaneous injection of 1 6-¼ gr. of morphine.

A physician who prefers the infusion to the tincture must begin with one ounce at least three times a day until symptoms of failure improve, and thereafter administer it in smaller doses—half ounce *t.i.d.*

Aortic Insufficiency.—Case I.—A patient with a diastolic murmur but with no other sign. The well-known pulse of this disease is little in evidence, because in the first stage of this valvular defect the incompetency of the valves may only be partial to produce the collapse of the arteries through the regurgitation, and the left ventricle is not hypertrophied enough, if there is any hypertrophy at all at this stage of the process, to produce the strong impact, the vigorous jerk of the palpated artery that is so marked in an advanced second stage. There will be an absence of all symptoms pointing to any functional disturbance. The heart in this stage needs no treatment. Any one of the cardiac drugs will disturb it. In this condition as well as all through the life of the patient iron is indicated and should be given. From what was said above regarding the syphilitic origin of aortic disease, specific treatment should be instituted as outlined in the early part of this paper.

Case II.—In this case we will presume that all the physical signs of aortic incompetency are present, namely, diastolic murmur, diastolic thrill (rare), marked hypertrophy of the left heart, throbbing arteries, and pulsating capillaries. This condition indicates the second stage of aortic insufficiency. Although we have in this stage all the signs of complete destruction of the aortic valves, yet in the absence of symptoms, that is, indications of functional disturbance, no form of cardiac remedies should be directed to the heart except antiluetic measures—the latter used empirically if no positive Wassermann is present, and in good faith if the test is positive.

On the other hand, if one or two of the above mentioned indications are present, one must resort to rest in bed, if possible, and the administration of cardiac drugs. Here, again, the best is digitalis. But digitalis in aortic insufficiency has to be given cautiously, judiciously, and intelligently. The initial dose should be five minims three times, the first day; the second day, five, six, five; the third day, six, seven, six, and so on until a dose of twenty minims three times a day is reached. After that, one begins to reduce the daily dose by one minim until the initial dose is reached. This dose is continued indefinitely, or until a contraindication to digitalis arises. The most important contraindication is intermittence of heart action. Look out for that.

Case III.—We suppose that the patient has all the signs and nearly all the symptoms, that is to say, the patient is in the third or terminal stage of the disease. The problem involved in the treatment is extraordinarily difficult. Antisyphilitic treatment is of little or no avail here, even if the diagnosis of syphilis is certain. There is more than one difficulty to overcome: first, the heart muscle is disorganized; second, the excessive dilatation of the ventricles and their openings produces relative insufficiency of other than the aortic valves. Digitalis is still of service, and larger doses can be ventured on account of the added valvular incompetencies. Either the tincture or the infusion may be used. One of the comparatively recent preparations of digitalis acts admirably in a case like the one under consideration. I refer to digipuratum. Digipuratum has gained the confidence of scores of students of cardiac pathology. It can be given with perfect safety in many diseases of the heart. In aortic regurgitation, digipuratum has hardly a peer. If this preparation keeps up its pristine purity, it may, by a still better knowledge of its action and reduction in its expense, become the first and foremost member of the digitalis family. Digipuratum can be given in tablets, one every four or six hours, or in solution by mouth or under the skin. Ampules are prepared for the subcutaneous administration. One injection a day is usually enough.

The second best drug in a case of this gravity is morphine by mouth or hypodermically, preferably the latter, from 1/6-1/4 grain. There need be no childish fear of establishing the habit. The third drug is strophanthin intravenously, 1/100 gr.

Mitral Stenosis.—Case I.—The patient has a presystolic murmur or a presystolic thrill; accentuation of pulmonic second sound and the pulse phenomenon mentioned above. These signs constitute the first stage of the disease and they may be associated with no symptoms indicating necessity for treatment. This condition, however, is very rare in mitral stenosis. The interference in the circulation brought about by the obstruction causes early disturbance of the heart's action. There may be attacks of palpitation, or attacks of dypnea, or attacks of spasmodic coughing. Either one constitutes a justification for treating the heart. Here, as in lesions of the heart, where direct cardiac therapy is indicated, rest in bed is desirable. If such rest cannot be secured, or if in spite of rest the annoying symptom persists, then one of two drugs should be given, to wit: caffeine sodium benzoate gr.v. *t.i.d.*, or tincture of strophanthus ♏v. *t.i.d.* I prefer the former, only one must see to it that the last dose is taken early in the evening. If taken late in the night it interferes with sleep, and sleep is important in a disease which promotes insomnia.

No digitalis should be given, as I am absolutely convinced that digitalis aggravates this stage of mitral stenosis. It is often hard to explain this incompatibility between first stage mitral stenosis and foxglove, but the incompatibility exists nevertheless, and it is prudent to recognize it and respect it.

Case II.—Here is a patient who shows all the physical signs of mitral stenosis plus distressing

symptoms of dyspnea, cough, edema, and rapid heart. The rapid heart is irregular in action, showing premature contractions and intermittence. This heart is failing, its auricles are in a state of fibrillation. Treatment consists of rest in bed and the administration of digitalis. Digitalis is indicated because the heart is dilated and decompensated, also because auricular fibrillation yields to the drug and the larger the dose the quicker the result. The dose of the tincture is from 30-40 minims three times a day until the patient is relieved. Relief is indicated by a reduction in the pulse rate and a diminution in the extra systoles. Calomel, iron, and some cathartic are as useful in stenosis as they are in insufficiency. This case may need a dose of bromide in the evening because the patient is restless on account of the riotous action of the heart.

Aortic Stenosis.—Unless this valvular disease is caused by syphilis it requires no treatment. It does not call for treatment until the perfect hypertrophy which invariably attends the heart in this lesion yields to dilatation. When that occurs, it matters little what you do.

Myocarditis is tabooed by some writers and clinicians. Cardiologists who are imbued with the latest researches and discoveries of the heart, bearing upon its anatomy and physiology, have relegated "myocarditis" to the dark ages of cardiac pathology. I heard it said the other evening that myocarditis as a disease does not merit the paper that it is printed on.

However, be that as it may, I insist, even at the risk of being considered a fossil, upon the continuance of that disease as a clinical entity, revealed in many forms and in varied though dismal colors—once it is extra systole, once auricular fibrillation, now heart block or one of the many pictures of so-called cardioneurosis.

Given a patient of middle age with or without arteriosclerosis, but with an irregularly contracting heart; dilatation with no murmur; feeble sounds; shortness of breath; enlarged liver; sallow skin and yellow conjunctiva and sclera, this patient is a victim of chronic myocarditis—the opinion of ultra modernists to the contrary notwithstanding.

The treatment consists in absolute rest in bed for a fairly long period and the use of digitalis. The interdiction of digitalis in chronic myocarditis is one of the barnacles of medicine comparable to the fallacy of the "cumulative effects" of the same venerable and venerated drug.

Diet in chronic heart disease, valvular or structural, is a matter of personal judgment and conviction. The wise and the courageous will put few restrictions on diet; the foolish and the timid will reduce the patient to a fluid diet and thus successfully subject the poor sufferer to starvation. Cut out bad habits like liquor, coffee, tea, tobacco, and let the others that give sustenance to the body and strength to the weary heart alone. A good principle to bear in mind in connection with diet in all chronic diseases of the heart, and many diseases of other organs, is to mix the diet with brain, just as a famous artist mixed his paint with brain.

The paper is getting too long to include in it the treatment of various sequelæ and associate conditions of heart disease or diseases of other organs or various phenomena seen in the terminal stages of each and every lesion.

My aim and endeavor has been to point the way to correct diagnosis, to indications and definite lines of treatment. I have left much room for individual experience, for individual predilections in drugs, and for attention to details and deviations as may from time to time arise in each case.

257 West Eighty-eighth Street.

A FEW SUGGESTIONS IN HANDLING CASES OF DIABETES MELLITUS.

By HUGO BLUM, M.D.,

NEW YORK.

Since cases of diabetes mellitus are by no means rare in the active practice of the busy physician, he should be equipped for and able to perform all of the simple tests for urine supposed to contain glucose. The practitioner who can depend upon his own skill in making the necessary tests is far better off than the one who is dependent upon a laboratory; not alone in making an almost immediate diagnosis but in the subsequent treatment of the patient. In not a few cases where the nature and progress of the disease demand very frequent urinary examinations, it is most essential that the physician be independent of any laboratory. Where the financial circumstances of the patient forbids the added fee of necessary frequent laboratory analyses, the dependent physician might attempt to compromise by having fewer examinations made than the case demanded, thus interfering with the proper treatment or even endangering life in cases of a severe acidosis. To insist upon the patient paying what he cannot for analyses, and this in cash, would in all probability lose him the case.

For ordinary clinical purpose only two tests need be applied in the qualitative examinations for glucose—Fehling's and Nylander's. In cases where there is any doubt as to the nature of the reducing substance, a third—the fermentation test—must be made. In carrying out Fehling's test only a copper red precipitate should be regarded as of positive diagnostic value; a yellow, green, or greenish-yellow is due to prolonged and excessive boiling, the reduction being caused by the splitting up of conjugate glycuronates. The reaction is ofttimes seen in normal urines; the fermentation test will quickly clear up the doubt, as glycuronic acid will not ferment.

In Nylander's test a dark brown color which changes to an ebony black is of diagnostic value only; where the brown does not change, glucose is not present. It is due to the reducing power of some other substance also forming glycuronates. Saccharin, rhubarb, salicylic acid, camphor, antipyrine, senna, and chloral hydrate are in the main the more important substances which after ingestion have this power. The urine being free from albumin, a necessity for the accurate carrying out of this test, Nylander's will respond to as low a sugar content as 0.1 per cent.

After the presence of glucose has been determined by the foregoing tests, the important process of a quantitative examination is imperative. For this nothing is better or more simple than the method of Rudisch. The solution containing copper sulphate 4.17 gm., sodium sulphite 50.00 gm., and sodium carbonate 80.00 gm. (pure crystallized salts in each case) dissolved in 10 per cent. ammonia water and made up to 500 c.c., keeps well and the result is very accurate for all purposes; 25 c.c. of the fluid are boiled in a porcelain dish and while hot receives the urine run in 1 c.c. at a time from a burette. This is kept up, the

hot solution being stirred constantly until it becomes colorless. By dividing the constant 2.5 by the number of cubic centimeters of urine used, the resulting figure represents the per cent. of glucose present in the specimen. If this process is repeated and the average of the two processes taken the resulting per cent. will be very accurate.

After the completion of the qualitative and quantitative examination, every diabetic urine should be carefully examined for both acetone and diacetic acid. The testing for beta-oxybutyric acid, the mother substance, is more complicated and need not be carried out; this latter substance which, when existing in sufficient amount, is the direct precourser of diabetic coma, is present in a corresponding ratio to the amount of the former two present. The reactions for both acetone and diacetic acid are easily completed and can be found in any good text book on chemical diagnosis (see Wood's "Chemical and Microscopical Diagnosis"). Arnold's test for diacetic acid is very reliable.

All of the other tests done in routine examinations are to be made, including the specific gravity (most important in diabetic cases), albumin, indican, etc. By making careful records of each examination in the form of charts, and, when necessary, showing these to the patient to inspire his confidence that the case is receiving careful consideration in every detail, even the physician himself will realize that he is doing a great deal more than waiting for the arrival of the diabetic with his accompanying laboratory chart. But unless the physician is able to carry out all of the tests accurately, it would be far better to have fewer examinations made at a laboratory.

In regard to the number of times or rather the interval between urinalyses, the following is sufficient for nearly every case without exception; once a day for three succeeding days when the case is first seen, the patient being on a regular diet, to determine the carbohydrate percentage; almost daily when the carbohydrate toleration is being determined; once a week after the patient has been put on a diet suitable for him; this period after a lapse of about a month can be slowly lengthened until four weeks elapse between examinations after a six months' period, the treatment and course of the disease being satisfactory. All specimens should be twenty-four-hour ones; an occasional specimen freshly voided is advisable when an accurate acetone and diacetic acid reaction is desired for any reason.

Another very simple fact which has been the cause of glucose appearing in the specimen when it should not have, was, in the author's experience, the using of a bottle employed at one time for holding glucose solution. So also bottles not thoroughly cleansed of any syrupy solution must be guarded against. This rarely happens, but if such should happen the physician would be obliged to demand extra specimens from the diabetic, especially if the latter was of a neurotic disposition, a condition not at all infrequently seen among diabetics.

A Few Suggestions as to Treatment of a Diabetic Patient.—Diabetics in general might be classified under three headings: (1) the mild type, in which it is comparatively easy to rid the urine of glucose by means of a suitable diet and a limitation of the intake of carbohydrate food; (2) the intermediate, in which the urine can with more difficulty be rendered sugar-free, viz., by also limiting the intake of protein food; in this type of case the urine at times, no matter what the character of the diet, will contain a slight trace of glucose; (3) the severe form, in which both restrictions or withdrawals of proteins and carbohydrates will not render the urine sugar-free.

In beginning treatment place the patient on a regular diet containing a normal amount of carbyhodrate food for three days, and from three daily specimens of a twenty-four-hour urine get the average percentage of glucose content. If the case is not one of the severe form, or in cases where there is no evidence of any serious complication or danger, where a further reduction in weight will prove disastrous, or in cases where there is no existing severe glycosuria and polyuria or marked acidosis, the following test diet is used. It differs but slightly from the usual test diets employed by others.

	Calories
Breakfast:	
Cup of coffee or tea with 2 oz. cream	100
½ lb. ham with one egg	1125
1 oz. butter	220
Luncheon:	
Two eggs in any form prepared without flour and with butter	200
¼ lb. of meat, vegetables	400
½ oz. full cream cheese	50
Small cup coffee, glass table water	
Dinner:	
Soup prepared with an egg	90
½ lb. meat containing large amount fat or ¼ lb. meat and ½ lb. fish with plenty of butter sauce	950
⅛ lb. vegetables, cup coffee with 2 oz. cream	110
Total	3245

On the first day, in addition to this diet, two slices of ordinary wheat bread are given; on the second day one slice, and on the third no bread at all. As can be seen, this diet contains a very much larger number of calories than a person weighing 150 lbs. would require in the course of twenty-four hours under ordinary exercise. The vegetables allowed are cucumbers, tomatoes, canned asparagus, green asparagus, spinach, lettuce, canned string or little green beans, canned haricot and wax beans, canned okra and Brussels sprouts. All of these contain an average of less than 4 per cent. carbohydrate and some can be employed in the preparation of salad. Since the vegetables are taken in such small quantity, the diet for all purposes might be regarded as being carbohydrate free.

If the case be not one in which the diet is contraindicated, the patient should be kept on this as long as possible up to a period of two weeks; if he is doing well on the diet, even longer. During this time a careful watch must be made of the urine. Acetone and diacetic acid will invariably be found; in cases even where it had not been present before the test diet had been given. During the interval that the test diet is being given the weight will diminish from three to ten pounds in a patient weighing 150 pounds. The patient as a rule will become sugar-free and the polyuria will diminish.

At the time the test diet is begun it is well to begin the administration of bicarbonate of soda in doses sufficiently large to render the urine alkaline and also as a preventive to acidosis. A half ounce a day in divided doses is sufficient. Four parts of this combined with Rochelle salts, one part, serves a double purpose.

The longer this test diet can be kept at without the patient suffering too great loss of weight the greater will be his carbohydrate toleration and the

better the prognosis of the case. To calculate the toleration for carbohydrates wheat bread in one ounce slices are added slowly to the test diet in increasing amounts until the urine begins to show traces of glucose. Since wheat bread averages about 57 per cent. carbohydrate, a diet, which will be more or less permanent, can easily be arranged by substituting other carbohydrate food in place of some of the bread, if desired, the total carbohydrate content not to be any greater than the total amount represented by the patient's toleration for wheat bread; rather is it better to allow it to contain an amount just below the toleration point. In mild cases a diabetic is usually able to tolerate 100 grams of carbohydrate daily, and if a portion of this is represented by wheat bread a very liberal diet made up of different foods containing the lesser amounts of carbohydrate can be taken.

Nearly every mild case of diabetes can be controlled by diet alone, the patient becoming stronger and feeling better; the pains which are present in the calves of the legs in a majority of cases disappear entirely after the urine has been kept sugar-free, the polyuria gradually ceasing, the weight no longer diminishing.

In cases where there is a deficiency in the amount of urine excreted, citrate of potassium is of service; this also may be combined with the sodium bicarbonate along with the Rochelle salts if the latter is required.

A very important symptom needing attention in diabetics is constipation; in some of the cases this alone is responsible for an accompanying acidosis. The use of Rochelle salts or a mild aperient water in sufficient dose to produce a laxative effect is all that is required to correct this tendency.

The skin of a diabetic needs careful attention; the use of a bland neutral soap and an occasional douche in addition to frequent bathing will tend to ward off any serious trouble.

Exercising of the musculature of the body should be insisted upon as by it glycogen is consumed, the patient is benefited, and waste products are eliminated. Almost any form of exercise may be indulged in unless there is a contraindication present in one of the vital organs.

The great tendency for diabetics to possess a somewhat neurotic temperament makes it incumbent upon the physician to divert from the patient's mind anything that may exert a harmful influence. Too frequent examinations of the urine should not be encouraged if the case is progressing satisfactorily, and no one but the physician himself, if he is able, should examine the urine; if examinations are made at a reputable laboratory, reports should be sent to the physician. It has been shown that even though diabetes cannot be caused by a neurotic temperament, the glycosuria is influenced by the latter to a marked extent.

As regards medicinal treatment, the author has not had any experience beyond the use of arsenic in the mild cases where diet alone was not enough to prevent the glycosuria; it is usually unnecessary to go beyond the sphere of diet. In cases where it is necessary, Fowler's solution to the point of toleration is a valuable adjunct.

The discussion of the types of the disease other than the mild type, is not the intention of the author, because of the lack of space in this short paper to cover treatment of the same.

618 West One Hundred and Seventy-ninth Street.

THE LATEST INVESTIGATIONS REGARDING SYPHILIS AND SALVARSAN.

By SAUL STEINER, M.D.,

NEW YORK.

The conclusive discovery of the *Spirochæta pallida* by Schaudinn as the causative agent of syphilis gave fresh impetus to research workers. The subsequent experiments of Ducrey and Levaditi in France, of MacDonough and Wallis in England, Neisser and Unna in Germany, and Noguchi and others in America shed a great deal of light upon the pathogeny of lues. While there is still much work to be done towards clearing up many mysteries regarding this subject, we are at present able to understand much over which the clouds of doubt have heretofore hung.

We will try to answer the following questions:

Firstly.—What happens to the spirochætæ during the 20 or 40 days that they apparently lie dormant in the body of the host that they invaded, until the appearance of the chancre?

Secondly.—What happens to the organism after that? Why that quiescent period of four to six weeks until the appearance of the secondaries?

Finally.—What happens to the spirochætæ when they meet the salvarsan?

The spirocheta is an ultimate development of a sporozoon, a small body consisting chiefly of nuclein, enveloped by a colloidal membrane of lipoid. It is found in all tissues, organs, and humors: pus, serous effusions, urine, blood, saliva, milk, bile, spinal fluid, and has a remarkable predilection for connective tissue.

1. Let us follow the sporozoon from the moment it enters the connective tissue of the skin. Just as soon as it gains entry into a cell the process of development and multiplication starts. The protoplasm of the cell is rapidly reached, the nucleus increases in size, it divides and subdivides so that a rosette-like appearance is formed. This mass breaks up into rods that group themselves in twos, giving the appearance of diplococci. These rods develop into unevenly coiled spirochetes, quite thick, and ultimately become typical *Spirochætæ, pallidæ*. These immature spirochetes resemble the refringens type, so that we can safely say that both the refringens and the pallida are merely stages of the same organism. Naturally, the connective tissue cells invaded by these organisms will offer some resistance, the result of which will be an enormous multiplication. Subsequently they turn into fibrous tissue, so that the part affected will become indurated. This explains the characteristic appearance of the syphilitic primary lesion. Remembering that this process is going on in connective tissue, where there is an absence of leucocytes, we can see very well why there will be a lack of phagocytosis, and consequently a lack of inflammatory process and suppuration. Thus the chancre develops and its insidious attack is all unsuspected. An ulceration of the primary lesion happens only when different saprophytic organisms, which very often reside in those places, interfere.

The time that the spirochete takes to get acclimatized with the new surroundings, to cause multiplication of the connective tissue cells, their transformation into fibrous tissue, and the ultimate ulceration is from two to five weeks and that is the period of incubation.

2. Text books teach us nothing as to what occurs

in the host after the appearance of the initial lesion. All we know is that after about forty days of apparent quietude the skin of the patient is suddenly covered by secondary manifestations and his mucous membranes show special ulcerations. In other words, we find the spirochetes, which have developed in the chancre, making their appearance in localities remote from the portal of entry into the body. How they got there and the route they took make interesting subject for study.

There are two opinions held by different authors. One group considers syphilis a systemic disease, starting at the point of inoculation and becoming generalized very rapidly throughout the organism. Their claim then is that syphilis is a constitutional disease from the beginning and that when the chancre has made its appearance, the virus of the disease has already been disseminated throughout the body. The other group maintains that the luetic infection remains localized to the chancre for a certain length of time and then it gradually spreads to other parts. Members of the first group hold that the virus is rapidly disseminated by the blood —hematogenous infection—that the pathogenic organisms multiply in the chancre and penetrate into the capillary veins and thence to the rest of the body. The opponents to this theory claim that the spirochetes travel along the route of the lymphatic circulation and are thus disseminated.

Let us analyze the arguments of the exponents of these two theories. Ducrey and Queyrat have observed the presence of treponemata in the lumen of the capillaries on a section of a chancre. Neisser has examined chancres and has found the walls of the blood-vessels studded with numerous treponemata. Impressed by this fact, he inoculated monkeys with blood obtained from animals killed during the incubation period, and succeeded in getting positive results. Now let us look closely into these two foregoing facts for the following reasons: If the spirochetes were found in the lumen of the capillary vessels, it does not necessarily prove that it was from there that they made their way into the blood stream. Levaditi has also found treponemata in the capillary vessels, but the lumina of these vessels were obliterated, due to a necrosis of the internal wall caused by a thickening of the adventitia layer of the vessels. Furthermore, the lymphatic spaces around the capillaries were choked with spirochetes. Taking into consideration the histological differences between the capillaries and the lymphatics, we see that the former are endowed with two walls: one endothelial and one adventitia layer; the latter possess only a simple layer of endothelial tissue. It is therefore more reasonable to suppose that the treponemata, like all things traveling a line of least resistance, find it much easier to invade the lymph spaces and canals than the capillary vessels where the resistance is greater and whose walls are pathologically closed.

We cannot very well refute Neisser's experimental findings, because they seem conclusive. Yet, we must not forget that his results have been obtained in the monkey only. It seems that they are exceptional in view of the fact that similar experiments made with the blood of a syphilitic human subject in the full secondary stage (when spirochetes should be most numerous) gave only exceptionally positive results.

There are more arguments against the theory of the propagation of the spirochetes through the blood-vessels, chief among which is the following very logical one: If the spirochetes were to find their way into the blood stream via the vessel walls, that is, if they were present in the blood before the appearance of the chancre, how does it come about that the patient thus afflicted is not yet in an infectious stage? It is a well-known fact that many physicians, especially surgeons, have been in contact with the blood of syphilitics in the prechancrous stage and were not infected. Also persons in and out of wedlock have had intercourse during that period without contagion. It must therefore be admitted that the blood is not contagious during the incubation period and that the generalization of the virus goes on very slowly.

In corroboration of this we find that the Wassermann reaction remains negative during the incubation period, and it is only from fifteen to twenty days after the appearance of the initial lesion that the reaction becomes positive. A positive Wassermann means a generalization of the virus in the blood, the presence of antibodies, while a negative reaction excludes the presence of antibodies and therefore there is no generalization.

Summarizing the arguments which make one lean to the theory that the microorganisms choose the lymphatic system as their line of invasion, we find the following array of facts:

1. The meager defences of the lymphatics—a thinly guarded wall of endothelium—make it a simpler matter for the invaders to enter than if they took the harder path to traverse, the strongly guarded walls of the capillaries.

2. The immediate onset of a lymphangitis following the invasion of the spirochetes and subsequent enlargement of the group of glands nearest to the site of infection.

3. The lymphatic channels and glands upon examination immediately after the appearance of the chancre have been found full of spirochetes, whereas the blood capillaries only occasionally show a few undeveloped forms of the microorganism clogged up in a localized endarteritis.

4. The blood of the patient is not able to carry contagion in the prechancrous stage.

5. Another proof in favor of this opinion is deduced from the action of salvarsan. The fact has been demonstrated that the introduction of salvarsan may provoke the Herxheimer reaction; the explanation of this phenomenon lies in the destruction of the spirochetes and the liberation of syphilitic antibodies which they contained. The frequency of this phenomenon depends upon the number of spirochetes found in the blood. That is to say, the greater the number found the more frequent is the reaction. It is also an accepted fact that this reaction is very frequent when salvarsan has been administered during the secondary period of the disease, and is not observed at all when given the first ten or fifteen days after the appearance of the chancre, showing that the generalization of the spirochetes is an accomplished fact only at the end of the second period of incubation.

Now then, for the purpose of illustration, let us begin at the site of infection, say of the penis, and see what occurs thereafter. The spirochete invades a connective tissue cell, develops and multiplies there without causing any alarming or even suspicious symptoms. Little by little the organisms make their way into the lymphatic channels and without a great deal of opposition reach the inguinal glands. Here for the first time they encounter some degree of resistance. The leucocytes form the

first line of intrenchments, ready to oppose the further advance of the invaders. And here also, as on the battlefield, victory will lie with the side possessing the greatest numerical strength. The continuous stream of new armies of spirochetes coming from their base, the chancre, enables them to gain the victory, and leave in their wake the dead bodies of leucocytes. An inguinal adenopathy is the result. A further advance on the part of the invaders and they are again opposed by a new relay of glands. Another battle, and another resultant adenopathy. Thus they progress from ganglionic relay to ganglionic relay, they arrive at the thoracic duct, then in the subclavian vein, from where they finally enter the blood circulation. Immediately after that we witness the appearance of the secondary manifestations. This is what happens during those 30 or 40 days that pass from the appearance of the initial sore until the appearance of the roseola. It is then a long and hard fight put up by the spirochetes to overcome the opposition of the glands, and their multiplication. From then on there is a continuous fight between the invaders and the antibodies, which are now elaborated by the organism. Unhappily the spirochetes like the connective tissue, where the leucocytes are at their minimum and the antibodies do not penetrate. There they go and intrench themselves strongly. The organ or tissue becomes less resistant and the spirochetes gain the ascendency—a gumma makes its appearance.

This fight for supremacy goes on for years and years with occasional sorties of the invaders from their intrenchments in the connective tissue, the bones, the arachnoida, meningeal membranes, etc., where they are comparatively safe from destruction and where they are continually proliferating and bringing up new and fresh reinforcements to the attack.

Now we shall see to what practical uses we can place the knowledge that we have thus acquired and how best to judge the effect of our newest and most powerful howitzer in our therapeutic armamentarium—salvarsan.

In order to answer this question intelligently, we must review again the biography of the spirochete. The syphilitic parasite consists chiefly of nuclein that is enveloped in a membrane of lecithin-globuline. This membrane is richly impregnated with an unsaturated fatty acid; but that condition is found only when the parasite occurs in a mature form; in the immature form of the spirochetes this fatty acid occurs in a saturated form.

It is a known fact that the more unsaturated a fatty acid is the more free hydroxyl (OH) groups will there be to unite with different chemical substances that possess an affinity for them. The *Spirochæta pallida* therefore, by virtue of the many free OH groups that it contains, attaches to its lipoid envelope or membrane many substances with which it readily combines, and is altered greatly as a consequence.

In this way salvarsan, with its large content of arsenic, upon coming in contact with the *Spirochæta pallida*, unites with the free OH groups of its lipoid membrane, robs the spirochete of its oxygen and thus destroys this pathogenic organism. But, here the question of the immature forms of the spirochete comes up; and it is this group that prevents us from getting in salvarsan the long-looked for remedy for all syphilitic manifestations. These immature forms contain a saturated fatty acid, and consequently no free OH groups; and the introduction of salvarsan into the circulation will in no way be inimical to their life and development. This forms the basis for explanation of cases in which salvarsan in repeated doses has had no curative effects. Some hidden focus, which keeps on producing new spirochetes, evidently exists in these cases. As the organisms mature, they are readily destroyed by the salvarsan that is repeatedly introduced; but the immature forms, uninfluenced by the drug, serve to keep the disease dormant, ready at any time to spring up again.

It is also reasonable to believe that some spirochetes are locked up in thrombosed vessels and within sclerosed areas where they are inaccessible to salvarsan in the blood circulation. Subsequently, when the processes of repair have opened out these sclerosed areas, long after the dose of salvarsan has been excreted, the surviving spirochetes escape into the tissues and reinfect the patient. That must be the reason that syphilis is so hard to cure, and also the reason why salvarsan has been so much maligned. So hot has the controversy waxed that many authorities have felt called upon to say that salvarsan does not cure syphilis, but is only a great and powerful symptomatic curative agent. The foregoing proofs, however, and the fact that the organisms disappear from the chancre immediately after the administration of the salvarsan, consequently, that salvarsan does actually kill the *Spirochæta pallida*, are sufficient proofs of the fact that it is not merely an agent for the symptomatic treatment of syphilis, but a bona fide cure for the disease.

This is only a theory based upon chemical facts. There is another view of the question which should be taken in consideration. In cases of meningeal or spinal syphilis, or parasyphilitic lesions, where the parasite is demonstrated to exist, the usual injections with salvarsan have not been successful. But the salvarsanized serum has given much better results than when the salvarsan infusion was introduced even directly into the spinal column. In other words the parasite was not destroyed by the direct action of salvarsan. How did it act in these cases? It has therefore been assumed that the remedy, when introduced into the blood circulation, produces some kind of substances, the character of which is, at present, not known, and which have the property of killing the *Spirochæta pallida.*

Whether the salvarsan has a direct or an indirect action on the spirochete the fact remains that it kills the parasite. If the spirochete disappears from the chancre after the administration of salvarsan it is reasonable to admit that it must disappear also in the organism. It is only left to us to discover ways and means of administering the drug in a way best suited to effect a permanent cure.

The first thing, therefore, to do is to effect the extermination of the supply base, the chancre. Excision of the primary sore, when suitably situated, should be performed as soon as the patient is seen (and the diagnosis is made, by the proper identification of the spirochete), even under the penalty of giving the patient an ugly scar. We do not mean to say that in this way the disease is aborted, or eradicated, but we rid the patient immediately of a spot that sends thousands and thousands or organisms into the circulation in an unending stream. So it is easy to see that the fewer the number we have to deal with the more efficacious will be our remedy.

The second step should be the administration of

salvarsan. This drug, powerful as it is, has the inconvenience that its elimination from the body is too rapid. Its action therefore necessarily extends over too short a period. This shortcoming can be met very easily by the frequent introduction of the drug into the circulation. Infusions of salvarsan given at long intervals will be of no avail in the combat against the disease, while the salvarsan introduced will serve to kill the pathogenic organisms that exist in the circulation; the armies of those forming behind them will not be affected. So that, since it takes about five to eight days for the elimination of the salvarsan after it has been introduced, it would be safe, as well as logical, to administer the next dose after five or eight days have elapsed.

Finally, we can deduct also that maximum doses should be used, because small doses, even repeated, have not enough power to kill a large number of organisms, and also because they make the organism arsenic fast, helping thus to defeat the purpose for which the drug was intended.

17 Livingston Place.

THE BELGIAN RED CROSS HOSPITALS OF DR. DEPAGE.*

By C. L. Gibson, M.D.,

New York,

Surgeon to the New York Hospital.

Dr. Antoine Depage of Brussels has an international reputation as a surgeon, and is particularly well known to his surgical colleagues in America. The International Surgical Society had its birth in Belgium, and all its meetings, with the exception of the last, were held in its beautiful and hospitable capital. Depage was the original Secretary General of the Association, and the success of this society was largely due to his extraordinary capacity as a worker and organizer. These qualities obtained recognition in his election as president of the association when he had finally served the three consecutive terms as secretary to which the tenure of office is limited. The hospitality and courtesies extended to foreign surgeons and their families by the Belgians, and particularly by Dr. and Mrs. Depage were, I think, particularly appreciated by us Americans. Though our delegation was ordinarily quite small in number, we all felt that no country could have been treated with greater consideration or distinction than was accorded to our representatives. It is but natural, therefore, that in this sad conflict the work of Prof. Depage as head of the Belgian Red Cross should be of peculiar interest to the Americans.

Depage has been for many years the leading surgeon in Brussels, and surgeon to his Majesty, King Albert. Although he was carrying a load of tremendous responsibilities, he did not hesitate two years ago when the Balkan war broke out to abandon everything to take charge of the Turkish Red Cross. His achievements on that occasion have obtained universal and deserved recognition. It furnished him necessarily with an experience which he was destined to give in the relief of his own stricken country.

With Dr. Melis, surgeon general of the Belgian Army, he has been put in charge of the Red Cross in Belgium, working also as a member of the Belgian Army with the title of lieutenant-colonel. His specific duties in the Belgian Red Cross are particularly with the military, and the wounded rather than the sick.

Knowing Dr. Depage very well, I was very glad recently to accept his invitation when visiting Europe to join him in his present field of activities. He has organized and is working two hospitals. One, which might be described as a base hospital, is at Calais. When I was there the institution had been open for work for four months, and the results accomplished in that time are an eloquent testimonial of the efficiency and determination of the man. The building is a fairly modern large girls' boarding school, its spacious class rooms and dormitories being easily transformed into practical and pleasant wards. There was no suspicion at first sight that this was a recent and temporary institution. It looked fully as well equipped as do many permanent institutions. All the ordinary equipment of a well regulated surgical hospital and operating plant, up-to-date *x*-ray apparatus, pathological laboratory, disinfecting and sterilizing plant, were all that could be desired. The most eloquent testimonial of the efficiency of the hospital was the admirable condition of the patients and the number of surprisingly smooth convalescences from severe conditions often requiring extensive operations. The hospital was then in charge of Dr. Nieman, one of Depage's younger surgical colleagues from Brussels, and the work so magnificently begun was being carried out equally well.

When this Calais hospital had been organized and running three months, Depage started a field hospital at La Panne in Belgium, and his new plant had been in operation a month when I visited him. To get to La Panne from the south one has to pass through Furnes, a beautiful medieval town, the last of its kind left in Belgium. The Germans began bombarding it last fall, and although the town has long been absolutely evacuated, it continues to be bombarded intermittently though this operation is devoid of military value. Some shells fell in the town the day I passed through it. La Panne is on the sea coast, 80 kilometers north of Calais. It is situated in the tiny strip of Belgium that is at present not occupied by Germans. It is therefore only a few miles north of Dunkirk, situated at the Franco-Belgium border. It is about 30 miles south of Ostend—normally a quiet seashore resort made up mostly of villas. It did not furnish, except for its attractive and healthy situation, much material for the installation of a hospital plant. There is only one considerable sized building in this village, a typical summer hotel. This building had been fitted up as a hospital to accommodate a hundred patients. The convalescent overflow is evacuated from time to time on to the hospital at Calais. Although Depage had been installed in this field hospital only a month he had an absolutely satisfactory equipment. His twin operating rooms were well fitted up and the lighting and sterilization plant complied with modern standards. In fact, I have in mind hospitals in New York City that do not possess so attractive and convenient an operating equipment. Adjoining the operating room was a good *x*-ray apparatus in the hands of a very competent operator. The building, not lending itself to the formation of small wards, the patients were grouped two to four in the hotel bedrooms. The main drawing room of the hotel, with a beautiful view of the sea, had very wisely not been converted into a ward but was used admirably

*Read before the New York Practitioners' Society, April 2, 1915.

as a comfortable lounging room for the convalescents and the personnel of the hospital.

The nursing was admirably done by a competent and sufficient corps of English nurses. Acting as assistants to Depage were a number of younger medical men, mostly Belgians, and an occasional foreigner—French, English, and one Canadian. These younger assistants each had charge of a certain number of patients, taking full care of them, performing such operations as were delegated by Depage to them. All these workers, medical, lay, or military, were regularly enrolled in the Belgian Red Cross. This procedure is necessary in order to have control of the personnel and make it responsible to the single authority, which is Depage.

The hospital at La Panne is in close proximity to the line of the opposing armies situated along the River Yser. It is only two miles from the rear trenches and from the hospital sounds of cannonading can be heard constantly, and at night the explosion of shells is often seen, particularly when the Germans throw up the luminous bombs, which give an extraordinary illumination of a large area of territory. This close proximity to the firing line allows of giving prompt and efficient treatment to the wounded. Hence, the many disastrous results consequent of long neglect of these unfortunates in other portions of the line are wanting.

The hospital is well equipped with a corps of motor ambulances, which are running back and forth to the trenches constantly, and particularly at night, when they are less likely to form a target for the opposing forces. I saw a soldier who had been wounded by a fragment of shell in the trenches at 3 o'clock. He received on the field very efficient first aid treatment—wound disinfection with iodine, and a large and secure dressing applied. He was brought to the hospital in an ambulance, examined by Depage at once, was taken to the *x*-ray room, the plate developed, and was then anesthetized, a fragment of shell removed, and he was returned to bed in the ward at 6 o'clock.

In addition to the actual work performed in the hospital, Depage also has the problems of looking after the hygiene of some 10,000 soldiers quartered at La Panne. These soldiers are either raw recruits undergoing training, or are groups of men taken out of the trenches for a few days' rest. Bath houses, laundries, and sterilizing plants are being erected for their comfort.

So much for the past! At present, Depage is looking actively ahead to the problems which future fighting will bring about. It is his hope and intention to make La Panne, on account of its good situation and healthy climate, a base hospital of about a thousand beds, and at the present moment barracks are being actually erected for three hundred beds. Barracks have to be erected, as there are no suitable buildings in existence. It is Depage's purpose to have in readiness a field organization and equipment that he can carry with him to the firing line if that line moves to the East and North as the Belgians and Allies expect. On this theory, Depage expects to equip new field hospitals at Ostend, Ghent, and so on, according to the necessities of the situation.

With a man of Depage's capacity and ability to plan and look ahead, and the courage and force to carry through big movements, a large proportion of the work is already accomplished. Much equipment will have to be provided, and money is an absolute necessity. We in America have, of course, done much for the Belgians, and much more still remains to be done. As the largest and richest neutral nation we are free from our own responsibilities to give relief which the combatant nations like France and England can hardly do, as they have their own gigantic problems to handle.

As regards the possibility of American doctors working in connection with Depage and the Belgian Red Cross I am authorized by Dr. Depage to state the following:

That he would welcome heartily any American surgeon. He would like them to come in one of two ways, either as volunteer assistants, especially younger men, who should act directly under him in charge of a certain number of patients in his hospitals, or he would like very much to have American units organized and headed by surgeons of well established repute, these units to be preferably fitted to take care of fifty or a hundred patients. To such units Dr. Depage would give complete control, putting them, as he says, directly on a parity with him. The Belgian Red Cross could supply such units with food, both for patients and personnel, and dressings. Everything else, however, would have to be supplied by such a unit, including the construction of hospitals and barracks, as in devastated Belgium there will be practically no buildings available. Temporary barracks, though, can be built quickly and quite cheaply. American tents and knock down portable buildings can also be utilized to great advantage in many ways. He can also utilize a large number of automobiles and drivers. In addition to the ambulance automobiles, he requires a considerable number of large, powerful trucks for the transportation of material.

I may add from my own observation that any unit intending to join Dr. Depage should have at least one person in authority with a pretty fluent knowledge of the French language. Moreover, I would suggest that to each unit there should be a lay worker, a person preferably used to questions of organization, the obtaining of supplies and material, and used to handling personnel. It seemed to me that in quite a number of instances our American surgeons were swamped in the details of organization that might be termed "housekeeping." That work could be better turned over to some properly qualified person and the surgeon give up more time to the purely surgical problems.

Dr. Depage feared that with the progress of the war his very competent English nurses would no longer be available. He is desirous of obtaining American nurses, whose capacities he thoroughly appreciates. Unfortunately, the Belgian Red Cross is in no position to pay American salaries. On the other hand, it is absolutely wrong to expect hard working and ill paid American nurses to devote their earning power as so many have generously done. Here is a field for private benefactors. It may be stated that there is no room at the front for the amateur nurse.

72 East Fifty-fourth Street.

Pneumothoracic Pleurisy.—A. Faginoli has made a study of this condition, which as its name indicates, is the pleurisy following the operation of artificial pneumothorax. He has observed it twenty times among thirty-five patients subjected to this method of treatment. In only one instance did it seem to shorten life, in all the other cases it interrupted, retarded, or limited the advantage of the treatment, but did not seriously affect the latter.—*Riforma Medica.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, April 24, 1915.

THE CHEMOTHERAPY OF TUBERCULOSIS

DURING the past few years there have been carried out in the Sprague Memorial Institute and in the Pathological Laboratory of the University of Chicago a number of investigations on the chemotherapy of tuberculosis. The results have been published largely in recent numbers of the *Journal of Infectious Diseases*. A survey of these studies has been made by Robert Lewin, and is contributed to the *Zeitschrift für Tuberkulose*, February, 1915. The subject is one of engrossing interest, particularly in view of the prominence that is now being given to the rôle of chemotherapy.

Wells and Hedenburg have shown that the point of attack in the chemotherapy of tuberculosis, in contradistinction to that of all other forms of chemotherapy hitherto attempted, is a region poor in blood vessels, namely, the tubercle. This explains the negative results obtained in all the empirical attempts at chemotherapy in this disease, the failures being attributed to the inability of the chemical agents to gain access to the nonvascular areas. Another factor that accounts for the futility of a therapia sterilisans magna in tuberculosis is the circumstance that the tubercle bacillus unlike other microorganisms has a peculiar fatty and waxen envelope. Of prime importance, therefore, was the investigation of the permeability and lipoid-solubility of the tubercle bacillus. It was found that the administration of iodides to tuberculous animals led to a deposition of considerable amounts in the tubercles and caseous foci, but not to any greater extent than in necrotic non-tuberculous foci in other animals. In other words, the affinity of tubercles for the iodides is not a specific one, and is the expression of a physico-chemical phenomenon rather than of a chemical reaction.

Considerable light has been thrown upon the subject by the investigation of the vital staining of the tubercle bacillus. Corper fed tuberculous guinea-pigs with fat-soluble dyes, but could not detect even traces of these substances in the bodies of the tubercle bacilli. Such dyes as sudan III, scarlet red, etc., would stain the depot fat in the body, but would not stain the cells of the parenchyma. Lydia M. de Witt made a thorough investigation of the subject of the vital staining of the tubercle bacillus. She found that in guinea-pigs trypan blue, trypan red, isamin blue, methylene blue, etc., penetrate the tubercle. They are well borne by the animal, provided the dose is not too large. The tubercle bacillus is likewise stained by methylene blue, basic fuchsin, crystal violet, erythrosin, and eosin. With skepticism, however, is regarded von Linden's report of a curative action of methylene blue in tuberculosis. Although this drug has a bactericidal action upon the tubercle bacillus no definite therapeutic results have been obtained with its administration in tuberculous animals.

The efficacy of copper compounds in the therapy of tuberculosis has not been proved. Corper, de Witt, and Wells could not detect any special bactericidal property in the copper compounds, including the lecithin preparation for which strong claims have been made. Nor has Corper been able to detect any special affinity of the copper compounds for the tubercles. In fact, colloidal copper does not penetrate the tubercle. The crystalline compounds of copper are converted into the colloidal form immediately after administration. Wells and Hedenburg have shown that colloids are unable to gain access either to the tubercles or to necrotic foci.

Although the results thus far obtained in the chemotherapy of tuberculosis are far from encouraging, it is to be hoped that investigations along this line will be continued with increased energy and will yield results of definite practical value.

POSTURE AND DIGESTION IN INFANCY.

THE "modern method" of bringing up the baby is in many ways radically different from the "old-fashioned" method and in none more so than the question of feeding. Old sayings and grandmother's advice are here all firmly entrenched and the conflict between the young mother and the grandmother at times becomes acute. The physician trained in the scientific school is only too apt to laugh at the old-fashioned empiric advice and yet it is probable that each old saw has at heart the necessary grain of truth that keeps it alive. For many years the modern teaching was that an infant, after feeding, should not be joggled about, but should be laid in its crib and allowed to go to sleep. Only too often the child refused to sleep, but lay and howled lustily to the disturbance of the neighbors and the distress of the mother. The mother is greatly chagrined if the grandmother picks the child up, holds it on her shoulder a minute and pats it gently and then sees it go to sleep almost as soon as it is laid upon the bed.

The old lady would say that the trouble was due to gas in the stomach and Smith and LeWald have recently shown (*American Journal of the Diseases of Children*, 1915 IX, 261) by the use of radiographs that she was right. They explain how an infant taking liquid food is unable to avoid swallowing a certain amount of air with each act of deglutition and then present radiographs that show stomachs often enormously dilated, largely with gas, immediately after feeding. This gas on analysis proves to be air, for only in cases of extreme gastric stagnation is the gas formed in the stomach. As soon as the child is held erect and patted gently

on the back it eructates the gas and becomes quiet and the radiograph shows that the stomach is now contracted down upon and is completely filled by the food. This process is due in a measure to the relation of the parts so that if the stomach is partially filled with fluid and the child in the horizontal position, the gastric contents rise above the esophageal opening, forming a good water-trap and preventing the escape of the gas into the esophagus. The authors above mentioned are firmly convinced that many cases of vomiting are due to this gastric distention and that it is better for the child to take its feeding rapidly, for then the number of swallowing acts are fewer and the amount of air in the stomach is less. Vomiting hitherto thought to be due to too rapid feeding they think is due rather to overfeeding. In hospital patients who are permitted to lie in bed for long periods a chronic dilatation may result. The importance of thus holding the child erect after the feeding is one that is apparently neglected by most of the textbooks, and in view of the erroneous teaching of the past it is worth while to lay some special emphasis on the subject at this time.

TISSUE TRANSPLANTS AS HEMOSTATICS

In July, 1914, Horsley called attention to the value of a small bit of muscle or other tissue as an efficient hemostatic when placed in contact with a bleeding point. He was not the first, however, to suggest the use of tissue transplants in the treatment of the bleeding following injury to various organs. Levy, Boljarski, and Girgolaw proposed the use of free transplants of the omentum in the treatment of hemorrhage from the liver, and this method has been employed with success by others in the treatment of wounds not only of the liver but also of the spleen and kidney. Fat has also been used in the same manner in the treatment of similar injuries. During the past year a number of investigations have been conducted along this line. Waljaschko and Lebedew have shown the feasibility of staying the hemorrhage from wounds of the liver by means of transplants of superficial fascia from the abdominal wall. Läwen and Jurasz have reported the results of their experiments in controlling the hemorrhage from wounds of the heart and other organs with the aid of bits of muscle superimposed upon the wound.

Augusto Pignatti (*Il Policlinico*, January, 1915) has performed a series of investigations on the rabbit and guinea pig in order to test the comparative value of different tissues as hemostatics. He found that there is no difference in hemostatic power between transplants of omentum, fat, aponeurosis, and muscle in the treatment of wounds of the liver, kidney, and spleen. In studying the fate of the transplanted tissue it was found that this is subsequently replaced by newly formed connective tissue. Similarly good results in hemostasis were obtained with the use of a nonliving, organic, absorbable substance such as the ordinary sponge, which has the advantage of absorbing blood, and by its increase in size, exerting a light compression on the bleeding point. The sponge is similarly replaced later by new connective tissue.

SOME PHASES OF THE AFTER TREATMENT IN ABDOMINAL OPERATIONS.

The after treatment in the case of a serious operation is as important to the welfare of the patient as the performance of the operation itself. Indeed, however skilfully an operation may have been performed, if the subsequent supervision of the patient is not carefully and competently carried out, the skill of the operator will go for naught. Therefore a great deal of the responsibility for the successful outcome of, for instance, an abdominal operation, will fall upon the local practitioner. Reference is made to those cases which are operated upon in a country district and to treat which the surgeon has to travel a considerable distance.

In the *Medical Press and Circular*, Feb. 17 and 24, 1915, is published a paper on the after treatment of abdominal operations by Mr. Albert Carless, Professor of Surgery in, and Surgeon to King's College Hospital, London. With regard to feeding after abdominal operations, it is pointed out that this has undergone great modifications in recent years as a result of increasing confidence in aseptic technique. Formerly patients were starved for nearly a week; now the surgeon's desire is to restore the normal activities of the intestinal canal at the earliest date, and where there has been no interference with the continuity of the bowel there is not the slightest reason why the patient, if he desires and feels capable of taking it, should not be given his ordinary food the next day. As for the quenching of thirst, this is best relieved by the administration of saline solution by the bowel, either continuously or in doses of a pint at a time at six-hourly intervals. In enteroanastomosis a little more care has to be taken with the administration of food, but even in gastroenterostomy the present-day methods of suture are so perfect that the risk of leakage need hardly be taken into consideration. Carless recommends as purgative measures that a turpentine enema be given on the day after operation when the patient generally suffers from distention and some colicky pains. On the second or third day an ordinary routine purgative is necessary in most instances, and the patient may be given castor oil or calomel. Subsequently the bowels are kept acting daily by senna, cascara, or some other mild laxative.

It is important after an abdominal operation to stop or abate vomiting, which is, of course, a common sequel. Carless in such a juncture mainly pins his faith to turpentine enemas and believes in lengthened rest in the treatment of the external wound and as a means of strengthening the abdominal wall. Exercise must be taken with discretion, as one has to steer the patient between the Scylla of inaction and the Charybdis of overexertion.

CONTROL OF MALARIA.

Oiling of water surfaces in order to prevent the spread of malaria should be a supplementary measure to proper drainage. But when funds are not available for drainage, oiling will largely control the propagation of mosquitos. Dr. J. A. A. Le

Prince, Sanitary Engineer U. S. Public Health Service, writing in Public Health Reports, Feb. 26, 1915, points out that the object to be attained in using petroleum or other oils is to destroy the larvæ of mosquitos. To effect this object the surface of the water must be completely and continuously covered with a film of oil. The results thus produced in preventing mosquito breeding are: (1) Where mosquito larvæ are present such larvæ cannot penetrate the oil film with their breathing tube, and therefore die, and (2) mosquitos do not lay eggs on the oiled surface of the water.

Oil may be applied to water surfaces of pools, ditches, streams, shallow lagoons, and edges of deep ponds, lakes, and rivers, when necessary. Larvæ of mosquitos are not found in bodies of water of considerable depths, unless aquatic plants, algæ, or debris are present, but are seen near the banks of such bodies of water. Oiling is not advisable in such cases when the film will not remain effective, as just before rainstorms.

The writer describes the various methods of oiling water and points out that it is advisable wherever possible to have a map of the district showing the location of all streams, ditches, pools, and other possible mosquito-production areas. The employment of oil cast on water to prevent the spread of malaria has everywhere been attended with highly satisfactory results, but, undoubtedly, as Le Prince shows, it must be carried out carefully, with due attention to details, to bring about the best results.

Formation of Bone Callus.

This subject is in a rather confused state at present. Much work is being done in animal experiment, but the deductions therefrom are somewhat conflicting. In man we have a new teaching based on *x*-ray studies, and it is evident that the entire subject will have to be rewritten with incorporation of much material hitherto disregarded. At a meeting January last of the United Medical Societies of Berlin (*Münchener medizinische Wochenschrift*, February 2) von Hansemann denied the old belief that callus production is superabundant. In the modern day of more accurate coaptation by aid of *x*-rays much less callus is formed than in the old days. As a rule, the greater the lack of coaptation, the greater the production of callus. In addition to coaptation and even more important is muscular pull. When this is present more callus is formed. In other words, whatever favors consolidation tends to do away with the need of callus. Broken bones under certain conditions can unite without callus formation. This can be studied in the skull bones. Large fractures with great displacements may heal so thoroughly without callus formation that the fracture line cannot be discerned. As muscular pull is so important a factor the prognosis for healing must be better in proportion as the break is distant from a muscular insertion.

Synthetic Camphor.

A large volume could doubtless be compiled on the enforced substitution of drugs which has come about in history through warfare, tariff changes, monopolies, and numerous other causes. In the present war the Germans have been compelled to use all their technical skill to meet the deficiency of imported drugs. Synthetic chemistry is adequate so far as it goes, as well appears from a communication by Kaufmann to the military supplement of the *Muenchener medizinische Wochenschrift*, March 2. Medicinal camphor had before the war been obtained from Japan, and had been used exclusively in medicine despite the fact that records of the availability of synthetic camphor had been on file for ten years without having been published. Upon the failure of the imported drug the author at once began tests of the synthetic form and to date had treated forty cases of the most severe external lesions in which camphor acts as a sedative—varicose ulcers, cancer of the face, bullet wounds, furuncles, suppurated buboes, gummous ulcers, hard and soft chancres (some phagedenic). He found that synthetic camphor not only surpasses natural camphor in medical efficiency, but that it is of greater purity, a better disinfectant, and at present cheaper in cost.

News of the Week.

More Red Cross Surgeons Sail.—Five Red Cross surgeons and twenty-four nurses sailed for Europe last Saturday by the American liner *St. Louis*. With the exception of one of the surgeons, the party will go direct to Belgium, to report there to the Belgian Red Cross. The *St. Louis* carried also a great consignment of hospital supplies, including two complete field hospitals.

Belgian Relief Ship Torpedoed.—The Belgian Relief Ship *Harpalyce* was torpedoed and sunk in the North Sea near the coast of Holland on April 10, fifteen of her crew of forty-two being drowned. She had just discharged her supplies at Rotterdam.

Belgian Red Cross Suppressed.—The branch of the Red Cross operating in the part of Belgium under German control has been dissolved by the military governor of the country, its work being taken over by the Germans under Count Hatzfeldt-Trachenberg.

French Army Surgeons Slighted.—The War Department of France has ordered that the rank of the army surgeons be indicated by silver stripes instead of gold so as to avoid confusion between officers of the line and those of the medical corps. The surgeons say the silver stripes indicate that the wearers are non-combatants and they declare they must be considered as real combatants. This is supported by the fact that after the infantry the medical corps shows the highest average of killed and wounded.

To Enlarge the American Hospital at Juilly.—So many wounded are brought from the front to the hospital at Juilly, the auxiliary to the American Ambulance Hospital in Paris, that the accommodation is taxed, and preparations are being made to enlarge the institution from 130 beds, its present capacity, to 400. Dr. George Brewer of this city will, it is reported, go over in May to work in the hospital. A call has just come over for more nurses and more doctors.

American Ambulance Trains for Germany.—Three hospital trains, each of an automobile with two trailers, have been presented to the military commander at Frankfort-on-Main by friends of Germany in the United States. Mrs. Taylor, an American living in Frankfort, was chiefly instrumental in arranging for the gift. One of the trains will be attached to the army of the Crown Prince,

another to that of General von Hindenburg, and the third to the Eighteenth Army Corps.

For a New York Physicians' Ambulance.—The British War Relief Association has issued an appeal for subscriptions of $10 each for the purchase of another motor ambulance for the American Volunteer Motor-ambulance Corps operating on the battle line in France. The ambulance will be known as the New York Physicians' Ambulance. The treasurer of the fund is Mr. James Chittick, 132 West Twenty-seventh street.

The Belgian Red Cross.—In connection with the account by Dr. Gibson of Dr. Depage's Red Cross work in Belgium, published in another column of this issue, the following extract of a letter from this distinguished surgeon, President of the International Congress of Surgery which met in this city a year ago, is of interest. The letter appears in the *Boston Medical and Surgical Journal* of April 15. "The situation in which we find ourselves is truly tragic. The Belgian Red Cross finds itself confronted by conditions which are unique in its history. The country, after an heroic defense, has been almost entirely overrun; its cities destroyed, buildings annihilated; installations confiscated by the enemy; its resources wiped out. That is the sad picture it presents. The Belgian population has been compelled to flee the country; our wounded are forced to seek asylum in foreign lands. Others have told you, others will tell you again, of the pitiless character of this war. As for me, as a doctor, I wish during the war to occupy myself with but one thing,—the care of the wounded. My sole preoccupation is to save human lives, and sometimes to save what is more precious than life, when by preventive measures we can save the wounded from becoming crippled for the rest of their existence. And so I face the situation in which our Red Cross work finds itself in this war, and I seek for means to assure to our soldiers the care which they expect from us. We have before us a ravaged country which offers no shelter for our hospitals, no implements, no resources of any kind. We are, therefore, face to face with the necessity of reconstructing entirely our hospitals and ambulances and of furnishing them completely with all necessary supplies. . . . America, I know, has already given generously to Belgium. Encouraged by your brotherly sympathy, I ask you for still more, and I send you my faithful collaborator, Madame Depage, who accompanied me on my last visit among you. The Managing Committee of the Belgian Red Cross has appointed her for the purpose of organizing, in its name, an American-Belgian Committee which will centralize all contributions and forward them directly and promptly, so that we may continue our work and meet our needs."

Committee of American Physicians for the Aid of the Belgian Profession.—The following is report of the treasurer of contributions received during the week ending April 17, 1915:

Fort Wayne Medical Society, Fort Wayne, Ind.	$25.00
Ramsey County Medical Society, St. Paul, Minn.	25.00
The New Castle Physicians Club, New Castle, Pa.	10.00
The Harrison Co. Medical Society, Gulfport, Miss.	25.00
The Cumberland Co. Medical Society, Portland, Me.	25.00
The Waterbury Medical Association, Waterbury, Conn.	13.00
Dr. William T. Hamilton, Philadelphia, Pa.	5.00
Dr. Charles Alfred Dukes, Oakland Cal.	5.00
Dr. P. St. L. Moncure, Norfolk, Va.	5.00
Dr. R. T. Stratton, Oakland, Cal.	5.00
Dr. R. J. E. Scott New York, N. Y.	5.00
Dr. W. C. Cahall, Germantown, Pa.	2.75
Dr. Richard Dewey, Wauwatosa, Wis.	10.00
Dr. E. H. Ruediger, Manila, P. I.	10.00
Dr. Lucretius H. Ross, Bennington, Vt.	10.00
Mr. A. W. Burnham, Pittsburgh, Pa.	5.00
Receipts for week ending April 17.	$185.75
Previously reported receipts.	6,138.75
Total receipts	$6,324.50
Disbursements for week ending April 17, 80 Standard Boxes of food, at $2.30.	$184.00
Previously reported disbursements: 1,625 Standard Boxes of food, at $2.20.	3,575.00
1,114 Standard Boxes of food, at $2.30.	2,562.20
Total disbursements	6,321.20
Balance	$3.30

Examination for Clinic Physician.—The Municipal Civil Service Commission of New York announce an examination for clinic physician at a salary of $1,200 to $1,500 per annum. The duties are to supervise the various clinics (tuberculous, venereal, and antirabic) of the Department of Health. Hours of service are three hours daily, six days a week. Candidates must be 25 years of age or over, be licensed to practise in this State, and have had one year's experience as interne in hospital or sanatorium, or two years in out-patient work. Applications will be issued at Room 1400, Municipal Building, from April 15 to April 29, at 4 P.M. Four cents postage must accompany requests for application blanks by mail.

Dr. A. Jacobi Division of the German Hospital.—On Sunday of this week two new buildings of the German Hospital were opened with appropriate ceremonies. One building was for the use of private patients, the other was the children's hospital, to be known as the Dr. A. Jacobi Division of the German Hospital. The hospital, largely planned by Dr. Charles Goodman and made possible by a gift of $150,000 from Mrs. Anna Woerishoffer, is perhaps the most complete establishment of its kind in the world, containing all the best features of other children's hospitals and having a number of novel ones. At the opening exercises addresses were made by Mr. F. Achelis, president of the hospital association, Dr. A. Jacobi, Mr. George McAneny, president of the Board of Aldermen, Dr. G. Seeligman, president of the medical board, and Dr. Carl Eggers, president of the Junior League.

Presentation of a Portrait of Dr. Mall.—At the recent commemoration day exercises at the Johns Hopkins University an oil portrait of Dr. Franklin P. Mall, professor of anatomy, was presented to the university. The portrait was painted by Mr. Seyffert of Philadelphia. The presentation address was made by Dr. Lewellys L. Barker.

State Hospital Commission Abolished.—The Sage bill, legislating out of office the present State Hospital Commission and providing for the appointment of a single State Hospital Commissioner at $10,000 a year, passed the Senate last week.

No License for Christian Science Healers.—The New York Assembly has defeated the bill of Assemblyman Thorn which would have exempted Christian Science healers from the medical practice act requiring the examining and licensing of physicians. The vote was 46 for the bill to 79 against. A similar bill last year passed both the Senate and Assembly, but was vetoed by Governor Glynn.

New York City Death Rate.—There were 1,934 deaths in this city during the week ending April 10, an increase of 103 over the preceding week. This rise is attributed to the prevalence of influenza causing an increase in respiratory diseases. The death rate for the first fifteen weeks of this year was 14.57 per thousand of population as compared with 15.50 for the corresponding period in 1914.

Health of the Canal Zone.—The February report

of Dr. Charles F. Mason, chief health officer of the Canal Zone, states that there were nineteen deaths from all causes among the employees in the Canal Zone during the month. Of these nine died from disease, or 3.15 per thousand, as compared with 4.38 for the preceding month, and 5.34 for the corresponding month of last year.

An Impostor.—Physicians are warned against a man at present or lately traveling through the middle West, who represents himself as an agent of the Victor Electric Company and after gaining the confidence of his victim induces him to cash a check which turns out to be worthless. Any one learning of the man's whereabouts is requested to telegraph (collect) to the company's office in Chicago.

Reappearance of an Old Friend—After a silence of eight months the *Progrès Médical* of Paris has resumed publication, the first issue being dated August, 1914—March, 1915. For the present the journal will appear as a monthly, the weekly publication being deferred until tranquillity is re-established.

"American Journal of Surgery."—The March number of this interesting journal is entirely devoted to the subject of fractures; and is also noteworthy in that it marks the completion of ten years of publication under the present highly efficient editorial and business management. Contributors of original articles include: Sir W. Arbuthnot Lane, and Drs. Albee, Darrach, Walker, Zimmermann, Cotton, Downey, Estes, Pirrung, Ashhurst, Young, Lilienthal, Moorhead, and Marcy. As would be expected with this array of talent, this symposium is one of great value to the general practitioner, who is usually the first to see fracture cases, as well as to the surgeon.

The New York Polyclinic Medical School and Hospital has recently received an endowment of $50,000 by the will of the late Mrs. Mary Anna Palmer Draper, and $10,000 as a gift from a member of the Board of Trustees of the institution.

Dr. Herman Grad has been appointed attending surgeon to the Woman's Hospital, New York.

The National Commission of Milk Standards will hold its annual meeting in New York City on May 7 and 8.

Beriberi on a German Warship.—The *Kronprinz Wilhelm*, the German converted cruiser which sought shelter in Hampton Roads, Va., on April 11, had 63 cases of beriberi among her crew and 31 cases have developed on board since that time.

In Aid of Cancer Research.—At a meeting of the Harvard Overseers on April 14, announcement was made of gifts and legacies amounting to $72,908 to be devoted to cancer research at the Harvard Medical School.

The American Medico-Pharmaceutical League.—The eighteenth annual convention of this Society will be held at the Hotel Astor, New York, on Monday evening, May 24. Persons desiring to read papers at this meeting are requested to send the titles of the same to Dr. Samuel F. Brothers, chairman of the executive committee, 96 New Jersey Avenue, Brooklyn, N. Y. Members of the New York State Medical Association, of the State Dental Association, of the State Pharmaceutical Association, and other non-members of the American Medico-Pharmaceutical League, are invited to attend and to present papers.

Charitable Bequests.—By the will of the late Marcus Katz of Philadelphia, the sum of $200 is bequeathed to the Jewish Hospital of that city.

By the will of the late Edward Dale Toland of Philadelphia the sum of $5,000 is bequeathed to the Chestnut Hill Hospital and $1,000 to the Children's Hospital.

By the will of the late Matthias B. Colton, of Philadelphia, the sum of $1,000 is bequeathed to the hospital of the University of Pennsylvania for the maintenance, housing and enlargement of the social service of the out-patient department.

Association for the Study of Epilepsy.—The National Association for the Study of Epilepsy and the care and treatment of epileptics will hold its fourteenth annual meeting at the Hotel Chamberlin, Fortress Monroe, Va., May 10, 1915. Immediately following are the sessions of the seventy-first annual meeting of the American Medico-Psychological Association.

Dr. B. F. McGrath has resigned his position on the staff of the Mayo Clinic, Rochester, Minnesota, to take charge of the laboratories of pathological and surgical research in Marquette University, Wisconsin.

Dr. Philip J. Castleman has been appointed director of the bacteriological laboratory of the Boston Board of Health to succeed Dr. James J. Scanlon, who died a short time ago.

Dr. Andrew Hunter of the medical department of Cornell University has accepted an appointment to the chair of pathological chemistry in the University of Toronto.

The Late Dr. Joseph H. Raymond.—The Faculty of the College of the Long Island College Hospital has adopted a memorial minute on its late associate Prof. Joseph H. Raymond, Secretary of the Faculty, from which we select the following facts regarding a busy professional life: Dr. Raymond was born in Brooklyn, N. Y., November 18, 1845. He received his preliminary education at the Brooklyn Polytechnic Institute and was graduated from Williams College in 1866, receiving his A. M. degree three years later. He was a graduate in medicine of the Long Island College Hospital in 1868 and of the College of Physicians and Surgeons in New York in the following year. After graduating in medicine he served on the staff as interne of the Nursery and Child's Hospital and of the Idiot Asylum on Randall's Island, and subsequently in the Brooklyn Hospital. He spent several years in general practice, but his taste led him to devote all his time to the teaching of physiology and sanitary science and so to further the interest of the community in preventing rather than curing disease. He was for many years connected with the Health Department as Sanitary Inspector, Sanitary Superintendent, Deputy Commissioner and Commissioner of the Brooklyn Board of Health. Dr. Raymond filled the position of secretary of the faculty of the Long Island College Hospital for nearly thirty years. It was at his suggestion that the late Mrs. Theodore Polhemus, when generously donating a fund for the erection of the Polhemus Memorial Clinic in memory of her husband, added to the clinic building sufficient space to be used for the instruction of students; so that the college has, through Dr. Raymond's foresight, a structure that is admirably equipped for both teaching and clinical work. Besides his work in and for the Long Island College Hospital, Dr. Raymond was interested actively in general and medical education as a trustee of the Brooklyn Polytechnic Institute, a director of the Brooklyn Eye and Ear Hospital, editor for several years of the *Brooklyn Medical Journal;* au-

thor of "History of the Long Island College Hospital and Its Graduates," and a standard work on physiology, as well as numerous papers on medical and sanitary subjects. He served as secretary and treasurer of the Hoagland Laboratory and secretary of the Polhemus Memorial Clinic. He was at one time medical examiner for the New York Board of Education. He was a member of the Medical Society of the County of Kings, New York Physicians' Mutual Aid Society, vice-president of the American Public Health Association, and visiting physician, St. Peter's Hospital. Personally Dr. Raymond was a charming companion and associate —alert of body, quick in thought, word and action. He thought the present times were better than the past and the future times would be better than the present. Courteous and considerate of one's feelings, he endeared himself to the students of the college and all of the members of the faculty who have for so many years been associated with him.

Obituary Notes.—Dr. JULIUS MOUNT BLEYER, of New York, a graduate of the Bellevue Hospital Medical College, New York, in 1883, and an LLD. of Central University of Indiana, the originator of the present method of electrocuting criminals in New York State, vice-president of the American Congress on Tuberculosis, 1901-04, a fellow of the Royal Academy of Medicine and Surgery of Naples, Italy, a corresponding member of the National Academy of Medicine of Mexico, a former fellow of the American Medical Association, and a member of the American Association for the Advancement of Science, the American Academy of Political and Social Science, and the Medico-Legal Society, of which he had been vice-president since 1903, died at his home, on April 3, aged 56 years.

Dr. HENRY OSTHUES of Brooklyn, N. Y., a graduate of Niagara University, Medical Department, Buffalo, N. Y., in 1894, died at his home on April 4, aged 46 years.

Dr. JAMES GUYON CLARK of West New Brighton, Staten Island, New York, a graduate of the College of Physicians and Surgeons, New York, in 1845, formerly physician to Bellevue Hospital and attending physician to the Home for Destitute Seamen, Snug Harbor, and a member of the New York State and Richmond County Medical Societies, died at his home on April 9, aged 90 years.

Dr. ERNEST PENDLETON MAGRUDER of Washington, D. C., a graduate of George Washington University, Department of Medicine, in 1902, clinical professor of surgery at the Georgetown University School of Medicine, Washington, and a member of the American Medical Association, the Medical Society of the District of Columbia, the Surgical Society of Washington, and the American College of Surgeons, died at Belgrade, Serbia, from typhus fever, on April 8, aged 40 years. Dr. Magruder went to Serbia a short time ago with one of the Red Cross units, and is the second American surgeon to fall a victim to the disease, the death of Dr. James F. Donnelly of Brooklyn having been reported a few weeks ago.

Dr. WILLIAM C. CROOKS died at Philadelphia on March 14 at the age of 65 years as a result of an apoplectic seizure. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1866.

Dr. JULIUS PAUL LAUER died at Philadelphia on March 16 at the age of 36 years, as a result of an attack of typhoid fever. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1908. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. HENRY WALBANK JONES, formerly of Houghton, Mich., a graduate of the Rush Medical College, Chicago, in 1876, died at the home of his daughter, in Short Hills, N. J., on March 21.

Dr. STEPHEN BENJAMIN MUNN of Waterbury, Conn., a graduate of the Georgia College of Eclectic Medicine and Surgery, Atlanta, in 1882, and of the Bennett Medical College, Chicago, in 1888, died at his home on March 22, aged 88 years.

Dr. PHILIP M. WOOD of Jamaica, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1876, surgeon to St. Mary's Hospital, Jamaica, and a member of the New York State and Queens-Nassau County Medical Societies, the Greater New York Medical Society, and the Associated Physicians of Long Island, died at his home on March 27, aged 60 years.

Dr. GEORGE S. CHALMERS of Galesburg, Ill., a graduate of the Physio-Medical Institute, Cincinnati, in 1878, a member of the Illinois State and Knox County Medical Societies, and for twenty years coroner of Knox County, died at his home on March 11, aged 69 years.

Dr. CHARLES JEWETT LINCOLN of Augusta, Me., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1895, and a member of the American Medical Association, the Maine Medical Association, and the Kennebec County Medical Society, died at his home, after a short illness, from blood poisoning, on March 14, aged 46 years.

Dr. TRISTRAM ROGERS of Plymouth, N. H., a graduate of the Worcester, Mass., Medical College, Eclectic, in 1855, died at his home, after a long illness, on March 18, aged 81 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WAR AND INCREASED COST OF VARIOUS MATERIALS—SHORTAGE OF DRUGS FEARED AND HIGHER PRICES OF SOME—GOVERNMENT CIRCULAR ON PREVENTING DECREASE OF SUPPLIES—EXAMPLES.

LONDON, April 2, 1915.

"THINGS are so dear," "the price of everything has gone up." These are phrases heard every day, in all directions about anything or nothing. It is true of most things and usually is put down to the war, which is certainly accountable for many. But one would scarcely have anticipated that the cost of drugs would generally be raised from the same cause. A diminished supply of those usually imported from countries affected by the conflict is natural enough, and such as are almost exclusively manufactured in such countries have been steadily approaching a state of scarcity. You will probably feel something of this on your side, especially as to those for the supply of which you have depended on Germany. The blockade, unless made a farce by our inefficient government must certainly interrupt to some extent the supply. Some drugs here are now six or seven times as costly as before the war and many are double, treble, and quadruple the former price. The advance in acetylsalicylic acid at the beginning of this week had been to seven times, and probably may not be limited to that. Acetanilid and phenacetine are quoted as only four times

more than the usual price, phenazone double. Salol and all the other salicylates are of course greatly involved. As to carbolic acid there is not only the demand for it at the front and in the army hospitals, but its necessity for the manufacture of lyddite. Another important drug in extra demand is opium and its chief constituent morphine, but though the price is on the rise it will not be likely to be excessive as India can furnish a supply, though it does not contain so large a percentage as the Turkey variety. The bromides and chloral hydrate are also twice as dear as formerly, apparently from scarcity. This has been the cause suggested for atropine advancing, but it seems very uncertain. The same may be said of many other drugs, but as to not a few there seems no reasonable explanation. English manufacturers have now an excellent opportunity of establishing their ability to produce alkaloids and other chemicals, but probably with their usual apathy will let it slip.

The Government issued a "confidential" circular to the medical profession on the supply of drugs as affected by the war, with some suggestions for economy which give rise to some criticism but seem generally to be received favorably. It is not the first communication of the kind from the Government, which last August appointed a committee of medical men to consider questions connected with the supply of medicaments, especially as to any of which the war had produced a shortage. Under the advice of that committee, which consisted of men in whom the profession has confidence, a circular was issued containing suggestions which have been generally accepted as measures which could be adopted by practitioners in order to prevent the stocks of those drugs which were getting small becoming exhausted. Since August the situation has undergone many modifications. Hence the issue of this new circular, which is intended to supersede its predecessor. It is not to be supposed that the medicaments named are so scare as to be withheld when they are really needed, but that in numerous cases there are efficient equivalents.

Carbolic Acid.—In view of the great demand for war purposes practitioners are invited to be as sparing as possible for other uses. For numerous cases cresol preparations are good substitutes, *e.g.* liq. cresoli sap. B.P., an excellent official preparation hardly yet enough appreciated; I would also mention hydrag, perchlor, and biniod., tincture of iodine, peroxide of hydrogen, etc.

The Salicylate Group.—It is suggested these might be restricted to acute rheumatism and its complications. I certainly agree that this is only reasonable; for in other cases in which it is often used it cannot be said to have much claim.

Local Anesthetics.—Novocaine, eucaine and compounds of them require the greatest economy.

Atropine.—As much or more may be said for this and it should only be used when definitely needed.

Thymol should be sparingly prescribed. Other antiseptics are just as good or better than it for mouth washes, gargles, etc., *e.g.* peroxide of hydrogen.

Wool Fat.—Lanoline and ointments made with wool fat should be substituted by others unless definite advantage is expected from it.

Paraldehyde is chiefly used in asylums and their medical officers are sure to act as the circular suggests. Phenazone, phenacetin, if useful as analgesics, are of little if any use as antipyretics, and for such use may well be discarded.

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 8, 1915.

1. The Patriotic and Humane Service of the Red Cross Nurse. Miss Mabel T. Boardman.
2. A Report on Some Cases of Perineal Prostatectomy. F. G. Balch.
3. On the Fixation of Fractured Bones in Infants and Young Children. E. H. Bradford and R. Soutter.
4. Border-Line Cases of Mental Defect with Special Reference to Hysterical Symptoms. C. C. Beckley.
5. Somatic Characteristics of General Paretics. D. Gregg.

2. Perineal Prostatectomy. — F. G. Balch reports the results obtained in twenty-eight cases in which this operation was performed by him at the Massachusetts General Hospital. There were two deaths, one from peritonitis caused by perforation of the sigmoid, probably by a rectal tube. In these cases spinal anethesia was used, excepting in four instances, when ether was employed. One of the advantages of spinal anesthesia is the fact that the patients are old in whom it is desirable to avoid irritation of the bronchial mucous membrane. Another advantage is the fact that the patient can drink water immediately after the operation. Drainage tubes were removed usually on the second day. Hemorrhage was a negligible factor.

3. Fixation of Fractured Bones in Infants.—E. H. Bradford and R. Soutter allude to the difficulties of securing fixation of fractures in infants and young children. These are particularly evident in the case of fractures of the upper third of the thigh. The authors describe a method of fixation which they have employed in fractures of the upper arm and of the femur. It is as follows: By means of a long bone drill, with an eye at the point, the broken bone is pierced and strong 30-day catgut threads passed through the eye of the needle thrust through the skin. On withdrawing the needle the catgut is pulled through the bone. No dissection is necessary as the bone drill is readily thrust through the skin down to the bone. Palpation and the skiagram are sufficient guides for the proper placing of the catgut in the fragments of the bone. Any needed number of catgut cords can be passed. The skin is protected by a layer of fat-free leather, which will soften when wet and harden rapidly into stiffness. This leather soaked in alcohol is sterilized, and placed around the limb and the catgut threads passed through it. Small wood coaptation splints are then placed in desired places pressing on the side of the limb, one to check a forward and backward movement of the fragments, and another to prevent sideplay. Traction is then applied to the limb, the coaptation splints held in position, the catgut threads passed through the fractured bone are tied to the coaptation wood strips, thus firmly lashing the fragments in proper position to a firm splint; over the whole a second layer of alcohol softened leather can be placed, held by a firm bandage, and the limb secured in a wire splint. The leather softened in alcohol hardens quickly on the evaporation of the alcohol and in a short time the fractured limb is held in a firm leather splint. The position can at any time be determined by a skiagram. In the cases (young children) in which the method was used the leather splints and wood side splints were removed in four weeks, the catgut having softened and the fracture being firmly healed. The treatment involved no more complication than in the simple method formerly used, while a proper alignment of the fragments was secured without delaying the functional activity of the limb.

4. Borderline Cases of Mental Defects.—C. C. Beckley describes a series of these cases which have

certain qualities in common. First, they are all delinquents. They have been judged and committed as such by the courts. Second, they are only partially responsible for their acts, and have no relatives or friends who are able to control them. Third, the hysterical symptoms, the exaggeration of symptoms due to physical defects and the simulations of disease oftentimes increase their inability to compete with other more fortunate individuals in earning a living. These patients are a prolific source for the spread of venereal diseases. They do not belong in a reform school, as they cannot be reformed. They upset the discipline, and are a detriment to the best interests of others who can be helped. They do not, as a rule, belong in an insane hospital or a feeble-minded school. The expense of proper custodial care would be much less to the State than under the present unsatisfactory system when one considers the time taken by the courts, probation officers, police, their intermittent control in more expensive State institutions, etc. Custodial care is demanded for the more definite cases of this type.

5. **Somatic Characteristics of General Paretics.**—D. Gregg notes that there is considerable evidence to show that individuals of the so-called carnivorous type are particularly susceptible to diseases of the nervous system. In a study of 100 cases, diagnosed clinically as general paresis, among whom 81 showed a positive Wassermann reaction in the spinal fluid, and the remaining 19 a positive Wassermann reaction of the blood, while the spinal fluid was suggestive or untested, the hypothesis that these cases were of the carnivorous type was supported by the fact that 83 per cent. of them were Northern races; 68 per cent, normal or above normal in height, and 82 per cent. averaged 23.1 pounds subnormal in weight. The hitherto unexplained discrepancy between the many cases of syphilitic infection and the small percentage of syphilitic individuals developing general paresis, may be explained, not on the hypothesis that there are varying strains of spirochetes, or coincident environmental strains, alcohol or other intoxicants, but that only a certain type of individual is susceptible to syphilis of the nervous system.

New York Medical Journal.

April 10, 1915.

1. The Trials and Triumphs of the Surgeon. J. Chalmers Da Costa.
2. The Colloidal Gold Test on Spinal Fluid; in Paresis and Other Mental Diseases. C. J. Swalm and A. L. Mann.
3. The Ataxia of Tabes. M. Grossman.
4. The Treatment of Puerperal Sepsis. R. T. Frank.
5. Splanchnic Neurasthenia and Its Treatment. A. B. Hirsh.
6. Chronic Nephritis. A. W. Hollis.
7. The Medical Records of the Indian Campaigns of Generals St. Clair, Harmar, and Wayne. O. Juettner.
8. The Normal Nasal Septum and the Pathology of Deflections. F. O. Lewis.

1. **Trials and Triumphs of the Surgeon.**—J. Chalmers Da Costa discourses upon this subject in a witty and epigrammatic vein. He quotes Paget's figures, which show that almost one-third of any class of students make a mistake when they select medicine for a profession, and is disposed to believe that Paget's estimates apply today. It is vastly to the credit of the profession that few leave it to go into quackery. Vanity is one of the most potent causes of failure. The vain man in surgery is a deadly peril. Real success comes only from persistent hard work. Some of the apothegms, aphorisms and epigrams that have crystallized in the mind of the author are the following: Many a man who is brooding over alleged mighty discoveries reminds one of a hen sitting on billiard balls. A fashionable surgeon, like a pelican, can be recognized by the size of his bill. Diagnosis by intuition is a rapid method of reaching a wrong conclusion. A man who pays his surgeon many gleaming compliments seldom pays him anything else. The public has an idea that a consultation is a meeting of accomplices. The first patient the author ever had stole his only umbrella.

2. **The Colloidal Gold Test on Spinal Fluid.**—C. J. Swalm and A. L. Mann have found in their work with psychiatric cases that all reacted to the extent of one or two plus in the first tubes, and hence no reaction less than three plus or dark blue was recorded as positive. In paresis, the test is of great value in diagnosis, at least ninety per cent. of the cases providing the typical curve, the true specificity of which the authors doubt. The goldsol test should be used in conjunction with the serum and spinal fluid Wassermann reaction, globulin tests, and cell count, as a more delicate method of interpreting their results and to correct them when they fail. The authors' cases of tabes furnished a marked luetic curve in fifty per cent.; the cases of cerebrospinal syphilis in sixty per cent. Nonluetic psychoses produce weak reactions, without characteristic curves.

3. **The Ataxia of Tabes.**—M. Grossman notes that the clinical observations made by most writers reporting the effects of blindness on the ataxia of tabes, and the results obtained in these and other cases treated along the same lines, show the rationality of reeducating ataxic tabetics blindfolded. By this method of treatment, one rapidly increases the actual coordinating power of the patients. The psychic components of ataxia, such as fear and fatigue, are decreased. Hope and confidence are instilled into a class of patients who heretofore have received little or no encouragement.

4. **Treatment of Puerperal Sepsis.**—R. T. Frank states that in most cases a rise in temperature in the puerperium is transitory and of little significance. Many a light infection is converted into serious or fatal disease by meddling. If the patient shows signs which might be interpreted as infection—fever, rapid pulse, malaise, etc., the breasts should be examined for induration, the kidneys palpated for signs of pyelitis, and the urine examined for pus. The patient's chest is gone over, the amount of lechia determined, the bowel function inquired into. The genital tract is not examined for one knows that the uterus is empty. At the most, one carefully inspects a sutured perineum to see that signs of infection are absent. Should local tenderness, a drop of pus along a stitch hole and edema be present, all perineal sutures are removed; the wound is opened, touched up with half strength tincture of iodine, and lightly packed with iodoform gauze. If no improvement occurs, one does not irrigate the uterus to combat retention, or curette away the protecting granulation tissue, and occluding placental thrombi. One does not grasp the cervix and pull it to the outlet, breaking up delicate adhesions around the tubes and ovaries which encapsulate a forming tuboovarian abscess. One should wait for distinct signs, for local symptoms which require interference. The intervening time is, however, well spent. The general condition is improved by open air (roof) treatment, by careful attention to the diet (easily digested, nutritious), by keeping the bowels and kidneys active. Involution is assisted by small, repeated doses of ergot, and as long as the fundus is palpable above the promontory, by an ice bag and the Fowler position. Should stimulation be required, drugs such as caffeine, camphor, and digitalis are used. Quiet and sleep are induced by hypnotics, and pain is combated with ice bag, codeine, or morphine. Should local symptoms develop, these are dealt with only as they arise.

Pus foci, such as pelvic abscesses, abscess above Poupart's ligament, or even tuboovarian abscesses are merely drained when they distinctly "point." Phlebitis in the lower extremities is treated by immobilization, elevation of the limb, and absolute quiet. Even pelvic phlebitis the author does not attempt to cure by abdominal section and ligation of the veins. When blood culture shows a bacteriemia, the waiting policy is equally effective. Virulent cases of streptococcemia, which are usually fatal within two to three weeks, may be given a polyvalent antistreptococcus serum, which sometimes, though rarely, helps. Staphylococcus and colon infections are frequently cured after a more or less protracted illness, during the course of which metastatic abscesses, in distant organs (kidney, muscles, eye) may require incision. In those cases in which exudates develop around the uterus recovery almost invariably follows. Pelvic abscesses are common sequelæ. In cases admitted to the hospital or seen in consultation, in which the conduct of the labor, especially the complete expulsion of the placenta, is in doubt, the temptation to explore the uterus is almost uncontrollable. Unless the size of the uterus is unmistakably far greater than that warranted by the number of days elapsing since labor, this organ should be left untouched. Only if very great disproportion exists, indicating retention of the greater part of the placenta or the presence of a fibroid is very gentle digital exploration permissible.

8. Deflections of Nasal Septum.—F. O. Lewis calls attention to three forms of deviation, which have been forcibly impressed on the author because of the local and constitutional symptoms they produce, the difficulty often encountered in their correction, and the gratifying results obtained after operation. First, a deviation of the quadrilateral cartilage caused by injury, in which the cartilage has been fractured or dislocated in such a manner that the convexity of the deformity obstructs one side of the nose; and the free border of the cartilage, projecting into the opposite nostril, partially or completely obstructs the other side, with perhaps a compensatory hypertrophy of the inferior turbinate, which adds to the discomfort of the rhinologist as well as of the patient. To correct this, the entire cartilage, especially if there is a twisting of the tip of the nose, has to be removed; and this is one type of cases in which the author has had excellent results in the transplantation of cartilage. The second type of deflection is usually found near the floor of the nose, extending from within the vestibule of the nose to almost the posterior nares, comprising both cartilage and bone, with overlapping of each and a groove on the opposite side, impinging against the inferior turbinate, interfering with drainage and ventilation, and associated with Eustachian catarrh and subsequent deafness. The third type of deflection is that of the vertical plate of the ethmoid, impinging against the middle turbinate, which may be hyperplastic, giving rise to such reflex symptoms as hay fever, asthma, headaches, neuralgic pains about the face, and cough.

Journal of the American Medical Association.

April 10, 1915.

1. Schick Reaction, with a Report of Eight Hundred Tests. H. N. Bundesen.
2. Some Observations of the Schick Test. C. Graef and G. Ginsberg.
3. The Intradermic Diphtheria Toxin Test. E. E. Moody.
4. The Superstition of Flat Foot. The High Versus the Low Arch as a Cause of Painful Symptoms in the Foot. R. W. Lovett.
5. The Prevalence and Prevention of Insanity. C. W. Burr.
6. Prevention of Beriberi Among Philippine Scouts by Means of Modification in the Diet. W. P. Chamberlain.
7. Cooperation in Public Health Administration. G. F. Ruediger.
8. Pituitary Extract in Obstetrics. J. K. Quigley.
9. Wounds Received in Battle; Surgical and General Observations Made During Recent Service in Austria. L. Mills.
10. The Spinal Fluid in Pneumonia. G. L. Rohdenburg and A. Vander Veer, Jr.
11. What is the Present Status of Autoserum in Skin Diseases? M. L. Ravitch.
12. Mushroom Poisoning. Some Observations in a Case Due to Amanita Phalloides. M. Clark, E. K. Marshall, Jr., and L. G. Rowntree.
13. Motor Aphasia, with Fracture of the Base of the Skull. J. W. Churchman.
14. Separation of the Epiphysis of the Small Trocanter of the Femur. Two New Instances of a Rare Lesion. C. R. Metcalf.
15. Trichotillomania. J. C. Martin.
16. A Case of Diaphragmatic Hernia Diagnosed by Roentgen Ray. C. C. Grandy.
17. A Case of Fibroma of the Parotid. F. C. Yen.
18. Avulsion of the Scalp. T. W. Nuzum.
19. Extensive Destruction of Vulva and Adjacent Tissues Probably Due to Pneumococcic Infection. C. Powell.
20. Traumatic Interruption of Sciatic Nerves. A. H. Woods.

1. The Schick Reaction.—H. N. Bundesen concludes that by means of the Schick test one is in a position to tell definitely who are susceptible to diphtheria, and when an epidemic breaks out one can inject those and those only, paying no further attention to the ones giving a negative reaction. By it the danger of cross-infection is greatly decreased. Children with diphtheria that have had scarlet fever and are therefore immune to scarlet fever can be placed in scarlet fever wards when the inmates yield negative Schicks, etc. The reaction permits a great reduction in antitoxin bills. Much needless pain and annoyance of patients is avoided, and the possibility of anaphylactic shock is greatly minimized.

3. The Intradermic Diphtheria Toxin Test.—E. E. Moody finds the test is of definite value in enabling one to differentiate between persons who are susceptible to diphtheria and those who are not susceptible, and is therefore useful in determining which cases, of those to be placed in an environment where the liability to exposure is great, should be immunized. It is of value in the differentiation between clinically doubtful cases of diphtheria, positive reactions being obtained in clinical cases and negative reactions in carriers. It is useful in experimental work in determining the effects of various forms of immunization and the duration of immunity conferred by these methods. It has a definite value in the handling of diphtheria epidemics in institutions.

4. The Superstition of Flat Foot.—R. W. Lovett states that feet vary in shape as much as do our features; some are naturally flat, others have a moderate arch, and some a very high arch. Any foot may become painful from foot strain without any change in the height of the arch under unfavorable general conditions, overuse, ill health, etc. Boots are a predisposing factor to foot strain not only by cramping the foot, but especially by not supplying adequate support to the sole of the foot. For this reason persons with high arches are quite as liable to foot strain as persons with low arches, if not more so. When foot strain occurs, it is desirable to rest the tired structures by support, most often a metal plate. Exercises in acute cases and the use of a flexible shoe generally do harm rather than good. The author's final heresy consists in the belief that painful feet are more often helped by raising the heels than by lowering them.

8. Pituitary Extract in Obstetrics.—J. K. Quigley concludes that pituitary extract is the most powerful stimulant to uterine contraction yet discovered. Its greatest value is its use in uterine inertia. The ideal time for its exhibition is in the second stage, although good results follow its employment earlier; in these cases it is usually necessary to repeat the dose. No untoward results, such as postpartum hemorrhage or asphyxia were noted for mother or child in the author's

fifty cases. The drug shortens the third stage. It renders catheterization postpartum almost never necessary. It has no place in the normal case. Preparations for delivery should be made at the time of injection, such as sterilizing hands and gloves. The facilities for giving an anesthetic at a moment's notice are prerequisite, for one does not know the susceptibility of the uterine muscle in any particular case. Pituitary extract may advantageously be supplemented by seminarcosis when the presenting part is on the perineum. (This would naturally mean chloroform, ether, or pituitary extract. Nitrous oxide is contraindicated in scopolamine narcosis.) Pituitary extract must be used judiciously and with a due appreciation of the possible dangers of so powerful a uterine stimulant. This is the most important point.

10. The Spinal Fluid in Pneumonia.—G. L. Rohdenburg and A. Vander Veer, Jr., point out that pneumococci are present with much greater frequency in the spinal fluid than is usually thought to be the case without the presence of meningeal symptoms. The early lysis of pneumococci, with the liberation of the endotoxin and its close proximity to vital centers, may well explain the profound and sudden cardiovascular collapses, as well as the marked mental symptoms so often noted. Of good prognostic import are a negative blood culture, a negative spinal fluid culture, a falling curve of leucocytosis, and a maximum temperature on the third day. On the other hand, the finding of pneumococci in the spinal fluid and blood, a maximum temperature on the fifth day, an irregular leucocyte curve, with a maximum on the third day and a steadily falling blood pressure, are indications of a fatal termination.

11. The Autoserum Treatment of Skin Diseases.—M. L. Ravitch believes that autoserum is not an ideal or an effective remedy in skin diseases. It has been found by him to be ineffective in urticaria and chronic eczema. It gave striking results in a very obstinate case of psoriasis of thirty-two years' duration. Sixty per cent. of the cases of psoriasis did not respond at all to autoserum, while the rest of the subjects were benefited only temporarily. The author had as good temporary results from lecithinized serum, plain artificial serum, and injections of cacodylate of soda and mercury. In psoriasis none of the serums made any impression on the disease without the use of chrysarobin. Urticaria and pruritus were not materially benefited by serum of any kind. This is attributed to the fact that urticaria and pruritus are in all probability due to some focal infection or internal metabolistic disarrangements. A judicious and careful use of chrysarobin externally, with the employment of a suitable drug internally, is as efficient as the autoserum therapy.

12. Mushroom Poisoning.—M. Clark, C. K. Marshall, Jr., and L. G. Rowntree report a case of amanita poisoning in which the nervous and mental symptoms, which were pronounced and which are not infrequently present in this type of poisoning, accompanied renal insufficiency, and may well have been uremic in nature. Heretofore, the tendency has been to ascribe such symptoms to the influence of some peculiar "neurotoxin" of the fungus. Renal functional studies will probably prove these symptoms to be uremic in character.

The Lancet.

April 3, 1915.

1. The New Psychiatry. W. H. B. Stoddart.
2. Cerebrospinal Meningitis. With Notes on Two Epidemics. E. Norman Butler.
3. A Tampon for Controlling a Severed Intercostal Artery, with Other Possibilities. J. F. McMillan.
4. The Psychology of Traumatic Amblyopia Following the Explosion of Shells. J. H. Parsons.
5. Heterologous Transplantation; Mouse Tumors in Rats. W. B. Bullock.
6. Further Observations on Sperm Oil Tubercle Bacilli; Their Biological Significance. A. H. Miller.
7. Pneumococcal Infections Treated with Autogenous Vaccines. Nathan Raw.

1. The New Psychiatry.—W. H. B. Stoddart in the third of the Morison Lectures discusses various matters that have been elucidated by psychoanalytic methods respecting the neuroses, psychoneuroses, and psychoses. Freud recognizes two neuroses proper—viz., neurasthenia and the anxiety neurosis. Probably a few cases of hypochondriasis are due to the same etiological factors as these neuroses and should therefore be included in the same group. The term "neurasthenia" is now limited to a class of cases which exhibit very definite symptoms, the chief of which is an undue tendency to fatigue. In all cases of this kind, without exception, there is always to be found one essential etiological factor—viz., sexual excess. In the majority of cases this takes the form of masturbation, but in a few patients the disease is traceable to frequent nocturnal pollutions. Freud and all who have subsequently investigated the matter are agreed that the anxiety neurosis owes its origin to an accumulation of mental excitement which finds no somatic outlet, and further, that this excitement is almost always, probably always, of a sexual nature. Accordingly one meets with this neurosis among engaged couples who cannot afford to get married, in widows and widowers, in women whose husbands practise coitus interruptus (this is the commonest cause), in women during the climacteric whose husbands have reached senility, and in patients who with great effort have renounced masturbation. Since the advent of the new psychiatry many patients have been analyzed by modern psychological methods and the outcome has been the remarkable discovery that paranoia is a psychosis erected on the invariable basis of repressed homosexuality. Naturally enough the idea that a person has homosexual inclinations is usually repugnant to him; he refuses to admit it to himself, and it is repressed into the unconscious. Should such repression fail, the homosexual complex reappears in consciousness in the disguised form of paranoia or as dementia paranoides, for it has been shown that the same psychical mechanism is at work in this variety of dementia præcox, designated by Kraepelin in his most recent edition as "paraphrenia."

7. Autogenous Vaccines in Pneumonia.—Nathan Raw states that during the last five years he has treated in hospital and elsewhere 310 cases of pneumonia with vaccine, with 42 deaths, or a mortality of about 13 per cent. In many of these cases vaccine was administered on the second or third day of the disease, and was given every four hours or at longer intervals, according to the severity of the case, and although the results have not always come up to the author's hopes and expectations he has never once observed any unfavorable symptom follow the use of vaccine in whatever dose it has been administered. The much debated question as to whether or not a vaccine should be given in the course of an acute infective disease must, in the author's opinion, be answered in the affirmative, and during a recent visit to France he was much interested to find that acute cases of typhoid fever with high temperature were being treated with antityphoid vaccine with excellent results.

British Medical Journal.

April 3, 1915.

1. Acute Appendicular Obstruction: The Third Day in Acute Diseases of the Appendix. S. T. Irwin.
2. Autogenous Living Vaccine in the Treatment of Enteric Fever. With Notes of Six Cases. E. A. Bourke, I. D. Evans and S. Rowland.

3. Notes on a Modification of the Wassermann Reaction. With a Preliminary Examination of 102 Cases at the Northcote Police Hospital, Bombay. F. D. Bana.
4. Insects and War: The Mosquito. A. E. Shipley.
5. General Anesthesia for Eye Operations. T. Harrison Butler.
6. Myeloid Sarcoma of the Femur, with Pathological Fracture. W. S. George and A. H. Todd.
7. Treatment of Dry Pleurisy by Temporary Partial Artificial Pneumothorax. G. Lucas.
8. Notes on Two Cases of Angioneurotic Edema. F. L. Davis.

1. Acute Appendicular Obstruction.—S. T. Irwin concludes that acute diseases of the appendix may be divided into two classes—acute appendicitis and acute appendicular obstruction. To the latter class belong most of the tragedies of abdominal surgery. Safety lies only in the way of early operation—that is, before perforative peritonitis has supervened upon distention and gangrene of the appendix. Lastly, what of the third day in acute diseases of the appendix? Let us blot it out altogether, and rename it the first day—after operation!

2. Autogenous Living Vaccine in Treatment of Typhoid Fever.—E. A. Bourke, I. D. Evans, and S. Rowland having recently treated cases of enteric fever with vaccine and obtained satisfactory results, it occurred to one of them (S. R.) that better results might be obtained by employing autogenous living vaccine for each case. The clinical notes and temperature charts of the first successive cases treated by this method and the satisfactory results obtained suggest that the procedure will be given a more extensive trial. This method of injecting living bacilli in suitable doses is perfectly safe. The vaccine was injected subcutaneously—as a rule in the pectoral region—and was followed by very slight local reaction, but marked general reaction. No local or general complications were observed. The injection, as a rule, was followed by a rise in temperature within the first few hours, followed by a marked fall within twenty-four hours of inoculation. Careful notes were made, and in the authors' minds there is no doubt that this treatment had a beneficial effect and tended to cut short the duration of the disease. It promotes perspiration, the aspect of the patient becomes brighter after injection, and the tongue becomes much cleaner. The diagnosis was verified in all cases by blood culture. Several of the cases on admission to hospital gave the impression that the attack would be severe. The disease was in each case diagnosed by means of blood culture. For this purpose 5 c.c. of blood were drawn from the arm and immediately transferred to 1 per cent. sodium taurocholate. From this a broth culture was prepared, and the purity and identity of the growth verified by agglutination and sugar fermentation tests. The broth culture was reinoculated into fresh broth every day and itself constituted the vaccine. No further preparation whatever was employed. The age of the culture used was generally eighteen hours, and the number of bacilli contained in it was obtained by a direct method of counting which has been previously described by one of the authors. The average number of organisms ranged from 60 to 300 millions.

7. Treatment of Dry Pleurisy by Temporary Partial Artificial Pneumothorax.—G. Lucas reports a case which illustrates the benefit which may be derived from temporary separation of the two inflamed surfaces of pleura in a case of long-standing dry pleurisy by a layer of nitrogen, which in this way acts as a pneumatic splint, by means of which the inflamed parietal and visceral pleura may be put at complete rest, and conditions are produced under which repair and recuperation may be brought about—a condition which is not allowed them by Nature whilst they are in actual apposition. The length of time for which the so-called splint may be applied may be regulated by the requirements of the case.

Deutsche medizinische Wochenschrift.

March 11, 1915.

Rabbits for Human Consumption.—Schottelius states that rabbit flesh has of late been repeatedly suggested as a dietetic article for man; the impression having got abroad that it is cheap and nutritious. That they cost little to raise is a mistake. They eat more food values, pound for pound of body weight, than cattle and much more than swine. A hog will utilize twice as much fodder and will also eat waste materials. An experiment was conducted some years ago on the wholesale feeding of rabbits with garden vegetables and waste products, which proved a failure. A survey of the industry in raising Belgian hares in Belgium and France shows that the "giant hare," "butcher's hare" (or whatever else it is termed) consumes an enormous amount of fodder, while a female bears 50 young per annum. Hence one rabbit and her brood must, in order to thrive eat an enormous amount of vegetable food. If a hare with a "live weight" of 500 gms. is slaughtered it will weigh but 200 gms. after the heavy skin and intestines are removed. The pale glassy flesh has to be seasoned highly to make it palatable. But rabbit culture should not be abandoned, because it furnishes the boy, who is as a rule a zoophile, an ethical training in caring for the animals, and further tends to dispel some of the monotony of existence.

Shot Wounds of Peripheral Nerves.—Kirschner sums up a long article as follows: not every bullet wound of a nerve leads to a loss of function. The clinical evidences (not always present) of a nerve injury comprise: 1, motor paralyses of different degrees. 2, sensory paralyses. 3, radiating pains setting in at once or gradually after the injury. 4, vasomotor and trophoneurotic disturbances. The pathological conditions encountered in operative exposure may show a nerve imbedded in scar tissue, a nerve in contact with an irritating foreign body, a nerve torn across or thickened (perhaps irregularly). Finally, despite functional disorders we may find no pathological lesion at all. Operative therapy should not be undertaken before the expiration of six weeks if motor paralyses are present. Every case of motor paralysis which has not improved by the end of this period, and all other cases which have become worse must be subjected to operative isolation of the nerve with special emphasis on those cases in which the suffering grows progressively worse. Operative procedures involved include mobilization and following suture of individual nerves; implantation of segments of some foreign material between the ends of a resected nerve, neurolysis in an intact nerve and the enveloping of all traumatized nerve tissue in a sound tissue.

Combat Against the Louse Plague at the Front.—von Marschalko proposes the revival of an old remedy for this condition, to wit: rectified oil of turpentine. This destroys not only all kinds of lice but vermin of all sorts—roaches, etc. It destroys them by suffocation, clogging the respiration passages. Its advantages which are numerous are also obvious. In fact it may be said to have no drawback, save its odor. Although it kills parasites through the entrance of its vapor into the breathing passages it is said to be able to destroy all nits. Expensive silk shirts do not protect the officers who wear them from the body louse. Anisol is far too expensive. To economize with turpentine it should be sprayed when possible. It may be diluted to some extent with alcohol.

Insurance Medicine.

Relations of Life Insurance Medicine to Medicine as a Whole.—Gottstein refers to Florschütz's recently published work on life insurance medicine (Allgemeine Lebensversicherungsmedizin) as one which contains much more information than its title indicates. Thus the highly trained and progressive physician of the present day should realize fully that life insurance medicine is founded solely upon the empirical teachings of its own records of past decades and hardly at all upon comparatively recent scientific developments like bacteriology. But insurance medicine is not of course antagonistic to scientific medicine, because for the most part the latter simply presents old facts in a new manner; while insurance medicine candidly admits that it would enter the experimental field, if this were economically possible, to a limited extent and along certain lines.

Life insurance medicine is justified by the results obtained. Moreover in some respects scientific medicine in its progressiveness has assumed views which tend to uphold the oldest dogmata of insurance medicine which still constitute its foundation. We refer to the subjects of constitution and heredity, or, in other words, predisposition, which for a long time was threatened outright by the avalanche of bacteriological teaching.

It must not be taken for granted that this apparent antagonism between empirical and scientific teachings is a thing of yesterday, for it was most rife during the years following the general introduction of antiseptic surgery, when there was little thought of the patient's physique as long as the operation was aseptically conducted. Since that period the pendulum has been slowly moving in the opposite direction, and the old views of diathesis and other constitutional anomalies now have a scientific foundation.

To-day life insurance medicine possesses a value not only for experimental research but for the practice of medicine as well, or, in other words, all these aspects of medicine react freely upon one another and they can therefore be employed to check one another up.

Life insurance medicine must in a still more important degree be regarded as a benefactress for it deals with subjects beyond the scope of mere experiment, such as body habitus in its relationship with heredity. Life insurance medicine also furnishes documents of the greatest value to anthropology and biometrics. Here it is on a plane with all other subjects which have to do with observation *en masse*, such as military medicine, school medicine, protection of nurslings, etc. Such studies are cognate also with hygiene, social medicine, and legislation.

The subject of medical statistics, without reference to life insurance medicine, is a special study which can be carried out on a large scale on nonselected material and should naturally bear out the truth of the lessons drawn from insured material. Hence it is not a matter of chance that the old work of Westergaard on Morbidity and Mortality, as well as more recent productions of the same sort, furnish data which are of great value for life insurance, while conversely the vast figures of insurance medicine are of the greatest value for the general statistician.—*Blätter für Vertrauensärzte der Lebensversicherung*, Vol. V, No. 6, 1914, and Vol. VI, No. 1, 1915.

Periodic Examination of Supposedly Well Persons.—In a paper read before the Kentucky State Medical Association at Newport, September 22-25, 1914, Dr. Eugene Lyman Fisk, director of hygiene, Life Extension Institute, dealt with the periodic examination of supposedly well persons, and stated that on the whole the plan had been well received the average man is a pretty decent fellow. The fact in such examinations should be to uncover the workings of the human body and to secure a complete picture of the mechanism and of the conditions under which it exists. The methods of the Institute are explained at length. Dr. Fisk summarizes as follows: "At first glance some of the figures I have quoted may seem depressing, and raise grave questions as to whether the race may not be on the downward trend. I think we should take the opposite and optimistic view. On the whole, the world as we view it in passing seems pretty good, and the average man is a pretty decent fellow. The fact that an ordinary group of people, at an average age of thirty, taken, not from a hospital, but from one of the leading institutions of the world, is found suffering from so many disabilities which can be corrected, checked, or cured, points a way to sensible, practical, and easy methods of distinctly raising the general level of the vitality and well being of the race, which so many people, even life insurance experts, have thought was a fixed and unalterable quantity. The study of eugenics, and the utilization of this science in a conservative, rational, and scientific way to neutralize any possible ill effect on society as a whole from patching up the congenitally defective, should, of course, go hand in hand with the work. It should be remembered, however, that while saving the unfit, we are also improving the so-called fit, which is a powerful influence in keeping ahead of the game. Indeed, if we have faith in medical science we are able to see a vision of the superman, not as Nietzsche conceived him, a ruthless overlord, but as Bayard Taylor viewed him, gentle, as well as daring; tender, as well as brave. Let us look, then, not upon the dark picture of present degeneration, but upon the bright picture of future regeneration made possible by an intelligent and determined use of a larger and more accurate knowledge of man's weakness and capacity for wrong doing.

An Insurance Company's Mortality Experience from Pulmonary Tuberculosis, 1889-1913.—Dr. W. Perry Watson read a paper on the above subject at the 148th annual meeting of the Medical Society of New Jersey, at Spring Lake. He points out that the Prudential Insurance Company of America issues life insurance on healthy residents of the United States and Dominion of Canada, under two distinct methods, the industrial or weekly payment plan on lives, ages 2 to 65, and the ordinary or old line plan, premiums payable annually on lives ages 12 to 66. This paper considers only the latter plan. It appears that in the period noticed there were 40,938 deaths from all causes, of which number 7,706—18.8 per cent.—were from consumption. Of males there were 6,283 deaths from consumption—18.8 per cent. Of females there were 1,423 deaths from consumption—18.9 per cent. The largest number of deaths of males from consumption—1,237—occurred in the age period 30 to 34, giving a percentage of 19.7, that being the highest percentage according to age distribution, while the highest percentage of deaths of females—26.3—occurred in the age period 25 to 29.

Book Reviews.

CANCER, ITS CAUSE AND TREATMENT. By L. DUNCAN BULKLEY, A.M., M.D. Senior Physician The New York Skin and Cancer Hospital, etc. Price, $1.50 net. New York: Paul B. Hoeber, 1913.

IN the work before us Dr. Bulkley considers cancer, not from its histological and surgical aspects, but from the dietetic and medical treatment points of view. The author states, and his statements are based upon a long experience, that patients suffering from cancer rarely if ever receive continuous medical care before operation with the object of discovering and rectifying the cause of the morbid growth. Furthermore, after an operation, so far as his observation goes, the patients are almost invariably left entirely to their own resources with the hope that the tumor will not regrow, but with no attempt so to guide the life that there shall not be the same tendency to a recurrent malignant new formation.

In the chapter dealing with the relation of diet to the incidence of cancer a strong case is made out against overeating and especially against the undue consumption of meat as causes of cancer. In fact, in the opinion of the writer, a highly civilized luxurious life very strongly predisposes to cancer, while per contra a simple sparse diet is to some extent a safeguard against the disease.

With regard to the medical treatment of cancer Bulkley agrees with Sir Arbuthnot Lane that one of the terminal results of intestinal stasis may be cancer, indeed, he is strongly inclined to believe that the toxins produced by the millions of microorganisms generated through intestinal stasis and fecal putrefaction are the real predisposing causes of cancer, and therefore he recommends a purely vegetarian diet. The medical aspects of cancer are discussed fully. In these days of surgical dominance, when operation is urged for every growth or blemish that one chooses to call "precancerous," it requires courage to call for delay, to ask the surgeon to stay the knife and see what nature, aided by rational living, will do to arrest the progress of disease; Dr. Bulkley has this courage, and his courage is based upon experience. The book is well written, extremely interesting, and moreover provides food for a great deal of deep thought.

A MANUAL OF BACTERIOLOGY, CLINICAL AND APPLIED. By R. TANNER HEWLETT, M.D., F.R.C.P., D.P.H. (London), Professor of Bacteriology in the University of London; Director of the Bacteriological Department, King's College, London, etc. Fifth edition: 668 pages. Price, $4.50. St. Louis: C. V. Mosby Company.

THIS well known English manual of bacteriology has appeared lately in a thoroughly revised edition, the fifth. The author has added much new material from recent contributions to the general subject of bacteriology and protozoology, and the more important advances in immunity have likewise been included. The volume covers the basic principles of the subject quite thoroughly and at the same time gives prominence to their practical application. Incorporated in the chapters concerning the more important pathogenic organisms are sections with directions for the examination of materials for clinical diagnosis. Attention is given to the serological reactions, the technique of which is fully explained. Besides the addition of new material to the technical side of the subject, the question of the classification of microorganisms has been revised, and their characteristics are fully considered. The language is concise, and the subjects are presented without confusing particulars, yet still in sufficient detail for the purposes of the worker. The photomicrographs are well selected and clearly reproduced, adding much to the value of the book. Laboratory workers, as well as physicians and students, will find this manual most helpful.

ERGEBNISSE DER IMMUNITÄTSFORSCHUNG EXPERIMENTELLEN THERAPIE, BAKTERIOLOGIE UND HYGIENE (Fortsetzung des Jahresberichts über die Ergebnisse der Immunitätsforschung). Unter Mitwirkung hervorragender Fachleute, herausgegeben von Professor Dr. W. Weichardt, II Direktor der Kgl. bakteriologischen Untersuchungsanstalt in Erlangen. First Volume. Price, M. 22.60. Berlin: Verlag von Julius Springer, 1914.

OWING to the great increase in the amount of published material to be abstracted in the *Jahresberichte über die Ergebnisse der Immunitätsforschung*, it has been found impossible to continue publication in the same form. Certain of the Centralblätter now cover the ground very fully, and it has been considered advisable, therefore, to alter the form of the Jahresbericht, abandoning the abstracts and inserting only comprehensive review articles on certain phases of immunity. It thus becomes, as its title indicates, one of those extremely useful Ergebnissen which sum up from time to time a given subject. This first volume of the *Ergebnisse der Immunitätsforschung experimentellen Therapie, Bakteriologie und Hygiene* contains eleven papers, four of which are written by investigators in the United States and Canada. The most interesting are a paper by Eisenberg on mutations in bacteria, and a review by Rothacker of the biochemical methods used in identifying those digestive ferments which appear in the who are interested in the subject of immunity this new blood after injection of foreign substances. For those publication will prove a valuable work of reference.

THERAPEUTICS OF THE CIRCULATION. By Sir LAUDER BRUNTON, Bt.M.D., D.Sc., LL.D. (Edin.), LL.D. (Aberd.), F.R.C.P., F.R.S., Consulting Physician to St. Bartholomew's Hospital. Second Edition, with illustrations. Price $2.50 net. New York: Paul B. Hoeber, 1914.

THE first edition of the book consisted of eight lectures delivered by Sir Lauder Brunton in 1905 in the Physiological Laboratory of the University of London. The author has for long established a great reputation as an authority on therapeutics and on therapeutics of the circulation, and the first edition was recognized by the profession as an extremely useful contribution to the subject. Since the publication, however, of the first edition our knowledge of the circulation has been greatly amplified, particularly with regard to blood pressure, and in the present edition all the latest views have been recorded. A great part of the book is given up to physiology, pharmacology, and to the pathology of living structures, but, as the author explains, it is necessary to lay the foundations firmly before the superstructure, therapeutics, can be surely raised. The volume should prove a valuable supplement to the ordinary textbooks on the circulation.

CHILD TRAINING AS AN EXACT SCIENCE. A Treatise Based upon the Principles of Modern Psychology, Normal and Abnormal. By GEORGE W. JACOBY, M.D., Fellow of the New York Academy of Medicine, Member of the American Medical Association, American Neurological Association, and New York Neurological Society; Consulting Neurologist to the Hospital for Nervous Diseases, the German Hospital, the Beth Israel Hospital, the Red Cross Hospital, and the Infirmary for Women and Children in the City of New York. With illustrations. Price, $1.50. New York and London: Funk & Wagnalls Company, 1914.

THE aim of this work is to present a scientific exposition of child training as based upon the principles of modern psychology, medicine and hygiene. Following an introduction in which the author emphasizes the importance of appreciating the individuality of the child, the subject matter of this volume is dealt with under the four main headings: Historical Survey; the Psychic Abnormalities of Childhood; Prophylactic Training; and Therapeutic Training. In the section devoted to prophylactic training the author shows the importance of controlling inheritable disease in the parents and of legal enactments for preventing procreation by the unfit. As regards the training of the children he expresses admiration for the Montessori method, which, based uopn the original observations of Séguin and Itard, aims at the free, individual, self-development of the child. The Montessori method applies to normal children a mode of developing sensory activity that was originally designed by Séguin for the training of defective children only. Bodily development, including the use of the so-called "eurythmic movements," intellectual development, and the formation of character and the will are taken up in detail. The final section on therapeutic training includes chapters on the educable, causal treatment, symptomatic treatment, and the uneducable. In the final section the author tersely sums up the entire theme of his work: Child training must be based upon a knowledge of the experimental psychology of the child, the nucleus of which is the doctrine of psychophysical parallelism. Individualization is necessary in the training of the child and this can be accomplished only by the cooperation of the physician and the pedagogue. Dr. Jacoby has written in charming style a volume that cannot fail to be both interesting and valuable to the general reader as well as to the physician and educator.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held February 5, 1915.

DR. C. A. McWILLIAMS IN THE CHAIR.

Inguinal Hernia with Unusual Contents.—Dr. CHARLES E. FARR presented three cases which were of interest because of the contents of the sac. The first case was a child five years of age, who had a left inguinal hernia containing a loop of normal Fallopian tube. The ovary was at the internal ring. The second case was a right inguinal hernia in a girl eight years of age, which was partly unreducible. This sac contained the right Fallopian tube and ovary, very adherent and with the fimbriated extremity closed. This was freed and reduced with considerable difficulty. The third case presented was a male child three and a half months of age, who had a strangulated left inguinal hernia with a hydrocele. The contents of the hernia were cecum, appendix, and a loop of the ileum, and all were reduced with much difficulty. The appendix and cecum were apparently from the right side of the abdomen.

Compound Dislocation of the Right Elbow with Fracture of the Upper End of the Radius.—Dr. S. M. MILLICAN presented this patient. He was thirty-three years of age, an ironworker, who on September 17, 1914, dropped about twenty feet and received a long scalp wound and an injury of the right elbow. He was transferred to Dr. Millican's service that afternoon at the Lincoln Hospital, having had no treatment. The scalp wound was sutured and a posterior dislocation of the right elbow was reduced with some difficulty because the upper end of the radius had slipped away from the ulna. After reduction the arm was put up in posterior moulded splints and flexed as far as the swelling allowed. *X*-rays on the following day showed a fragment from the anterior surface of the upper end of the radius displaced so that it lay between the bones of the arm and forearm, preventing full flexion. Under ether the fragment, about the size of the tip of the little finger, was displaced outward so as to lie external to the joint area. The arm could then be put up in extreme flexion and was so maintained for a little over two weeks. The patient was then allowed to have only a sling and encouraged to move the elbow and forearm as much as he would. There were originally lacerated wounds over the inner aspect of the elbow which communicated with the ulna. All the wounds healed properly and the patient was discharged at the end of three and a half weeks, with the arm supported in a sling. Dr. Millican had kept track of him since then and his notes were as follows: The accident occurred on September 17, 1914. On October 16 there was complete flexion, but extension was 10 degrees less than a right angle. There was no motion between the bones of the forearm, and the patient was encouraged to extend the arm. Four days later he could get the arm about 5 degrees below a right angle. On October 30 he could extend the arm about 15 degrees below a right angle and there was a considerable range of pronation and supination in the hand due to the movements in the carpus. He could get no motion between the forearm bones. On December 1 he had extension to about 10 degrees less than a straight line, and full range of flexion; there was very slight motion between the forearm bones. About the middle of December the patient went back to work, where he could use a hack-saw, and was encouraged to do everything he could; the tone in the forearm muscles and arm immediately returned and the range of motion in the forearm bones was now about 5 or 6 degrees. On January 15 he could use his arm quite freely except that he was afraid to depend on it for emergencies which kept him working on the ground. The extension was still limited about 10 degrees and the forearm had much improved; there was now about 10 degrees range of motion, pronation, and supination, and he felt that the arm was much stronger and was quite useful, although still the motion was too limited. The *x*-ray made about the middle of December showed the fragments displaced to the outer side and attached to the lower part of the neck of the radius well away from the joint surfaces. It seemed as if adhesions between the orbicular ligament and the fractured surface of the upper end of the radius were now the limiting causes. The displaced fragment rotated with the shaft of the radius and seemed to check the range. Inasmuch as improvement had been so rapid since he began to work he was inclined to let well enough alone and see if further motion would return. Dr. Millican said he would be very glad to have an expression of opinion as to the advisability of doing an operation if no further improvement took place.

Two Cases of Blood Transfusion by a Greatly Simplified Method.—Dr. RICHARD LEWISOHN presented several patients upon whom he had applied the method of citrated blood transfusion (see MEDICAL RECORD, January 23, 1915). He discussed the experimental part of his work, which proved that sodium citrate added to the blood at the ratio of 0.2 per cent. kept the blood from clotting during the transfer from the donor to the recipient. This small amount of sodium citrate was absolutely harmless. Dr. Lewisohn said that he had applied this method in ten cases (the largest amount transfused being 900 c.c. of blood) without any ill effects on the patient. Clinically the citrated blood seemed to be just as effective as normal blood. The hemoglobin was increased in the same proportion as by ordinary transfusion and rose automatically during the week following the transfusion. This was, in his opinion, the best proof of the good quality of the transfusion. The technique was extremely simple, as simple as an ordinary saline infusion.

Dr. LINDEMAN said that unless sodium citrate was used the method demonstrated by Dr. Lewisohn was not desirable. He had gone deeply into the problem and found that with that method he could not embody just what he had in the cannula system. The blood should be transfused in a condition as close to nature as possible. Some years ago this plan of Dr. Lewisohn had been suggested to him and he had used a 1 per cent. solution of sodium citrate. Dr. Lewisohn's method might be applicable to one, two, or three cases, but a truly practical method should be applicable to every case. By his method he had recently given 1,100 c.c. in six and one-half minutes without the slightest danger.

Dr. FENTON B. TURCK said that inasmuch as some of the remarks referred to experiments that had been made, he wished to ask some questions in reference to these experiments. For a number of years he had experimented on a great number of animals, relating to the blood and blood serum, and it seemed to him that more experimental work was required to support the clinical application. In the intestines the reaction in the blood occurred within two hours after the injection of cultures into the intestines. It was found that as the microorganisms passed through the mucosa into the submucosa and came in contact with the tissue fluid, there was a reduction of the anti-ferment of the blood by absorption. Now, if the injection of blood increased or replaced the anti-ferment, which could be determined by appropriate methods, would the addition of sodium citrate interfere with this reaction? By the injection of sodium citrate alone, would the anti-ferment replacement be interfered with? Chloroform, alcohol, and many salts did interfere with it. Dr. Turck said he wished also to ask regarding the effects of the injection of the serum itself upon the blood, not only the human serum, but that of other animals, and especially young animals. These were points about which, as clinicians, they should know something.

Dr. JOSEPH WIENER believed that the method described by Dr. Lewisohn would bring about a new era in blood transfusion. He had seen one or two cases in which the results of the transfusion were as satisfactory as could be desired. He had done many transfusions and he knew that Dr. Lindeman's results were very brilliant in his own hands, but Dr. Wiener said he could not get the same results, nor could other surgeons. What had just been presented was a very simple method and very efficacious; the procedure was effected in the same way as the injections of neosalvarsan, and could be done in ten minutes. There was another adjunct to this method—they could store blood for one or two weeks and then use it. The method of blood transfusion as now employed was rather cumbersome; the method just presented would do away with objection. The main point was to get something that was simple, safe, and efficient in blood transfusion. He believed that in one year everybody would use this method. The blood could be kept two weeks in the ice-box after adding sodium citrate and could then be used with good results.

Dr. LEWISOHN, closing the discussion, said that Dr. Lindeman's method was a splendid one in the latter's hands. The technique, however, was too complicated and, therefore, the results in the hands of others had not been entirely satisfactory. Dr. Lewisohn gave

some further details in reference to his experimental work in answer to Dr. Turck's remarks. The citrate method seemed to combine great simplicity in its execution with perfect safety for the patient. He hoped that its application on a larger scale would give the same results to others as it had given him in this series of ten cases.

Derangements of the Inferior Radio-ulnar Articulation.—Drs. William Darrach and Kirby Dwight presented this paper, which was read by Dr. Dwight. He stated that dislocations of the ulnar head without fracture of the radius were quite uncommon, there being only about 33 cases on record. Such dislocations occurred as a result of extreme forcible supination, or, less commonly, pronation. The ulnar head usually slipped forward, rarely backward. There was an increase in the antcroposterior diameter of this region and a decrease in the lateral. The ulnar head could be felt either in front or behind, and the empty sigmoid cavity of the radius was palpable. When in front the pressure on the ulnar or median nerves and flexor tendons might give intense pain and interference with flexion of the fingers. When seen early and the diagnosis made, reduction was usually easy. With proper support a complete cure would result. If the wrist was used too soon the supporting structures might become lax enough to allow a subluxation on extreme supination alone, or on flexion in the supine position with counterpressure on the hand. To guard against this a leather wristlet should be worn for several months. If the condition had not been recognized and the ulnar head had remained out of position for some weeks, reduction might be difficult or impossible without open operation; in such cases a subperiosteal resection of the ulnar head would give a marked improvement in the usefulness of the part. Dislocation associated with fracture of the radius was of quite frequent occurrence. With a proper reduction of the fracture the ulnar head would resume its normal position. The condition was frequently overlooked. The possible association of this injury should always be borne in mind in any fracture of the lower portion of the radius. The interference with flexion of the fingers might be the most marked symptom, or the nerve pressure might be the predominant sign. When recognized early, reduction was usually easy and the treatment was the same as when the dislocation occurred alone. Sprains of this joint could occur without actual dislocation and without fracture of the radius. The capsule or the attachment of the meniscus might be so stretched or torn as to give rise to laxity of these structures and later on allow a partial subluxation on certain movements. Proper protection after the original injury would prevent this, and the use of a tight leather wristlet later would lessen the disability in neglected cases. Derangement of the inferior ulnar joint resulting from fracture of the radius with displacement might be manifested by radial and dorsal shifting, dorsal tilting, and impaction, and these usually occurred in combination. As was stated, in a simple transverse fracture of the lower extremity of the radius the distal fragment might be displaced in eleven distinct ways, singly or in combination. In most of these positions, but especially with radial shifting and impaction, there was a change in the relationship between the ulnar head and the sigmoid cavity of the radius. The ulna tended to maintain its relationship with the upper fragment, and there was frequently a stretching or tearing of the capsular ligament of the inferior radioulnar joint. With a perfect reduction the normal relationship was regained and the injury was repaired during the repair of the fracture. The displacements of the lower fragment, however, were frequently not completely overcome and the normal relationship of the ulnar head was not obtained. This was especially true if there was much impaction, when the relative lowering of the ulnar head could be made out. A large proportion of the ulnar head pain, limitation of pronation, supination, and adduction following Colles' fracture was due to derangement of the inferior radioulnar joint. The same result was obtained in radial fractures at a higher level if any shortening of the radius occurred. The relative lowering of the ulnar head deranged the articulation. In the majority of the cases the proper reduction of the displacement would restore the normal relations of the joint sufficiently to avoid any long persistence of these symptoms. The ligaments, however, would need support after the fracture had completely healed. This fact explained the comfort found in simple strapping of the wrist or the use of a leather wristlet after the removal of the splints. In cases with much radial shifting or impaction the deformity of the prominent ulnar head might be sufficient to cause considerable annoyance to the patient. The three symptoms, pain, limitation of rotation, or deformity, if at all pronounced and if they persisted much beyond the normal period of convalescence, were indications for operative interference. Very marked improvement could be obtained by a superiosteal removal of the lower inch of the ulna, leaving the styloid process in place. Emphasis was laid on the latter point and on not removing the periosteum in order to preserve the attachment and support of the internal lateral ligament. If the periosteum was left intact there would be a more or less complete regeneration of the ulna, the shape of the bone adapting itself to the functional demands, and the strength of the wrist would return to almost normal. An incision was made on the ulnar aspect of the bone extending from the styloid process upward for an inch and a half. This was deepened through the periosteum which was reflected from the bone with a sharp elevator. The ulna was cut through with a Giglin saw or rongeur, and the distal fragment tilted out. The attachment of the capsular ligament was cut out and the head turned out. The bone was then cut across obliquely, leaving in the styloid with a small portion of its base, so as not to interfere with the attachment of the meniscus. The periosteum was then closed with plain catgut and the skin sutured. A starch bandage from the midforearm to the metacarpal heads was sufficient and could be removed in a week or ten days. The patient was urged to begin pronation and supination at the end of a week and could usually return to light work at the end of ten to fourteen days.

Treatment of Fracture of the Elbow by Immobilization in Hyperflexion Combined with Early Passive Movements and Massage.—Drs. Harold Neuhof and Heinrich Franz Wolf presented this communication. They stated that an unusual opportunity had been given them for the study and treatment of a large number of elbow fractures referred from Mount Sinai Hospital and the eight surgical departments of its dispensary. They termed all results "imperfect" which were not absolutely perfect. After reviewing the literature and showing the percentage of perfect results obtained by others, and referring to the work of Ashhurst who reported a series of 56 cases treated by the so-called Jones position for elbow fractures in which the end results were perfect in 81 per cent. of the cases, they stated that they hoped to prove the advantages of this posture over others in the treatment of elbow fractures. They believed that the reason that Ashhurst did not obtain an even higher percentage of perfect results was because of the relatively prolonged immobilization which he practised and the absence of passive movements and massage from the after treatment. Their paper was written in part to verify this assertion. Their group of 100 cases had been seen from 1911 to 1914. No selection of material had been made; the cases included simple and comminuted fractures, supracondylar fractures, those of the humerus that entered the joint, those of the upper end of the radius and ulna, and in fact all types of fracture, at the elbow joint. Recently observed cases were not included. These fractures occurred most frequently in children in the tenth year. A notable increase in the incidence of these fractures was observed in the fifth year and steadily increased up to the tenth year when it again began to decrease. For the purposes of the paper the following classification had been adopted: (1) Supracondylar (including diacondylar); (2) External condylar (including capitellum and epicondyle); (3) Internal condylar (including trochlear and epitrochlear); (4) Upper end of ulna; (5) Upper end of radius. The interval after fracture at which the patients were referred varied considerably; some of the departments sent all their elbow fractures while others sent only those which did not seem to be doing well under ordinaray methods of treatment. This must be considered in the interpretation of statistics. The final discharge with a perfect result was made in 53 per cent. of the cases; the remaining 47 per cent. presented results more or less imperfect. The tabulated results in the different groups above mentioned demonstrated that the chances for cure did not depend, to any great extent, upon the type of fracture. Studying the relation of perfect results to the period of immobilization of the elbow, they found that the outlook for perfect results was by far the most favorable when the fractures were

immobilized for the briefest period possible, and when massage and mobilization were instituted thereafter. A comparison of the average number of days of immobilization for the group of perfect results with that of the imperfect ones, showed that the difference was equally striking in all the varieties of fracture. Patients finally discharged with a perfect result were referred for mobilization and massage at periods averaging 12.8 days after fracture. Patients finally discharged with an imperfect result were referred for mobilization and massage at periods averaging 32.1 days after fracture. It was also found that fractures yielding a perfect result generally required a much shorter period of massage and mobilization than those yielding an imperfect result. In 23 cases in which fixation in hyperflexion (by Dr. Neuhof) was combined with early mobilization and massage the results were perfect in all but one case. In this case the fragments could not be set in good position and operation was refused. A perfect result was not obtained in any of the cases operated upon and subsequently sent for mobilization and massage. They could not say whether the results would have been different had these patients not been operated upon. In describing the rationale and the technique of hyperflexion the authors stated that from the viewpoint of leverage the position of hyperflexion for fracture of the elbow was more advantageous than that of flexion at any angle less than the most acute obtainable or in the position of extension. Any flexion short of hyperflexion did not abolish the lever action of the forearm. Hyperflexion was as correct for the maintenance of the carrying angle as it was for leverage. Most of the unfortunate results of fracture of the elbow consisted in limitation of flexion. There was no way of determining in advance what the result of any elbow fracture would be. Limitation of motion in a well flexed elbow was the least disadvantageous form of limitation. From this viewpoint hyperflexion was also the most desirable position. Their experience showed that the results of fractures of the condyles and of the upper end of the radius were as good as those of supracondylar fractures when fixation in hyperflexion was combined with massage and mobilization. Before the elbow was placed in hyperflexion all displaced fragments should be reduced and the results of attempts at reduction should invariably be controlled by radiograms taken immediately after, so that any pronounced displacement remaining could be corrected. They ascribed a share of the results in their cases treated by hyperflexion to a minimal amount of trauma inflicted in the examination and fixation of the injured elbow. The point should be emphasized that hyperflexion did not mean merely acute flexion, but the most acute flexion in which the elbow could be fixed without obliterating the radial pulse; this generally varied between 20 and 35 degrees. In discussing the rationale and technique of mobilization and massage, the authors said that any fear of displacement of the fragments and of formation of excessive callus had proven unfounded in their hands. The most important rule for early massage and mobilization was that the treatment must be practically painless. This rule had proved the best way of avoiding accidents. The treatments, generally of fifteen to twenty-five minutes duration, consisted in the beginning of gentle stroking massage of the arm and slight flexion and extension movements at the elbow. At later periods the treatment was more and more vigorously practised. All sudden movements of the arm were very carefully avoided. The elbow was always supported during treatment and was fixed in hyperflexion after each treatment. The treatment was given daily in the great majority of cases. Although massage might be instituted immediately after the injury an absolute rule for the time to begin mobilization could not be given. The *x*-ray picture and the freedom from pain in the first trials were the best guides. Mobilization might be tentatively essayed as soon as the fourth or fifth day after the fracture. The earliest attempts should be made when the *x*-ray picture showed simple or impacted fractures, or small fragments of bone so situated that their healing in place might prove a mechanical hindrance. Active and passive motions at the shoulder and in the hand were instituted from the outset. Active motions were never necessary during the period of mobilization and massage. The length of time that the elbow was in the hyperflexion bandage depended upon the union of the fracture and the type of patient.

Supracondyloid Fracture of the Humerus.—Dr. WILLIAM C. LUSK said that he would like to speak of supracondyloid fracture of the humerus of the extension type. In his opinion the perfect result following this particular fracture depended upon the getting of a complete reduction of the fractured fragments. If the upper fragment projected a little forward callus would be thrown out by it, which would interfere with flexion. This brought up the question of how to reduce this fracture, which was not always easy to do especially when the fracture was of the transverse type. He had written an article (*Annals of Surgery* XLVIII, 1908, p. 432) previously, describing a method of reducing this fracture. The secret of effecting the reduction of this fracture lay in a knowledge of the fact that, anyway in some cases, the posterior periosteum was not torn across but simply became stripped off from the lower two or three inches of the posterior surface of the upper fragment, thus forming a bridge of unyielding tissue between the fragments whose restraining influence on reduction of the fragments must be reckoned on. Thus in the position of deformity, the upper fragment overriding the lower anteriorly, it can be seen that flexion of the forearm will make this periosteal bridge taut and lock the bones more firmly together in their malposition. But on the other hand by hyperextension of the forearm the posterior periosteal bridge will be relaxed and at the same time the planes of the fractured surfaces will be thrown apart at an angle, the apex of which is at their posterior margins, which position is the one in which reduction is possible. Thus with the forearm hyperextended, thereby relaxing the periosteal bridge and causing the unlocking of the bones, by making downward traction on the forearm and at the same time pushing the lower fragment forward, the posterior margins of the fractured surfaces are first brought into alignment, after which, holding firmly the ground already gained by forward pressure on the olecranon and backward on the arm, the forearm is brought into acute flexion which closes together the angle between the planes of the fractured surfaces produced by the hyperextended position. If it were impossible to completely reduce a supracondyloid fracture of the humerus early on account of great swelling around the elbow, proliferation in the meantime from the separated periosteum might be an obstacle to effecting later a complete reduction, by mechanically interfering with full forward replacement of the lower fragment. When reduced, the next question was how to hold this fracture in perfect reduction. Where the position of acute flexion alone with no especial support for the fragments had been employed to maintain the reduction, even though plaster of Paris fixation were used, there had seemed always to be a tendency for the lower fragment to luxate a little posteriorly. In the last two cases of this fracture he had treated, Dr. Lusk said he had maintained a perfect reduction by the employment of a folded gauze pad held in place by adhesive plaster over the lower fragment, against which forward pressure was made during the application of the plaster of Paris bandage, the pressure being maintained until the plaster had hardened. Of one case in the service of Dr. Joseph B. Bissell at Bellevue Hospital, he showed an *x*-ray picture demonstrating a perfect reduction with the forearm in acute flexion and the posterior pad in position supporting the lower fragment. A previous attempt to maintain the reduction of this fracture in plaster of Paris with the forearm in acute flexion without the use of the pad support, had left still a little forward overriding of the upper fragment. The second case was a child in which the *x*-ray showed a perfect reduction, and there was recovery of complete flexion and extension. It took three people to reduce and immobilize this fracture, not including an anesthetist—one to manipulate the forearm and lower fragment, one to press continuously backward on the shaft of the humerus, and the third to apply the plaster. No turn of the bandage should be made across the flexure of the elbow.

Dr. NEUHOF closed the discussion. He agreed with the statement that it was particularly desirable to operate when there was an upward displacement of the fractured head of the radius and when this fragment interfered with flexion of the elbow. Displacement was not, in itself, an indication for operation, as shown by a case in point described by Dr. Neuhof. In regard to the question about end results in these cases of elbow fractures, it was difficult to make any definite statement. Some patients appeared to have reached their maximum improvement in six months; in others, however, improvement went on, he believed, for one year. The best results were obtained where reduction was not postponed but effected when the patient first came under observation.

SECTION ON MEDICINE.

Stated Meeting, Held March 16, 1915.

DR. T. STUART HART IN THE CHAIR.

THE contributions to the program of the evening were from the Medical Service of the New York Hospital.

The Work Limit with Auricular Fibrillation.—Dr. HAROLD E. B. PARDEE presented this communication, in which he stated that, while they had a very fair idea of the amount of restricted activity imposed by the different lesions of the cardiac valves, they were only lately coming to realize that an irregular heart did not of necessity seriously cripple the individual. Sinus arrhythmia they knew might be disregarded and usually looked upon as normal, nor did extrasystoles seem to lead to hypertrophy or cardiac failure even when present constantly over long periods of time. Opposed to these, the continuous irregularity of auricular fibrillation had been looked upon as a grave abnormality of function; it was his endeavor to point out how this view might be modified. If the heart rate exceeded 70 or 80 beats per minute for any considerable period of time, the effect on the circulation was such that symptoms of cardiac failure would arise. The heart needed a diastole of certain duration in order that the ventricle might have time to recover its contractile power, and to fill sufficiently with blood from the auricle. Diastole was shortened much more than systole as the rate of the heart increased, so that the heart suffered from insufficient rest and insufficient filling, and the blood pressure fell or the arteries harrowed in an attempt to keep it up. When auricular fibrillation was present the ventricles usually responded with an irregular rate of about 90 per minute. This might not be accompanied by symptoms on the part of the patient, but on attempting moderate exertion, dyspnea, palpitation, or precordial discomfort appeared, though they might not persist long afterwards. Without treatment the course was one of progressively increasing limitation of activity; the symptoms appeared with less provocation, the heart rate was rapid in the intervals, edema appeared, and the patient was confined to his room or to his chair. This breaking down of the cardiac reserve took a variable amount of time, but in the author's opinion it varied from two or three to many months, though it was usually impossible to mark exactly the time of onset of the fibrillation. Under energetic treatment this cardiac failure was promptly corrected. The tincture of digitalis is m.xx doses four or five times daily, or an equivalent amount of the other preparations would usually relieve the dyspnea and palpitation in twenty-four to forty-eight hours, and by the fourth day the patient was quite comfortable and the heart rate reduced to 85 or 90. By reducing the dosage of digitalis properly its toxic effects could be avoided and the heart rate kept in the neighborhood of 60 to 80 per mintue. The patient was now, from the physiological standpoint, just where he was at the onset of the fibrillation, except that the heart would be affected more readily when called upon for extra effort. If treatment was discontinued in a month or two or more, the cardiac insufficiency would be reestablished and the patient again confined to his chair. The patient must not be discharged when he had recovered his strength after dilatation but must be kept under observation, must continue the digitalis, taking enough of the drug so that its effect on the vagus would maintain the rate of the heart at its optimum, usually about 70 per minute. The amount of digitalis required to do this varied from m.x to m.xl of the tincture daily in divided doses. The author cited a number of cases which illustrated what could be done toward making the patients comfortable and even useful, enabling them to continue at their work over a considerable period of months or years, as long as they faithfully took the digitalis in sufficient amount. The results in these cases seemed to form a basis for the conclusion that this disease need not be the reason for a bad prognosis and that it was not incompatible with an average degree of bodily exertion at least, and at times somwhat more. The most important factor was not the irregularity, but the quality of the cardiac muscle, and the presence or absence of valvular lesions, or of increased arterial tension.

DR. LEWIS A. CONNER thought Dr. Pardee had brought out a very important point in emphasizing the need for continuous digitalis medication in patients with auricular fibrillation who had recovered from their decompensation and were attempting to resume their ordinary mode of life. He believed that the common error was to use digitalis so intermittently and in such small doses that no real effects were obtained.

DR. PARDEE said that it seemed to him more reasonable that patients should have determined for them the amount of digitalis necessary to produce the effect and should take that amount regularly. He admitted, in spite of this, that the patient might be in good condition physically and yet not feel so well with m.xxx daily as with m.xl.

Intravenous Use of Sodium Salicylate in Rheumatic Fever.—Dr. LEWIS A. CONNER said that this method had been employed in his service at the New York Hospital during the past year and a half and that during this time some 50 cases had been so treated and about 400 intravenous injections given. Mendel, in 1904, was the first to call attention to the feasibility of this method of administration. Even though relatively small doses were used he was struck with the marked analgesic effects produced and thought the method possessed many advantages over the usual form of administration by mouth. His conclusions were supported by Behr, Rubens, and Winkelmann, but were questioned by Brugsch and by Doevenspeck, who could see no advantages of this method over the usual one and who found the injections frequently painful and liable to local complications. Since then the method seemed to have attracted very little attention. When Dr. Conner began to use this method he found that the dose used by Mendel, six or eight grains twice a day, produced very little effect, but when considerably larger doses were used that prompt and marked effects could be obtained. To his solution of sodium salicylate Mendel added a certain amount of the sodio-salicylate of caffeine but in the larger doses employed Dr. Conner found the caffeine objectionable and thereafter the sodium salicylate was used alone. In order to render the injections free from unpleasant local and constitutional effects it was necessary to observe carefully certain precautions. First, the solution should be made only with the chemically pure, crystalline form of sodium salicylate and not with the ordinary amorphous form of the drug in common use, and a fresh solution should be made every three or four days, as the solutions tended to deteriorate on standing. Second, a fine needle should be used in order that the trauma to the vein wall might be as slight as possible, and that the injection should be made slowly; and, Third, care should be taken to use a large vein and to see that none of the solution escaped into the neighboring subcutaneous tissue. The method used was as follows: A stock solution was made by dissolving 10 grams of crystalline sodium salicylate in 50 c.c. of freshly distilled and sterilized water. The drug was weighed and handled as aseptically as possible and no further sterilization was done after the solution had been made. From 5 to 10 c.c. of this solution (15 to 30 grains of the drug) was injected into an arm vein, usually at intervals of 8 hours; an all glass syringe and a needle slightly larger than the ordinary hypodermic needle being used. The injections were usually made alternately into each arm, the same vein often being used several times. Usually the injections were entirely free from pain and from any unpleasant local or constitutional reaction, even when doses of 30 grains were given. In four instances there resulted some inflammation of the vein, with thrombosis, near the point of the puncture, which gradually subsided without any unpleasant consequences. At first injections of the larger doses were occasionally followed by a chill or by some nausea, but since the crystalline form of the drug had been used these reactions had ceased. In one patient each injection had been followed by sharp pain and cramp in the muscles of the shoulder and arm which seemed to be due to some individual sensitiveness as the same stock solution and dosage in other patients produced no such effect. With regard to the value of the intravenous method Dr. Conner believed that it would never replace the usual method of mouth administration in routine cases, but thought that it was of great value in patients who could not tolerate the drug in sufficient amounts by mouth, and in those in which a marked and prompt effect was urgently required, as, for example, in severe cases with high temperature and intense pain, or those in which heart complications seemed to threaten. He had found the relief of pain much more pronounced and prompt when the drug was given intravenously. The effect on the temperature and on the local inflammation was less striking, but he believed his cases showed conclusively that

the duration of the fever and of the disease was shortened when intravenous injections were used during the acute stage. At present in his wards the routine treatment of all severe cases of rheumatic fever was to administer full doses of sodium salicylate by mouth and, in addition, for the first two or three days to give three daily intravenous injections of the drug; 30 grains were given at each injection if the patient was a full-sized and vigorous adult.

General Suppurative Pneumococcus Peritonitis.—Dr. WILLIAM R. WILLIAMS reported this case, which occurred in a child three years of age. The patient was admitted to the New York Hospital on October 25, 1914, complaining of loss of appetite and fever. The family history was negative. The child had had measles eighteen months before and scarlet fever one year ago. For two weeks the patient had been complaining of loss of appetite, fever, and constipation, but had no cough, chills, or sweats. Physical examination revealed a discharge from the left ear. The lungs showed a few scattered crepitant râles. The white blood cells numbered 11,600, with 85 per cent. polymorphonuclears. The liver extended 4 cm. below the costal margin. Four days later the left ear-drum perforated and S. viridans was recovered from the discharge. There was dullness from the spine to the base of the scapula on the left side, high-pitched, harsh breathing, and a few sonorous and sibilant râles. On the fourteenth day it was noticed that the abdomen was increasing in size, and three days later a definite fluid wave was detected. Two hundred and fifty c.c. of greenish-yellow pus was aspirated. The child was transferred to the surgical ward, and at operation 750 c.c. of pus was evacuated. There was no sacculation. It was thought that they were dealing with a tuberculous peritonitis and the abdomen was closed. Ten days later the wound broke down and 1,000 c.c. of pus was discharged. The wound then healed up and the child was discharged as cured on January 15, 1915. The microscopical examination proved that they were dealing with a pneumococcus infection.

Diagnosis of Intrathoracic Neoplasms by Exploratory Puncture.—Dr. HUGHES DAYTON reported this case because it demonstrated the diagnostic value of evamination of the tiny fragments of tissue obtained by exploratory puncture with an aspirating needle of moderate size in cases of intrathoracic lesions of doubtful character. The patient was a musician, nineteen years of age, who entered the New York Hospital complaining of cough and pain in the right side. His family history was negative and he had had no previous illness excepting gonorrhea nine months before admission, which was followed by double inguinal adenitis six months later. Soon after this he began to have pain in the right side, increased by deep breathing or coughing. There was dullness over the right chest posteriorly from the spine of the scapula to the base, increasing to flatness, diminished fremitus, breath, and voice sounds, and voice and whisper of nasal quality with a few subcrepitant râles. Aspiration of the right chest yielded a syringeful of bloody fluid containing many small opaque particles, which consisted of cells resembling epithelium. Fluoroscopic examination on the following day showed a shadow extending from the spine of the right scapula to the diaphragm. Within this area were two semitransparent areas. A radiogram was reported as showing pleurisy with effusion. There was a daily afternoon rise of temperature of 1 to 2 degrees. The pulse ranged from 72 to 112, averaging about 88. The blood examination showed 6,140,000 red blood cells, with 90 per cent. hemoglobin; 10,500 leucocytes on several occasions, but ranging from 7,500 to 18,000; polymorphonuclears, 54 to 85 per cent.; mononuclears ranged between 16 and 26 per cent.; basophiles, from none to 2 per cent.; eosinophiles, from 1 to 16 per cent., remained about 7 per cent. The Wassermann reaction was negative. Other examinations were negative. On April 9 a loud friction rub was heard over the entire right chest anteriorly, and the nasal quality of voice was confined to a small triangular area at the base of the right axilla. On April 14 the patient began to complain of pain in the right lumbar region, which varied in intensity during the remainder of his two weeks' stay in the hospital. The convex upper level of the shadow in the chest, with its semitransparent areas, the blood-tinged chest fluid, the displacement of the heart toward the left, the presence of a typmapitic area between the area of cardiac dullness and that of dullness in the right chest anteriorly, with a friction rub over the area of dullness, the persistent eosinophilia in the absence of intestinal parasites or other obvious cause, and the irregularity of the areas of nasal voice, all suggested the existence of a neoplasm rather than of a serofibrinous pleurisy. To substantiate this opinion a needle was inserted into the right chest in the ninth space near the angle of the scapula in order to obtain a fragment of tissue for examination. The needle encountered resistance from the start, which became greater within the chest. Three c.c. of blood-tinged serous fluid was withdrawn, which showed chiefly lymphocytes with a few eosinophiles, polymorphonuclears, and basophiles. The fragments of tissue obtained measured about 1 mm. by 1.5 mm. Dr. William C. Clark, who examined them, made a diagnosis of angiosarcoma. An April 29 the patient left the New York Hospital and on May 3 was admitted to the German Hospital. Here a tumor was removed from the right chest and death occurred on the same day. The pathologist's report confirmed the diagnosis made from the fragments obtained by puncture. Encouraged by this success the speaker had attempted the same unsuccessfully in two other cases: in one because the tumor was confined to the root of the lung, where puncture would have been dangerous, the rest of the lung showing pneumonia consolidation; in the other case the fragments removed by puncture consisted of fibrinous exudate containing lymphocytes with a single group of large, unevenly staining cells which resembled endothelium; the removal of a subclavian lymph-node showed infiltration of the surrounding tissue with cells resembling those of so-called endothelium of the pleura. The writer concluded that examination of fragments of tissue obtained by exploratory puncture was of diagnostic value only when the results were positive; but in these instances it might be of real value in differentiating from syphilis and tuberculosis.

Lantern Slides of Pneumonic Consolidation.—Dr. JOSEPH C. ROPER showed a series of lantern slides of pneumonic consolidation in children. The ease with which the child could be transported, the slight disturbance, and the short exposure necessary made the *x*-ray observations of the pneumonic process in children very easy. While all the plates showed the pneumonic process, even when the signs were not very distinct, they also showed a times abnormalities which could not be readily explained by the physical signs or the course of the disease. Further study, aided by postmortem examinations, would be necessary. The plates proved useful in diagnosing early pneumonic process in cases in which the pain was referred to the abdomen and in which the physical signs were indefinite. Of considerable interest was the persistence of a distinct shadow long after the temperature had become normal and when the physical signs remaining consisted only of slight relative dullness. In cases in which the temperature was prolonged the plates readily excluded empyema.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.

October, 1914.

ANATOMY.

1. Describe the structure of the arteries and give their nerve and blood supply.
2. What arteries, muscles, and nerves would be severed in a cross-section at the middle of the humerus?
3. What are the lymphatic glands?
4. Give the situation of the lymphatic glands of the chest.
5. Locate and describe Peyer's glands.
6. Give the deep and superficial origin, course, and distribution of the pneumogastric nerve.
7. Bound Scarpa's triangle and mention the vessels and nerve in it.
8. What bones enter into the formation of the nasal fossæ?
9. Name the bones that form the ankle-joint and give their relations.
10. Name the abdominal viscera wholly covered with peritoneum; those partially covered.

PHYSIOLOGY.

1. Define physiology.
2. Trace the circulation of the blood beginning at the left ventricle.
3. How does the fetal circulation differ from that of the adult?

4. Give the physical and chemical composition of blood.
5. What are the functions of blood?
6. What is the portal system? Name the enzymes manufactured from its blood.
7. Name the organs of excretion in order of importance.
8. What is the function of the red blood cells? Of the leucocytes?
9. What is glycogen? What is its use?
10. What changes occur in a muscle in exercise?

CHEMISTRY.

1. What is chemistry?
2. What are the three laws of chemical combination?
3. Name three strong mineral acids and which is the strongest?
4. What are alkaloids, and how are they divided?
5. What is the chemical composition of the blood?
6. Give the antidote for poisoning by carbolic acid.
7. What are physical and what are chemical changes?
8. Define organic and inorganic chemistry.
9. Define specific gravity. What relation does the amount of solid matter in urine bear to the specific gravity of the urine?
10. What is the formula of hydrogen dioxide and by what other name is it known?

MATERIA MEDICA AND THERAPEUTICS.

1. Name three drugs that will liquefy and increase bronchial secretion. Give official name, dose of each. Write a prescription containing one.
2. Define a diuretic; name three vegetable diuretics. Give dose and official name of each. Write a prescription containing one.
3. Name two drugs that will lower blood pressure. Give official name and dose of each.
4. Name two official drugs that will change the color of the urine; also name two that will change the color of the feces.
5. What is epinephrin? Give official name, dose, properties, and uses.
6. Name three drugs that may cause irritation or skin eruption. Give official name, dose, and properties of each.
7. Oil of santal; give dose, properties, and uses; official name.
8. Elaterin; give official name, dose, properties, and uses.
9. What drugs would you use in the early stages of a case of pneumonia? Give official name; dose of each. Write a prescription containing one.
10. Name five official tinctures and give dosage of each.

HISTOLOGY.

1. Describe the suprarenal capsule, macroscopically and microscopically.
2. What do you mean by the reconstruction of anatomical structure? Give technique.
3. Describe epithelial tissue; give varieties and where found.
4. Describe motor nerve endings in voluntary muscle tissue.

ANSWERS.

ANATOMY.

1. An *artery* consists of three coats: The tunica interna, or internal coat; the tunica media, or middle coat, and the tunica adventitia, or external coat. The internal coat consists of a basement membrane, on which is a layer of endothelial cells. The middle coat consists of involuntary muscle fibers, between the layers of which are some elastic fibers. The external coat consists of connective tissue (white fibrous and yellow elastic). Between the two outer coats is an elastic membrane.

The *nerve supply* is by the vasomotor nerves. The *blood supply* is by the vasa vasorum.

2. Brachial, superior profunda and inferior profunda *arteries;* biceps, triceps, and brachialis anticus *muscles*; median, ulnar, internal cutaneous, musculospiral, and musculocutaneous *nerves.*

3. *Lymphatic glands* are solid bodies, of variable size, situated in the course of the lymphatic and lacteal vessels; they are surrounded by a capsule, and are filters through which lymph and chyle flow.

4. *Lymphatics of the thorax.* The *intercostal* lymphatic vessels, derived from the side of the abdomen and thorax, pleuræ, diaphragm, spinal canal, muscles of the back, etc., follow the course of the veins, traverse fifteen to twenty intercostal glands near the heads of the ribs, and terminate in the thoracic duct. The *posterior mediastinal glands* are between the intercostal glands, and communicate with them. They receive vessels from the pericardium, esophagus, and diaphragm. Some of the efferent vessels end in the bronchial glands, others in the thoracic duct. The *anterior mediastinal lymphatic vessels* are derived from the anterior wall of the abdomen and thorax, the diaphragm, pericardium, upper surface of the liver, heart, and thymus gland. They traverse about eighteen to twenty *anterior mediastinal glands*, situated in the course of the internal mammary vein, pericardium, and great vessels of the heart, and terminate in thoracic and right lymphatic ducts. The pulmonary lymphatic vessels consist of a superficial and deep set, traversing in the last part of their course the pulmonary glands. The *bronchial glands* are twenty or more glands at the bifurcation of the trachea and root of the lungs, and receive the lymphatic vessels of the lungs and bronchi. They become pigmented, and are often the seat of disease. Their efferent vessels terminate on the right side in the right lymphatic duct, either directly or by forming the broncho-mediastinal trunk, and on the left side in the thoracic duct. —(Young's *Anatomy.*)

5. *Peyer's glands* are large, oval groups of lymph follicles; practically they are groups of solitary follicles; they are from half an inch to four inches in length, and are situated throughout the small intestine but are largest and most numerous in the ileum.

6. *Pneumogastric nerve. Superficial origin:* Groove between restiform and olivary bodies. *Deep origin:* Nuclei in floor of fourth ventricle. *Course:* Outward across the flocculus, to jugular foramen through which it passes, here it is joined by the accessory portion of the spinal accessory nerve. As it goes down the neck it lies in front of the *rectus capitis anticus* major and longus colli muscles. It passes in the carotid sheath behind and between the artery and vein. In the thorax the nerve on each side runs a different course. The *right* passes between the subclavian artery and vein, by side of trachea to root of lung, behind esophagus, through esophageal opening in diaphragm to posterior surface of stomach. The *left* passes between the subclavian and carotid arteries, in front of arch of aorta to root of lung, along anterior surface of esophagus, through diaphragm, to anterior surface of stomach. *Distribution* is shown by the various names of the branches of the nerve: Meningeal, auricular, pharyngeal, superior and inferior laryngeal, cardiac, pulmonary esophageal, and gastric.

7. Scarpa's triangle is a triangular area or depression situated just below the fold of the groin. It is bounded *above* by Poupart's ligament, *externally* by the Sartorius, and *internally* by the inner margin of the Adductor longus; its *apex* is formed by the junction of the Adductor longus and Sartorious. The *floor* is formed, from without inward, by the Iliacus, Psoas, Pectineus, Adductor brevis, and Adductor longus. *Contents:* The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it is the crural branch of the genitocrural nerve. At the apex, the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

8. *Bones entering into formation of nasal fossæ:* Nasal, frontal, ethmoid, sphenoid, vomer, palate, superior maxillary, lacrimal, and inferior turbinated.

9. *Bones entering into the formation of the ankle joint,* are: The lower end of the tibia above the internal malleolus (of tibia) internally, the external malleolus (of fibula) externally, and the upper surface of the astragalus below.

10. *Viscera covered by peritoneum:* Liver, stomach, spleen, first part of duodenum, jejunum, ileum, cecum, transverse colon, sigmoid flexure, upper half of rectum, ovaries.

Viscera partially covered by peritoneum: Second and third parts of duodenum, ascending and descending colon, bladder, middle part of rectum.

PHYSIOLOGY

1. *Physiology* is that branch of science which treats of the functions of the body in a state of health.

2. "The left ventricle pumps the arterial blood through the large arteries, the small arteries, and the arterioles into the systemic capillaries. For the most part between the capillaries and the tissues is the tissue fluid, and across this the tissues acquire the oxygen from the arterial blood, and return carbon dioxide to the blood in the capillaries. The blood which leaves the tissues is venous. The venous blood returns from the capillaries through the small veins into the larger veins, and the largest veins pour the blood back into the right auricle. It will thus be seen that the right side of the heart is occupied with the pulmonary circulation, and the left side of the heart with the systemic circulation. The right auricle receives the venous blood as it returns from the tissues, and transmits it to the right ventricle. The function of the right ventricle is to pump the venous blood through the pulmonary arteries into the lung capillaries, where the venous blood becomes oxygenated. The oxygenated blood returns by the pulmonary veins to the left auricle, and the arterial blood is then received into the left ventricle."—(Lyle's *Physiology.*)

3. *Differences between the fetal circulation and that of the adult:* In the *fetus* there is direct communication from the right auricle to the left auricle by the foramen ovule; the Eustachian valves are larger, the heart is relatively larger; there is communication between the pulmonary artery and the descending aorta by means of the ductus arteriosus; there is communication between the internal iliac arteries and the placenta by means of the umbilical or hypogastric arteries; and the presence of the ductus venosus which unites the umbilical vein and the inferior vena cava.

4. *Physical composition of the blood:*

1. Plasma.
2. Corpuscles { Colored / Colorless / Platelets.

Chemical composition of the blood: Plasma consists of water and solids (proteids, extractives, fats, and salts of sodium, potassium, and calcium). *Corpuscles* consist of water and solids (hemoglobin, globulin, lecithin, cholesterin, iron, and salts of sodium, potassium, magnesium, and calcium.

5. FUNCTIONS OF THE BLOOD: The *red blood cells* carry oxygen from the lungs to the tissues. The *white blood cells:* (1) Serve as a protection to the body from the incursions of pathogenic microorganisms; (2) take some part in the process of the coagulation of the blood; (3) aid in the absorption of fats and peptones from the intestine, and (4) help to maintain the proper proteid content of the plood plasma. The function of the *platelets* is not determined; it is possible that they take some part in the coagulation of the blood. The *plasma* conveys nutriment to the tissues; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys.

6. The portal system is composed of four veins (superior mesenteric, inferior mesenteric, splenic, and gastric), which collect the venous blood from the stomach, intestine, pancreas, and spleen, and conduct it to the liver.

The enzymes manufactured from its blood: "No fewer than eleven ferments have been stated to be present and active in the liver alone—viz., a proteolytic and a nuclein-splitting ferment, a ferment which splits off ammonia from amino-acids, a milk-curdling ferment, a fibrin ferment, a bactericidal ferment, an oxydase, a lipase, a maltase, a ferment called glycogenase which changes glycogen into dextrose, and an autolytic ferment."—(Stewart's *Physiology.*)

7. *The chief organs of excretion* are: The kidneys, skin, lungs, alimentary canal, and liver.

8. See QUESTION 5.

9. *Glycogen*, or animal starch, is a polysaccharide, found in the liver, muscles, placenta, leucocytes, cartilage, and other tissues. Glycogen is a source of energy and heat for the body, is a convenient method for the storage of sugar in the body, and is a possible source of fats and proteins.

10. *When a muscle is in a state of activity:* (1) It becomes shorter and thicker, but (2) there is no change in volume; (3) there is an increased consumption of oxygen; (4) more carbon dioxide is set free; (5) sarcolactic acid is produced; and hence (6) the muscle becomes acid in reaction; (7) it becomes more extensible, and (8) less elastic; (9) there is an increase in heat production and consequently a rise of temperature; (10) the electrical reaction becomes relatively negative; and (11) a sound is produced.

CHEMISTRY

1. *Chemistry* is that branch of science which treats of the composition of substances, their changes in composition, and the laws governing such changes.

2. (1) *Law of definite proportions:* A compound always consists of the same elements, and in the same proportions.

(2) *Law of multiple proportions:* When two elements unite with each other to form more than one compound, the resulting compounds contain simple multiple proportions of one element and a fixed quantity of the other element.

(3) *Law of reciprocal proportions:* The ponderable quantities in which substances unite with the same substanee express the relation, or a simple multiple thereof, in which they unite with each other.

3. *Three strong mineral acids:* Sulphuric acid, hydrochloric acid, nitrie acid; of these, sulphuric acid is the strongest.

4. *Alkaloids* are organic, nitrogenized, basic substances, alkaline in reaction, and capable of combining with acids to form salts in the same way that ammonia does.

They are divided into volatile and fixed alkaloids.

5. See above, PHYSIOLOGY, Question 4.

6. *Antidote for poisoning by carbolic acid* is sodium sulphate, also alcohol.

7. A physical change does not alter the *composition* of the substance; a chemical change does alter its *composition.*

8. *Organic chemistry* is the chemistry of the carbon compounds.

Inorganic chemistry is the chemistry of substances which do not contain carbon.

9. *Specific gravity* is the weight of a given volume of a substance as compared with the weight of the same volume of some other substance taken as a standard, under like conditions of temperature and pressure.

The amount of solid matter in the urine may be estimated by multiplying the last two figures of the specific gravity of the urine by 2.33 (Haeser's coefficient); the product gives the amount of solid matter in one liter of urine.

10. The formula of hydrogen dioxide is H_2O_2; it is also known as hydrogen peroxide, and as oxygenated water.

MATERIA MEDICA AND THERAPEUTICS

1. *Three drugs that will liquefy and increase bronchial secretion:* Ammonii chloridum, gr. vijss; ammonii carbonas, gr. vijss; fluidextractum senegæ, ɱxv.

℞.

Ammonii carbonatis, gr. xxxij.
Fluidextracti senegæ.
Fluidextracti seillæ, aa 3j.
Tincturæ opii camphoratæ, 3vj.
Aquæ, 3iv.
Syrupi Tolutani q. s. ad 3iv. Misce.

Signa: One teaspoonful every three hours.

2. *A diuretic* is an agent which promotes the secretion of urine.

Three vegetable diuretics: Tinctura digitalis, ɱxv; tinctura strophanthi, mviij; fluidextractum cimicifugæ, ɱxv.

℞.

Tincturæ digitalis, 3j.
Spiritus ætheris nitrosi, 3iij.
Liquoris ammonii acetatis, 3ss.
Aquæ, q. s. ad 3vj. Misce.

Signa: One ounce every three hours.

3. *Two drugs that will lower blood pressure:* Amylis nitris, ɱiij; spiritus glycerylis nitratis, ɱj.

4. *Two official drugs that will change the color of the urine:* Phenol and santoninum.

Two that will change the color of the fæces: Ferrum and bismuthi subnitras.

5. *Epinephrin* is a substance obtained from the medullary portion of the suprarenal glands of the sheep (or other animal). It is *official* under the name of Glandulæ suprarenales siccæ; dose 4 grains; *properties:* "it is a strong cardiac stimulant, slowing the pulse-rate and affecting the heart muscle in the same

way as digitalis; it is a powerful vasoconstrictor and raises blood-pressure more than any other known substance; it increases the tone of all muscular tissue; it causes diminution of peristalsis and a depression of the respiratory center, which may result in respiratory failure and death. *Uses:* In minor surgery as a local vasoconstrictor; hay fever (both internally and locally); bronchitis; bronchial asthma; congestion and edema of the lungs; cardiac diseases (here it should be employed with caution); Addison's disease; shock." —(Wilcox's *Materia Medica.*)

6. *Three drugs that may cause irritation or skin eruption:* Belladonnæ folia, gr. j; belladonnæ radix, gr. ¾; *properties:* Anodyne, mydriatic, inhibits secretions, depressant of terminations of nerves, accelerates the heart beat, causes rise in blood pressure, but toxic doses cause the blood pressure to fall, stimulates the respiratory center, but large doses depress the same; it may cause vertigo, restlessness, excitement, delirium, or mania.

Copaiba, ɱxv; *properties:* "In small doses it is stomachic, in large ones a gastrointestinal irritant; in the process of excretion it stimulates and disinfects mucous membranes, especially those of the genitourinary tract, and on the skin it may give rise to eruptions and annoying itching. It is also diuretic, and in large amounts irritates the kidneys."—(Wilcox's *Materia Medica.*)

Cubeba, gr. xv; *properties:* "Rubefacient; irritant to the stomach; diuretic; like other volatile oils, it causes some cardiac stimulation and also stimulates the functions of the organs by which it is excreted; sometimes produces a papular or erythematous rash. Its chief action is on the mucous membrane of the genitourinary tract, which is both stimulated and disinfected by it. Its resinous acid is believed to aid the effects of the oil in its action upon the renal epithelium, as well as the bronchial mucous membrane."—(Wilcox's *Materia Medica.*)

7. *Oil of santal: dose,* 8 minims; *properties:* "Closely resembles that of copaiba and cubebs, but oil of santal is less irritant and more palatable. *Uses:* gonorrhea, gleet, cystitis, urethral hemorrhage, bronchitis."—(Wilcox's *Materia Medica.*) *Official name* is oleum santali.

8. *Elaterin: Official name,* elaterinum; dose, 1/10 grain; *properties:* "Closely resembling that of colocynth, but much more energetic, elaterin being regarded as the most powerful hydragogue cathartic known. In properly regulated doses, however, it causes comparatively little pain or irritation, notwithstanding the free catharsis produced. *Uses:* It is the most efficient of the hydragogue cathartics in general dropsy and in ascites; also used with advantage in uremia."—(Wilcox's *Materia Medica.*)

9. In *lobar pneumonia* routine treatment is to be condemned. In the first stage the following drugs may be required, under certain conditions: Alcohol, ammonii carbonas, 4 grains; quininæ hydrochloridum, gr. iv; tinctura veratri, 15 minims; digitalis, 1 grain; strychnine sulphas, 1/60 grain.

℞.

Tincturæ veratri, ɱ. xl.
Spiritus ætheris nitrosi, ʒvj.
Liquoris potassii citratis, ʒivss.
Syrupi zingiberis qs. ad ʒvj. Misce.

Signa: One tablespoonful q. 3. h.

10. *Five official tinctures:* Tinctura aconiti, 10 minims; tincture aloes, 30 minims; tinctura capsici, 8 minims; tinctura, digitalis, 15 minims; tinctura opii, 8 minims.

HISTOLOGY.

1. The *suprarenal capsules* "are two triangular flattened organs covered with fat that lie one on either side of the spine, in close proximity to the upper kidney border. Each suprarenal is invested in a fibrous capsule and a liberal supply of fat. The capsule contains many elastic fibers and some smooth muscle cells. The cortex shows a radial structure and has been divided into three zones, which are not very well defined. (1) The *zona glomerulosa,* next to the capsule, consists of a row of columnar epithelial cells folded in such a way as to form oval bodies or elongated heads separated by strands of connective tissue from the capsule. The oval nuclei are in the middle of the cells. (2) The *zona fasciculata* makes up the larger portion of the cortex and consists of anastomosing columns of epithelial cells, a continuation of the zona glomerulosa. Each column has two rows of polygonal cells that are smaller than those of the glomeruli. (3) The *zona reticularis* borders on the medulla. Here the columns anastomose and freely interlace. The cells resemble those of the fasciculata. Connective tissue cells ramify between the columns, hence the radial appearance of the cortex. The *medulla* is coarsely vascular. The cells are smaller than those of the cortex and are grouped in round or oval masses. These cells are finely granular, often pigmented, and stain a brown color. Numerous ganglion cells are present and many nerve fibers."—(Hill's *Histology and Organography.*)

2. "*Graphic reconstructions.*—Making reconstructions of this kind consists of plotting out on paper magnified representations of structures from a series of sections. Serial sections are, of course, necessary, and the thickness of the sections must be known. A camera lucida must be used and some given magnification chosen and adhered to for a particular reconstruction. Suppose, for a simple example, that a reconstruction of the stomach of an embryo is to be made. First determine the desired magnification. Then, with a camera lucida, draw on a sheet of paper an outline of a section of the stomach at its cephalic end, and, still keeping the paper in exactly the same position, draw a line to represent the median line of the section. On a sheet of drawing paper, upon which a straight line has been drawn to represent the median line of the section (sagittal plane of the embryo), measure off the distance as indicated in the camera lucida sketch, of each edge of the stomach from the median line and mark with a dot. Make the same kind of a camera lucida sketch from the next succeeding section. Plot this on the drawing paper as in the preceding case, putting the dots below, or, so to speak, caudal to the first dots at a distance equal to the thickness of the section multiplied by the magnification. Pursue the same method with successive sections, and then connect the dots that represent the edge of the stomach in the sections with a continuous line. The line, of course, represents the outline of the stomach, and, if the plotting has been properly done, it will show the relative position and general shape of the organ as seen from the dorsal or ventral side. If desired, the sketch can be shaded to represent the stomach in perspective. Drawings of two or three different structures to show their interrelation can be made in this way, so long as the structures do not become too complicated. Sometimes it is necessary to draw only from every third or fourth section."—(Bailey and Miller's *Embryology.*)

3. *Epithelial tissue* consists mainly of cells, with a small amount of intercellular substance; the cells are usually prominent and granular. The *kinds* of epithelium are: (1) *Pavement* or *Squamous:* A single layer of flat, nucleated cells, cemented together at their edges; found in descending limb of Henie's loop, Bowman's capsule of kidney, alveoli of lungs. (2) *Stratified squamous:* In layers of cells that are unlike in form, found in the epidermis, tongue, pharynx, vocal cords, vagina, anus. (3) *Columnar:* Tall, cylindrical cells arranged in a single layer; found in penile part of urethra, stomach, intestines, gall bladder, and ducts of glands. (4) *Cuboidal:* Similar to columnar, but the cells are shorter; found in thyroid gland. (5) *Ciliated:* Columnar cells with hair-like processes (cilia) on their free surface; found in Fallopian tubes, ventricles of brain, spinal canal. (6) *Transitional:* When the cells are neither arranged in a single layer like squamous, nor yet in many superimposed layers like stratified, but in two or three layers; found in pelvis of ureter, bladder, urethra.

4. "The motor endings of the voluntary muscles are chiefly from myelinated fibers. After piercing the epimysium the nerve follows the septa to the primary bundles and breaks up into fibers of which each muscle receives one; no double nerve fiber supplies many muscle fibers. The neurilemma and myelin sheath of the nerve fibers upon passing through the sarcolemma blend with it and the axis cylinder breaks into fibrillæ, each of which forms a number of bulbous enlargements that pass to a sole-plate. This sole-plate consists of a mass of nucleated, granular protoplasm, and with the bulbous nerve masses constitutes the end-plate."—(Radasch's *Histology.*)

(*To be continued.*)

Symmetromania.—M. Sternberg states that in this condition the patient has an impulse to perform certain motions in a symmetrical manner; that is, he moves simultaneously corresponding parts of both sides of the body.—*Deutsche Zeitschrift für Nervenheilkunde.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 18.
Whole No. 2321.

NEW YORK, MAY 1, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

OBSERVATIONS ON TWILIGHT SLEEP.*

BY JOHN W. BRANNAN, M.D.,

NEW YORK.

IT may seem rather out of place for a man engaged in general practice to attempt to discuss a method of conducting labor which is apparently safe only in the hands of an expert obstetrician. But there is probably no one in this room who has not been asked by his patients and lay friends what he thinks of Dämmerschlaf, and whether he would advise its general use? So much has appeared *pro* and *con* in the medical journals, not to mention the public press, that it is not easy to form an opinion on the subject. During the past few months I have had the opportunity of seeing a considerable number of cases in which this procedure was employed, and the members of the society may be interested in hearing a brief account of my observations. The cases were seen in Bellevue and its allied hospitals and were all under the care of skilled obstetricians.

In August last, Dr. W. H. W. Knipe, who has charge of the maternity service at Gouverneur Hospital, returned from Freiburg after an extended stay, strongly impressed by what he had seen there. Shortly after his return he began the practice of what he calls the true Dämmerschlaf method of Gauss, using a *stable scopolamine solution*, made according to the direction of Professor Straub of Freiburg. His cases at Gouverneur number 94, of which 55 were primiparæ and 39 multiparæ. In 70 cases complete amnesia was obtained, in 13 partial amnesia; in 2 there was analgesia. Nine cases were failures, 4 of these had only one injection. Low forceps were applied in 6 cases; craniotomy was performed in the case of a large child, the mother having a small pelvis and mitral stenosis. Had the heart been normal, Cesarian section might possibly have been done. Pituitary extract was used in 3 cases (2 of these are included in the forceps cases). Post-partum hemorrhage occurred once, moderate bleeding in a woman bearing her ninth child. Considerable excitation of the mother was noticed in two cases, attributed to poor technique; in 4 cases there was slight excitation. According to Knipe, excitation is most likely in hysterical, ignorant women, and is seldom seen in an intelligent person. There were no maternal deaths; one patient died fourteen days post-partum from double lobar pneumonia. There was one stillbirth, a case of moderately small pelvis, large child, and protracted labor, allowed too long in second stage. Two children were born asphyxiated, both lived (one of these, a syphilitic child, died later in the puerperium). There were 5 cases of oligopnea, all lived; the cord was around the neck in most of these. Dr. Knipe remarks that these statistics while good can be improved, the personal equation of the doctor conducting twilight sleep being very important if the best results are to be attained.

Dr. Knipe's dosage was as follows: The first dose consists of muriate of morphine 0.01 gm. (1/6 grain) injected subcutaneously with a record syringe; the needle is left in place and a second syringe, containing 0.0003 gm. to 0.00045 gm. of scopolamine is inserted into the same needle and injected. Three-quarters of an hour after this first injection the patient is shown some object with which the test is made; and then thirty minutes later is shown the same object. If at this time the patient remembers having seen the object before, which is usually the same, a second injection is given, consisting of 0.00015 gm. to 0.00045 gm. of scopolamine but no morphine. If at the first test the amnesia is present, which is unusual, the second dose is withheld until further tests show the return of memory. The third and succeeding injections follow at intervals of about one hour and a half according to the tests, using 0.00015 gm. or more of scopolamine as necessary. Generally it takes in all about 0.00075 gm. of scopolamine (plus 0.01 gm. morphine) to induce twilight sleep, according to Knipe. Occasionally one-half of this amount is sufficient, the one dose of morphine remaining constant.

At Harlem Hospital, where ninety-seven cases were treated, Dr. George L. Brodhead, assisted by Dr. Stein, is in charge of the service. In the first forty-six cases they employed the method of Siegel, in which the drugs are given in a routine way without the use of the memory tests, the object being to simplify the technique so that it may be used generally. The first dose consists of narcophine 0.03 gm. and scopolamine 0.00045 gm. In forty-five minutes a second dose of scopolamine 0.00045 gm. is given. In another forty-five minutes a third dose, consisting of narcophine, 0.015 gm. and scopolamine, 0.00015 gm. is given. After an interval of one and a half hours the fourth dose, consisting of scopolamine alone, 0.00015 gm. is given. The succeeding doses are given every hour and a half and consist of scopolamine, 0.00015 gm., and with every third dose narcophine 0.015 gm., so that narcophine would be given at the third, sixth, ninth dose, etc., in addition to scopolamine. Of the forty-six cases, complete amnesia was obtained in thirty-two, partial amnesia in six, analgesia without complete amnesia in five, and in two there was no effect of the drugs. The treatment was discontinued in one case after twelve hours because of the cessation of the pains. The patient was delivered twenty-four hours after the beginning of the treatment.

Nineteen of the patients were primiparæ and twenty-seven multiparæ. The average duration of labor was six hours and twenty minutes in the

* Read at a meeting of the Practitioners' Society, February 5, 1915.

primiparæ and four hours and fifteen minutes in the multiparæ. Low forceps were employed in eight cases; craniotomy was performed once, in a case of hydrocephalus. Twenty-nine of the babies cried spontaneously or after a slight delay, in fifteen there was oligopnea, but all of the babies lived, several requiring hot and cold baths, artificial respiration, etc. There were no stillbirths, but one child was born asphyxiated and one hour was required to stimulate the respiration so that the child breathed fairly well. Ten hours after birth ophthalmological examination of the eyes showed bilateral venous hyperemia of the retinal and conjunctival vessels. The baby died thirty-two hours after birth, the respiratory center having been profoundly disturbed for hours preceding death. Autopsy showed venous engorgement of the brain and all the viscera, but the cause of death was undetermined. In this case labor had lasted only four hours and the child was born spontaneously, but deeply narcotized. Brodhead states that one of the disadvantages of the Siegel plan of treatment, in his experience, is the excitement produced in some patients. On several occasions the services of three nurses were required to keep the patient in bed.

In the second group of cases, numbering fifty-one, only two-thirds as much scopolamine was used in the first two doses, viz., 0.0003 gm. and with the first dose morphine 0.01 gm. The remaining doses of scopolamine were the same as in the Siegel method, but at longer intervals (one to three hours), and no more morphine was given. The results as to the mother were fully as good as before, there being thirty-five cases of complete amnesia, seven of partial amnesia, four of analgesia, without complete amnesia and five failures, one of them due to discontinuance of the drug because labor pains stopped. There were, however, several cases of undue excitement requiring restraint by several nurses, as under the Siegel method.

Twenty-seven of the patients were primiparæ and twenty-four multiparæ. The average duration of labor was about the same as in the first series. Forceps were used in five cases, and one case of twins required version. The babies fared better under the smaller dosage, forty-two being born with spontaneous cry or slightly delayed, and only nine having oligopnea. One child, a premature infant, was asphyxiated at birth. Two babies died in the puerperium, one of syphilis, the other of atelectasis, the child having but one kidney.

At Bellevue Hospital, including the School for Midwives, twenty-five cases were treated in the service of Dr. J. Clifton Edgar. The technique and drugs were the same as carried out and used at Freiburg. Narcophine and scopolamine hydrobromide were used in every case. Complete amnesia was obtained in eleven cases, partial amnesia in eight, in four cases the result was indefinite and they were classed as failures. According to Edgar, all the stages of labor were lengthened, which he considers due to the effect of the drug. It was necessary to employ forceps in only one instance. No dangerous symptoms were observed in the mothers. In one patient marked delirium followed the first and only dose. No especial tendency to postpartum hemorrhage was notice in any of the cases. As to the babies, fourteen were born apparently in excellent condition and cried promptly and spontaneously. Nine were born with varying degrees of cyanosis and asphyxia which required attention to set up respiration. All lived.

Edgar adds that the subsequent condition of the mothers was excellent. There was never any persistence of the mental excitement or delirium when these followed the first injection.

Dr. John H. Telfair, the obstetrician at Fordham Hospital writes that he has "personally conducted two cases of 'Dämmerschlaf' at Fordham, staying with the case from the first injection until delivery. The first case was a complete success; the second a total failure. Both babies cried at once and were otherwise normal."

In the four hospitals 216 cases in all were treated. In 149 of these, or 69 per cent., complete amnesia was obtained; in thirty-five partial amnesia, or 85 per cent. in which amnesia was wholly or partially complete. In eleven cases there was analgesia, and twenty-one, or 9.7 per cent. were failures. Low forceps were applied in twenty cases, or 9.3 per cent., not far from the usual rate. It should be noted that eight of these were among the forty-six cases in which the Siegel method was employed, a method which is now generally abandoned by the advocates of twilight sleep. In the 191 cases at Gouverneur and Harlem there were twenty-nine cases of oligopnea among the babies, but here again the Siegel method was largely responsible, fifteen of the twenty-nine being among the forty-six cases treated without the use of the memory tests.

Dr. Knipe has also introduced a system of exercises which he brought with him from Freiburg. They are begun about twelve to eighteen hours after delivery and are as follows:

Time.—Begin about twelve to eighteen hours after delivery and perform twice daily.

Frequency of Movements.—The first time they should be passively executed by nurse, each movement ten times. After that actively and *against resistance,* which should be increased from time to time.

Upper Extremities.—1. Flex wrist—hand on forearm.

2. Flex forearm—on arm.

3. Flex arm across body—elbow stiff.

4. Circle with arm—forward and backward, elbow straight.

Lower Extremities.—1. Flex ankle—on leg.

2. Flex ankle on leg—leg on thigh and thigh on body—bringing knee to chest and grasping with both arms—clasp to chest; straighten leg to right angle to body and point toe, and then lower gradually to floor. (Do not drop leg suddenly).

3. Toe pointing and knee stiff, lift leg from floor to right angle to body; each ten times, then both together. (Do not drop suddenly.)

4. Toe pointing and knee stiff—abduct leg as far as possible.

5. Toe pointing and knee stiff—circle with each leg.

6. Flex knees bringing feet close to buttock; separate knees against resistance, as far as possible.

7. From position resulting from Exercise 6, bring knees together against resistance.

8. Same position as 6; lift hips from floor as high as possible; return to floor gradually. (Do not drop.)

Trunk Exercises.—1. Arms straight at side—nurse holding feet down—come to sitting position and bend forward *from hips.*

2. Arms folded on chest—repeat Exercise 1.

3. Arms clasped behind head—repeat Exercise 1.

Remarks.—After first few days exercises are best given on firm unyielding surface—comforter on floor is best, unless very firm couch is at hand.

Other exercises of benefit later, not a part of the Freiburg exercises: 1. Lying on face—toe pointing and knee stiff—raise leg from floor as high as possible.

2. Lying on back—raise whole body on heels and shoulders. Lying on side forearm at right angles to arm and elbow just beneath shoulder—raise body on ankles and elbow.

3. Lying on face—clasp hands behind back, elbows stiff, and raise chest from floor as far as possible. Helps to restore lumbar curve and strengthens back muscles.

In Freiburg they have a system of hydrotherapy consisting of alternate hot and cold douches and sprays to the body, especially abdomen, begun about ten days after labor. These are taken lying on a support in bath tub.

I have seen some of the above exercises taken by the patients and the interest of the women is remarkable. They watch and follow the nurse as closely as children watch the teacher in school exercises and in folk dances. It is claimed that by this means patients retain a better muscular condition and are able to get up on the third or fourth day. Some were sitting or standing about who had been delivered six or seven days previously. They are allowed, if they wish, to go home on the eighth day instead of on the twelfth, as formerly. After leaving the hospital the patients are visited by the social service nurses who have found, as a rule, that the patients have done well at home. Dr. Cooke, the house physician, a very intelligent observer, believes that the exercises favor the contraction of the uterus which occurs more rapidly and thoroughly, and if the uterus is well contracted by the eighth day the patient is discharged. Obstetricians of large experience to whom I have spoken believe that it is impossible for the uterus to contract into the pelvis by this time. It should be added that the exercises are not limited to the twilight sleep cases; all the patients in the service have the benefit of them.

I have seen several women in twilight sleep and from twenty to thirty cases after delivery. I have also seen the babies, including some that had suffered from oligopnea, and they all appeared flourishing. At Freiburg, I am told, they do not pay much attention to this condition, leaving the baby to come out of it spontaneously, and maintaining that the child is none the worse for it; but physicians here do not like it and make efforts to stimulate respiration. Inertia of the uterus is one of the contraindications of scopolamine, and the treatment should never be begun until there are definite signs of labor with pains recurring at regular intervals. The doctor should be with the mother from the time the drug is administered until delivery is complete. The patient must be in a quiet, preferably darkened, room. At Gouverneur one or two rooms are set aside for these cases. In Harlem Hospital I talked with a woman in the intervals between the pains and she responded quite naturally, but remembered nothing of the labor afterward. Dr. Knipe thinks that hospitals should be provided for ward patients where they can have a specially trained nurse and house staff in attendance. Under these conditions the treatment would be a great resource to many people.

I have felt obliged to go into this new method of treatment because it was being used so extensively in some of our hospitals. I should not, however, wish to express a final opinion until I have data from several hundred cases. At present I do not see anything to contraindicate the treatment in selected and well-conducted cases. In my judgment, however, it cannot safely be employed by the general practitioner, but should be restricted to specialists.

48 West Fifty-First Street.

PROPAGATION OF PURE VACCINE VIRUS.

By Hideyo Noguchi, M.D.,

New York.

(From the Laboratories of the Rockefeller Institute for Medical Research.)

An ideal vaccine preparation should possess sufficient potency to insure a successful vaccination in cases in which there is no immunity, and at the same time be free from secondary bacterial contamination. The prevailing method of vaccine preparation in the present day consists in collecting at an appropriate moment the virus from the vaccinal eruptions on the skin of the calf and then subjecting the raw material to the bactericidal effects of certain chemical reagents (glycerin, phenol, etc.), which do not impair the virus itself to a serious extent. By this treatment the contaminating bacteria are so reduced in number and kind that the material is now considered ripe for practical use. The method requires stringent precautions in order to produce a model vaccine, and no product is regarded as ready for use before it has been left in contact with the chemical (glycerin) for a month or longer. It is evident that much labor and care can be spared if a method is found by means of which the virus can be propagated directly free from bacterial contamination.

This problem has engaged my attention for the past year and I have now succeeded in propagating pure vaccine virus in the testicles of the rabbit and calf which is absolutely free of bacteria and preserves its virulence undiminished.

The testicle of the rabbit has been employed in recent years for the cultivation of spirochætæ—the *Treponema pallidum* and *Treponema pertenue*, and the effects upon the organ of the inoculation of the usual vaccine virus have been studied slightly. A review of the literature on that aspect of the subject will be given in our full publication. Suffice it to state here that the few experiments performed did not have in view the preparation of pure vaccine for practical use in vaccination.

The essential first step is to have for inoculation into the testicle a vaccine virus quite free of bacteria. This was secured by inoculating the carefully cleansed and shaved skin of the rabbit with glycerinated virus, protecting the vaccinated surface with sterile gauze, collecting the skin vaccine at the height of the eruption, and, spores and spore-bearing bacteria having been thus excluded, emulsifying it in sterile salt solution and treating the emulsion with pure ether or with phenol in appropriate concentration. Non-spore-bearing bacteria may thus be killed without seriously impairing the strength of the virus. Vaccine virus containing bacteria is unsuitable for testicular inoculation, since the inflammation which ensues favors the growth of the bacteria at the expense of the virus.

On the other hand, when the virus devoid of bacteria is inoculated into the testicle it multiplies very much as it does in the skin, so that on the fifth or sixth day maximal growth has been obtained, after which, as the immunity rises, the multiplication falls off and, ultimately, the virus disappears.

Hence, the testicles are removed at the proper moment and employed, in part, for reinoculation.

But not every strain of vaccine virus can be transmitted to the testicles, and, also several successive testicular inoculations are required in order to adapt even a favorable strain to the testicular growth. Once adapted, the propagation in the testicle seems to proceed as regularly as in the skin.

When the virus has been adapted to the testicle of the rabbit it can next be adapted to the testicles of young bulls. Several successive inoculations are required also in this latter animal in order to obtain virus of high activity.

The testicular cultures of vaccine virus exhibit all characteristic properties of the skin-propagated virus. The two varieties of virus are indeed indistinguishable in their action upon the skin and cornea of rabbits and the skin of calves. Moreover, the rabbit testicular strain of the virus, free from all bacteria, produces typical vaccinal effects in human subjects in whom are eliminated the secondary local and general reactions due to bacterial association with the skin virus.

The full paper dealing with this subject will appear in a forthcoming issue of the *Journal of Experimental Medicine.*

CHRONIC DILATATION OF THE STOMACH.*

A CLINICAL AND EXPERIMENTAL STUDY.

By W. HOWARD BARBER, M.D.,

NEW YORK.

(From the Laboratory of Experimental Physiological Surgery and the Gastro-Enterological Dispensary of New York University, and the Division of Gastro-Enterological Surgery of the Polyclinic Hospital.)

DISTENTION[1] is a physiological increase in the size of the stomach. Acute dilatation[2] extends over a few days, and follows inflammations and injuries of the brain, nerves, or stomach muscle. Chronic dilatation is the end result of a gastric overload, and extends through a period of months and years. Fagge, in 1873, states, "Dilatation of the stomach, independent of obstruction at the pylorus or in the small intestine, is a condition which has long been recognized," and Mayo,[3] in 1903, reports twelve cases of chronic dilatation without obstruction.

Osler[4] considers the stomach "absolutely dilated" when the capacity exceeds Ewald's normal of 1600 c.c. Delay is frequently present. Indeed, Mayo considers the most valuable evidence of the test breakfast to be the presence or absence of raisins swallowed at the preceding evening meal. Prior to the introduction of the *x*-ray he had concluded that the retention of raisins over night was in certain cases ample justification for exploratory laparotomy. Nevertheless, laboratory studies of the gastric contents, especially when pursued by the fractional method,[5] are of scientific interest, if not often of confirmatory value. Of essential morphological value is the information obtained from an examination of a stomach section, if only of the seromuscular wall of the stomach, though it is recognized that opportunity for obtaining such material is infrequent. Properly seried roentgenograms are of course of confirmatory value in defining the stomach and estimating its functions in terms of the bismuth meal. The *x*-ray standard fixes the intercristal line in the dorsal prone and 4 cm. below that line in the upright positions as the caudal limit of extension of the greater curvature of the stomach, and allows six hours for discharging its contents into the intestines.* Therefore, sag and inertia as detected through the *x*-ray are inferential evidence of increased load, or decreased prostaltic power. Finally three important symptoms in long standing cases are abnormal holding capacity, retention, and sag, any two of which, for general purposes are sufficient to make a most probable diagnosis of atonic dilatation.

Etiologically dilatation appears to be the primary equivalent of two opposing dynamic forces, namely, contractility and distention. On this basis any factor decreasing the prostaltic or increasing the resistant powers of the stomach is causal in chronic dilatation. Among such factors may be mentioned, on the one hand, prolonged toxemias and infection, general bodily overwork, insufficient nourishment, and unhygienic surroundings; and on the other hand, habitual overeating and overdrinking, and mechanical obstruction. Glenard's gastroptosis and the water-trap stomach, recently described by Satterlee and LeWald,[7] by lengthening the pyloric arm and prolonging the exposure of the stomach wall to the toxic material, probably both retard and impair normal gastric emptying.

Huntington,[8] in his comparative anatomical studies, states "in animals whose bodies are long and slender, as in most saurians, many teleosts, the stomach is likewise usually long and slender in shape, unless special modifying conditions exist." This influence of shape and size of the abdominal cavity would therefore account for the vertical position of the adult human stomach, but its dilatation, according to the same author, is an acquired character, the resultant in part of the habitual amount of food required and the volume and digestibility of the food. This probably explains the incidence of gastric ptosis with dilatation in the individuals of two or more successive families. It has been strikingly illustrated to the author in the "M" family (referred to the author through kindness of Dr. B. P. Farrell), in whom the grandmother, two daughters and one grandson have been found to have dilated ptosed stomachs, and also in the "S" family (referred to the author through kindness of Dr. G. R. Satterlee), in whom mother and daughter were incapacitated for the same reasons.

Physiologically, therefore, dilatation appears to be the dynamic resultant of work and load, with the balance in favor of the load. Such a state is usually acquired, but often predisposed to by torsal malformations, which are apt to be accompanied by a vertical stomach.

Experimentally an attempt has been made to increase the pyloric resistance in thirteen dogs' stomachs, and study its effect upon each stomach wall after a certain lapse of time. The pyloric mucous outlet was resected one-half in eleven dogs and the pyloric arm lengthened twice by anchoring the stomach 8 cm. cephalad to the pelvic brim in two dogs. All were allowed to live from one to eight weeks before being submitted to gastroenterostomies. In each case but two the stomach was found dilated. These were a normal stomach and a stomach grossly hypertrophied and freed from its new attachments in caudad abdomen. The pylorus was found patent in each case. It was possible in several of the artificially stenosed cases, even though, as generally happened, firm adhesions were found

Read before Ex-Interne Society of M. E. (Seney) Hospital, March 25, 1915.

*Standard used at the Gastroenterological Clinic, N. Y. U.

about the pylorus, that the pyloric canal had regained normal size. In view of this overwork it appeared certain that at least a functional if not a structural change had occurred in the gastric wall, probably in the musculature, possibly in the elastic tissue, as suggested by Dr. Alexander Fraser. In each of the stomachs there were noted pallor and deficiency of blood supply, absence of rugæ, giving the stomach an ironed out appearance and thinned out walls. To date no constant muscular or elastic tissue change has been discovered microscopically in any of the above dogs' stomachs, but retention of stagnant fluid and indigestible material have been frequently observed. Mayo-Robson,[9] on the other hand, speaking of the pathology of human dilated stomachs, gives: "(a) Degeneration of muscle (fatty, colloid), (b) want of nerve tone, or paresis, (c) organic disease of the muscle due to fibrosis." Therefore, it appears that a stomach may be clinically dilated and still show no pathological tissue change in its muscular fibers.

Table No. I—Showing Effects of Artificial Stenosis of Pylorus Upon Stomach. (Dilatation, in Italics, Implies Excessive Dilatation.)

Dog No.	Method of Raising Resistance to Gastric Emptying Used in Attempting Artificial Dilatation of the Stomach	Days of Life	Gross Findings*
105	Resection of pyloric mucosa	5	Dilatation
159	Resection of pyloric mucosa	19	Dilatation
171	Resection of pyloric mucosa	12	*Dilatation*
111	Resection of pyloric mucosa	31	Dilatation
177	Resection of pyloric mucosa	42	Normal
160	Resection of pyloric mucosa and circumcision at pyloric incisure	37	*Dilatation*
131	Resection of pylorus	23	Dilatation
176	Resection of pylorus	42	Dilatation
170	Resection of pylorus	35	Dilatation
113	Resection of pylorus	30	*Dilatation*
175	Pyloric obstruction after Bartlett [10]	41	*Dilatation*
148	Artificial water-trap†	58	Hypertrophy
158	Artificial water-trap	14	Dilatation

Table No. II—Showing Effects of Gastro-enterostomies Upon "Dilated" Stomachs. (Percentages were Obtained by Estimating the Contents of the Pyloric and Stoma Loops after Feeding Milk and Beads.)

Dog No.	Duration of Plus Physiologic Resistance in Days	Location of Stoma	Emptying Per Cent. Through Pylorus	Through Stoma
194	0	"Pendant"	0	0
198	0	Pyloric antrum	0	0
111	31	"Pendant"	(Stomach contracted at necropsy)	
203	0	Pyloric antrum	54½	45½
205	0	"Pendant"	63	37
148	58	Pyloric antrum	34	35
		"Pendant"		31
170	35	Pyloric antrum	69	31
131	23	Pyloric antrum	(Stomach dilated at necropsy)	
113	30	"Pendant"	12	88
176	42	"Pendant"	(Stomach dilated at necropsy)	
177	42	Pyloric antrum	Stomach contracted at necropsy)	
228	0	Pyloric antrum	Percentages not obtained. Greater amount of fluid resembling fluid found in stomach in loop from pylorus	
224	0	"Pendant"	Percentages not obtained. Greater amount of fluid resembling fluid found in stomach in loop from pylorus	
232	0	Pyloric antrum	80	20
226	0	Pyloric antrum	90 9	9 1
227	0	"Pendant"	99	1
242	0	Pyloric antrum "Pendant"	Stomach dilated. Most of milk curd found in loop from pylorus, less in loop from pyloric stoma, and least in loop from pendant stoma	

The treatment, as pointed out by Kaufman,[1] "will depend to a much greater extent on our ability to regulate the patient's mode of living and on the patient's ability to observe general hygienic and dietetic principles and rules, which consider not only his local disorder, but in the broadest possible way his constitutional make up, his mental state, his work, and his habits." Nevertheless, when this course fails, as it occasionally does for economic and other reasons, recourse may be had to surgery with some hope of hastening relief, if not recovery, from symptoms.

The surgical therapeutics of this affection appear to lack standardization. The methods pursued are as diverse as are the notions of the principles of its surgical physiology. Hence plication, suspension, or fixation, resection by knife, or suture, and gastroenterostomy have been recommended. W. J. Mayo[2] reports most success with plication combined with Finey's gastroduodenostomy. Mayo-Robson[9] favors gastroenterostomy alone. Gastroenterostomy seems best to meet the indications of relatively increased resistance or insufficient emptying power. It has been studied in the laboratory and in the light of experimental findings applied clinically.

Experimentally an effort has been made to study the comparative efficiencies of pyloric and "pendant" stomata in gastroenterostomy for dilated stomach. To this end sixteen dogs have been used. Of this number seven underwent artificial pyloric obstruction for twenty-three to fifty-eight days. In each of fourteen posterior gastroduodenostomy was done. In two double posterior gastroenterostomies were performed. The stoma was made 3 cm. in diameter. Five to eight days later, under morphine-ether anesthesia, the loops at approximately equal distances aboral to pylorus and stoma, respectively, were loosely ligated with gauze. One day later the dogs were fed 30 c.c. milk. At the end of one hour each dog was killed and contents of the loops were weighed. Glass beads were substituted for milk and counted in a few animals. Resection instead of ligation was performed in four dogs.

From a study of Table No. 2 it appears that the pylorus is the most efficient outlet from the gastroenterostomized (or otherwise normal) dog's stomach, and that, other factors being normal, the closer the artificial opening coincides with the physiologic opening, the greater becomes its efficiency as a stomach outlet. However, of these factors, muscle tone is vitally important, and probably variable clinically, especially in instances where gastroenterostomy is indicated. Dog 113, Table No. 1, was noted as "dilated," and after a stoma was placed most suitable for "pendant drainage" it became 88 per cent. efficient. This was not true, however, of dog 205, with a previously normal stomach, whose "pendant" stoma was but 37 per cent. efficient.[12] In each case in which double gastroenterostomy had been performed acute dilatation was found; the character of the intestinal contents, however, indicated that over two-thirds of the stomach contents left the stomach after passing through the pyloric antrum.

Clinically two human cases are typically noteworthy; one a recurrent total failure under medical treatment, and the other a comparative failure from prolonged medical treatment and a Coffey suspension operation.

Case I.—J. L., age 28. Symptoms for eight years. Complained of constant pain in the pit of his stomach, without reference to eating. He has *eaten* bicarbonate of soda, vomited, and in this way relieved "heaviness" in stomach, two or three times a week for the past year. Said he vomited one or more quarts, and noticed remnants of food eaten one or two days before. Headache and constipation. Lost eight pounds in six months. Negative Wassermann. Had been treated

*For Pathological Findings see text.

†Stomach had freed itself from its attachments and returned to normal position and size.

medically for the past two years, with three recurrences. Signs were those of gastrocoloptosis. *X*-ray (Fig. 1) showed marked sag, increased size, and retention of the stomach. Was operated upon October 19, 1914. Appendix pale and atrophic, removed, stomach large and thin-walled. Posterior gastroenterostomy performed with stoma in pyloric antrum. No ulcerated area was actually seen but the pylorus seemed to be the site of induration, because it barely admitted the tip of the index finger.

FIG. 1.—Case I.

FIG. 2.—Case I.

November 13, 1914. Entirely free from pain. Has much gas and stomach feels "heavy." Occasional headache, less constipated. Vomiting less. January, 1915. Reports free from pain, heaviness and vomiting.

CASE II.—J. O., woman, age 47. Had symptoms for twenty years. Complained of pain and heaviness in epigastrium, relieved by vomiting, which she brought on at least twice a week. Insomnia, headache, constipation, and loss of weight.

She had a narrow subcostal angle with ptosed stomach, liver and kidneys; urine and feces negative. Roentgenogram, as illustrated, showed ptosis of the stomach and delayed emptying. Was treated medically without any appreciable improvement for months.

March 30, 1914. A chronically inflamed appendix

FIG. 3.—Case II.

FIG. 4.—Case II.

was removed, a Jackson's veil divided, pyloroplasty and a Coffey suspension operations were performed. The plastic was done not to widen the pylorus, but to allay the suspicion of ulcer at the pylorus. The pylorus was contracted so as to admit but the tip of the index finger, and the walled up mucosa, as in previous case, gave sensation of indurated area. Not only was the pyloric opening perfectly smooth when felt through the incision and the pylorus itself relaxed to three fingers,* but the section removed from the suspected area was absolutely negative. This patient was carefully followed for the next nine months. Although she gained eighteen pounds and felt generally improved she was not free from headache, constipation and occasional nausea. Roentgenograms showed stomach up, but with residue. January 11, 1915, gastroenterostomy was performed with "pendant" stoma. The result to date has been all that could be looked for. Taste and appetite have returned for the first time in over ten years. The metallic taste has disappeared. She eats everything, and has gained seven pounds in the first week from the hospital. Bowels move freely twice a day without cathartic. Insomnia has entirely disappeared.

FIG. 5.—Case II.

From a review of these cases it appears that medical treatment alone as well as medical treatment assisted by suspension were inadequate for the complete symptomatic relief of these chronically dilated and atonic stomachs; that gastroenterostomy secured at least to date this relief, which was gradual (three months), with the stoma in the pyloric antrum, and immediate (three weeks) with the opening in the "pendant" stomach. Regeneration of the atonic musculatures is questionable, and what effect such a stomach improvement may continue to have on the comparative efficiency of the two artificial stomata remains to be proved.

"One understands," writes Professor Hartmann,[13] "that the juxtapyloric anastomosis works actively when the pylorus is normal, and that the anastomosis in the cardiac part is functionless in cases of permeable pylorus." It appears, however, that a "pendant" stoma works actively in the presence of a permeable pylorus when the stomach is dilated, or its muscle-emptying power is pathologic. Dilatation undoubtedly occasionally exists where gastroenterostomy is indicated, and should, of course, be carefully estimated before placing the stoma. Pendant drainage in presumably pathologic stomachs is well illustrated by A. Ogarkow,[14] who compared the dried stomach residues removed by stomach tubes after submitting the patients to various postures. He found 19.5 per cent. of the test breakfast remaining in the stomach after an hour's lying on the right side, while in the prone and upright positions for the same time it rose to from 25-34 per cent. Similarly Jefferson,[15] in studying the Canalis Gastricus in the human stomach noted that when bismuth cream enters the stomach it is confined to the lesser curvature in 82 per cent. and in 18 per cent. "it spread rapidly over the sides of the stomach." "These stomachs," he observed, "were atonic, though healthy—a combination by no means rare." The importance of gravity on gastric emptying in respect to the dilated and atonic stomachs must therefore be reckoned with medically, and in those few cases in which surgical aid is sought it should influence the localization of the stoma.

Conclusions.—1. Chronic atonic dilatation, etiologically and therapeutically considered, is a problem in pathological physiology.

2. Most cases are amenable to medical treatment. Many are relieved by suspensions. Of both of these classes many are entirely correctable physiologically by carefully planned gastroenterostomies.

3. The position of the stoma is vitally important and depnds on the following: (a) For normal or hypertrophied stomachs the pylorus is the most efficient outlet. (b) For normal or hypertrophied stomachs the nearer the artificial stoma corresponds with the physiologic point of outlet the greater is the efficiency. (c) For "moderately" atonic stomachs or stomachs with 50 per cent. impaired prostaltic power, the efficiency of the stoma is probably greatest in the pyloric antrum, while (d) for the markedly atonic stomachs, with pronounced muscular insufficiency, the pendant stoma seems to date most efficient.

*Complete pyloric relaxation following marked stenosis has been noticed in stomachs of dogs under deep narcosis. The difficulty of deciding positively on duodenal ulcer even on the operating table, is well shown in these two clinical cases.

REFERENCES.

1. Enrique de Argaez: Essai sur la Dilatation Adynamique de l'Estomac. Paris, Asselin et Cie, 1884.
2. Box and Wallace: *Lancet*, 1901, Nov. 9, p. 1259. Braun and Seidel: Mitteil a.d. Grenzgeb, d. Med. U. Chir. Bd. 17. S. 533. Fagge: Guy's Hospital Reports, 1873, Vol. 18, s.I. Kelling: *Arch. f. klin. Chir.* Bd. 64, 1901, s. 393. Friedman, G. A.: Berlin, 1911, pp. 151-85. Repr: *Arch. f. verdauungskrank*, bd. 17, Erganz.
3. W. J. Mayo: *Annals of Surgery*, July, 1903.
4. Osler: Ed. VI. p. 467.
5. Mayo: Personal communication through Dr. Draper.
6. E. Rehfuss: *Jl. A. M. A.*, Feb. 13, 1915.
7. Satterlee and LeWald: *Journal A. M. A.*, October, 1913.
8. G. S. Huntington: "Human Peritoneum and Abdominal Cavity," pp. 43-51.
9. Mayo-Robson: Keen's Surg., Vol. 3, p. 946.
10. W. Bartlett: *Jl. A. M. A.*, August, 1914.
11. Kaufman: Address before the American Gastroenterological Society, *Journal A. M. A.*, June, 1914, and Forcheimer: "Therapeusis of Internal Diseases," Vol. 3, p. 172.
12. A. E. Benjamin: *N. Y. Med. Journal*, April 10, 1909. Draper found 52 per cent. efficiency for pylorus and 48 per cent. for stoma in otherwise normal's dogs' stomachs. (Personal communication). In these dogs, the stoma site was probably between the midpoint on the greater curvature and the pylorus.

13. Hartmann: *Trans.* Am. Surg. Assoc., Vol. 32 (1914), pp. 381-390.
14. Alexander Ogarkow: Ueber den Einfluss verschiedener Körperlagen und einiger anderen Factoren auf die motorische Funktion des Magens. Berlin E, Ebering (1902).
15. Jefferson: *Journal of Anatomy and Physiology*, March, 1915.

AMERICAN THERMAL SPRINGS:

THEIR THERAPEUTIC USES: RADIOACTIVITY OF SPRINGS IN GERMANY, AUSTRIA, AND VIRGINIA; WITH A REGIME FOR PATIENTS WITH GOUT, RHEUMATISM, AND ARTHRITIS.*

BY GUY HINSDALE, A.M., M.D.,

HOT SPRINGS, VA.

SECRETARY OF THE AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION; FELLOW OF THE ROYAL SOCIETY OF MEDICINE, GREAT BRITAIN, ETC.

BALNEOLOGY is the scientific medical study of bathing and medicinal springs (Oxford Dictionary). Balneology is a part of the larger science of medical hydrology which is that department or division of medical science which treats of the use of waters, especially mineral waters, for therapeutic purposes (Foster's Encyclopedic Medical Dictionary). Hydrotherapy is a term usually applied to the use of ordinary water, not necessarily mineralized, for medical treatment; but of late there is a tendency to enlarge the application of this word so as to include balneology as well.

Thermal springs are those having a temperature above that of the mean annual temperature of their locality; but for convenience it is arbitrarily assumed that this temperature is 70° F. or over. Between that and 98° F. they are warm springs; above that they are hot and may reach the boiling point. They originate in far deeper geological formations than in the case of ordinary cold springs occurring in more recent sedimentary strata. This has a bearing on the composition of thermal as contrasted with non-thermal springs; for example, Mount Clemens, Mich., or Saratoga Springs, N. Y., as compared with Virginia or Arkansas Hot Springs.

*Read at a special meeting of the Philadelphia County Medical Society on Hydrotherapy, January 29, 1915.

The two former are heavily charged with sodium chloride from recent sedimentary and more soluble formations, while not one grain in a gallon of this particular salt is found in any of the Virginia Hot Springs.

It is interesting to note that radium is present in the Cold Springs of Saratoga, in the Hot Springs of Virginia and Arkansas, and in numberless springs of the Yellowstone National Park, as well as in Colorado and California.

To derive any benefit from the radioactive qualities of mineral springs they must undoubtedly be used at their source, directly on their emergence from the ground or used in a bath house not too far distant.

The following list, though incomplete, gives some idea of the distribution of thermal springs in the United States:

	Temperature, Deg. F.
Lebanon Spring, Columbia Co., New York	75
Spring near Carlisle, Perry Co., Pennsylvania	72
Rockbridge Baths, Virginia	74
Sweet Chalybeate, Alleghany Co., Virginia	75
McHenry's Thermal Spring, Scott Co., Virginia	68
Healing Springs, Bath Co., Virginia	84
Warm Springs, Bath Co., Virginia	96 3
Hot Springs, Bath Co., Virginia	106
Berkeley Springs, Morgan Co., Virginia	74
Sweet Springs, Monroe Co., West Virginia	79
New River White Sulphur, Giles Co., West Virginia	85
Hot Springs, Buncombe Co., North Carolina	92–117
Citadel Green, Charleston, S. C.	99.5
Warm Springs, Meriwether Co., Georgia	70– 90
Livingston Spring, Sumter Co., Alabama	68
Bailey's Springs, Alabama	72– 80
Hot Springs, Arkansas	46–147
Hot Springs, South Dakota	98
Liberty Hot Springs, Colorado	140–150
Hot Springs, Canon City, Colorado	162
Hot Sulphur Springs, Middle Park, Colorado	110–117
Glenwood Springs, Colorado	124
Idaho Springs, Colorado	106
Las Vegas Springs, New Mexico	110–140
Hudson Hot Springs, New Mexico	142
Ojo Caliente, Taos Co., New Mexico	90–122

West of the Rocky Mountains thermal springs are too numerous to mention; this is particularly true of California and the Yellowstone National Park.*

FIG. 1.—Spout bath, or fixed warm douche.

The thermal springs in the mountains of Virginia, Arkansas and elsewhere are derived ultimately from deep rocks of volcanic or igneous origin, but in connection with faults or profound dis-

*See Radioactivity of the Thermal Waters of Yellowstone National Park. Schlundt and Moore, Bulletin 395, U. S. Geological Survey, Washington, 1909.

locations with corrugations of the overlying strata.

In one of the narrow valleys of Virginia where the Blue Ridge and Alleghany mountains approach each other there is a group known for nearly one hundred and fifty years as "The Hot," "The Warm" and the Healing Springs." The mountain ridges on either side have an elevation of 3,500 feet to 3,700 feet and are 1,200 to 1,400 feet above the valley. They are all within a radius of five miles. The combined discharge at Hot Springs is about 300,000 gallons and at Warm Springs about 1,700,000 gallons in twenty-four hours. The early records of the "Boiler Spring" used for bathing at Virginia Hot Springs show that the temperature of 106 F. has been constant since the first observations published in 1804.

To raise the temperature of a water supply artificially, or to lower it in the case of very hot thermal springs, introduces an element needing human control, and this factor is not always uniform. The process of heating waters artificially tends to drive off the contained gases and the radium emanation along with them, and in so far as this is accomplished, one would lose some of the natural qualities of the water. Of course, the solids in solution would not be affected by such manipulations.

Fifteen springs at Hot Springs, Warm Springs and Healing Springs, Virginia, were tested for radioactivity at their source in July, 1913, by Profs. Ernest Zueblin and J. C. Hemmeter, of the University of Maryland. They used the fontactoscope of Engler and Sieveking, and their table shows the results in mache units. It is evident that the radioactivity is high. Healing Springs is thus intermediate between Kreuznach and Baden Baden; Warm Springs, higher than Baden Baden; the Hot Sulphur Spring, higher than Gastein; the Boiler Spring and Magnesia Spring higher than Landeck and Gastein.

Mache units in a bath of 200 liters, including the values for water, gas and dry residue combined:

	In 200 Liters	In 1 Liter
Radium Kurhaus, Joachimstal	120,000	600
Magnesia Spring, Hot Springs, Virginia	56,800	274
Boiler Spring, Hot Springs, Virginia	42,800	214
Landeck, Silesia, Germany	40,000	200
Hot Sulphur, Hot Springs, Virginia	31,400	157
Gastein, Austria	30,000	150
Warm Springs, Virginia	26,800	134
Baden Baden, Germany	25,000	125
Swimming Pool, Hot Springs, Va	21,854	109
Healing Springs, Virginia	17,284	86
Kreuznach, Germany	11,200	56
Nauheim, Germany	5,720	28
Pistyan, Hungary	4,680	23
Soden, Taunus, Germany	4,400	22
Neundorf, Prussia, Germany	4,000	20

The values given above are taken from Professor Zueblin's paper (*vide infra*). Published data may vary greatly and there is much confusion as to units, etc. Strong radioactive springs may be taken to include those having at least 100 mache units per liter; medium, with 50 to 100 units per liter; and weak springs with 20 to 50 units; in quantities less than this the radioactivity is probably too little to designate them as such. We are yet unable to say how the radium emanation of mineral springs affects the human organism when they are used as baths or as drinking waters. European observers attribute great value to the radioactive waters, especially in disorders of metabolism, such as gout and rheumatism. That it is an asset of value is undoubtedly true and it has been seized upon as explaining many of the difficult problems of balneology. Radium is too elusive an element, at least its emanation is too elusive, to isolate its influence in a given case undergoing balneologic treatment. *Post hoc non ergo propter hoc* should always be kept in mind in drawing conclusions.*

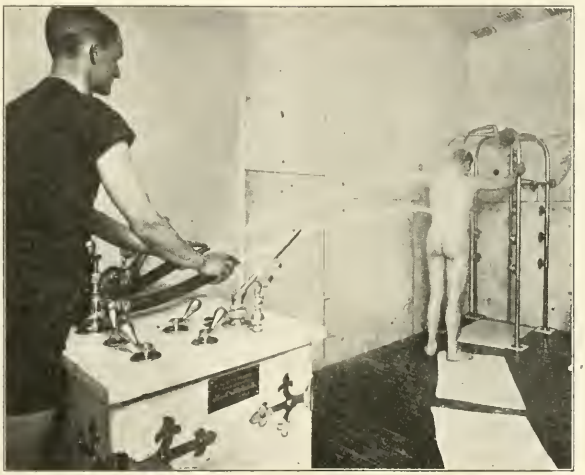


FIG. 2.—Scotch douche. The jets of warm and moderately cool water are passed alternately down the spine for 15 to 20 seconds.

*The connection of hot and warm springs with volcanic rocks, with uplifted mountain chains, and with dislocations of strata has long been recognized. The source of heat is believed to be great masses of igneous rock intruded in the earth's crust by volcanic agencies. Deep seated waters converted into vapors by contact with this heated mass probably ascend through fissures toward the surface where they meet cold springs which are heated by the vapors.—J. K. Haywood, Laboratory, U. S. Dept. Agriculture.

*For "The Present Status of Radioctive Therapy in Medicine" with a bibliography of 263 references to the recent literature, see Ernest Zueblin, *Maryland Medical Journal*, May-June, 1914. See also Radiological Bulletin published by the Kreuznach Medical Society, 1914.

The time-honored methods of treating gout, rheumatism, arthritis, syphilis, skin diseases and many other chronic affections include the use of tub baths, douches, douche-massage, packs, cabinet baths and various manipulations. At all mineral spring resorts there are certain specialties of treatment, as, for example, the famous douche-massage at Aix-les-Bains, the Plombière douche, the spout baths at Hot Springs, Virginia, and the special antisyphilitic methods used at Aix-la-Chapelle and Hot Springs, Arkansas. The therapeutic differentiation of mineral springs commonly recognized in Europe has not yet been so well defined in America, but there have already been slight indications of this. Gout, rheumatism and arthritis are treated at all thermal springs, especially at those in Virginia, Arkansas and California. Syphilis is treated extensively in Arkansas and at Mt. Clemens, in Michigan. Cardiac cases, by means of "Nauheim" or carbonated baths at Glen Springs and Saratoga Springs, New York. At these places special provision is made for the affections indicated.

Recently attempts have been made to standardize physical therapeutics.* This has met with some success in general electrotherapeutics and especially

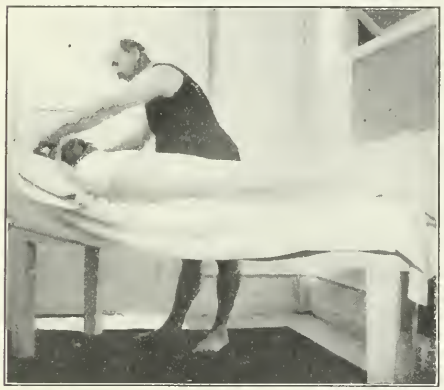


Fig. 3.—Hot Dry Blanket Pack. Adjusting cool cloth to the head.

in using the *x*-rays and radium, light and heat. Mechano-vibration, massage and Zander exercises lend themselves rather well to something approaching a standard method of treatment, although, of course, individualization is always highly necessary to success in any case. Whether balneology and hydrotherapy can be included in any standardized system remains to be seen. It probably is to some extent possible.

We may incidentally mention here a fact commonly noted in the use of thermal baths in the case of patients having gout and rheumatism, and that is that a painful reaction is liable to ensue at some time in the course of treatment. This has been noted in very early times and is familiar to physicians who have anything to do with thermal springs. As far as I know this painful reaction does not occur in treating other affections as, for example, in the use of carbon dioxide baths for cardiac disease. The occurrence of this reaction is, in a way, encouraging—at least for the physician—and may be taken as an indication that the disease is being dislodged, painful though it may be. In "King John" Shakespeare says:

"Before the curing of a strong disease
Even in the instant of repair and health,
The fit is strongest; evils that take leave
On their departure most of all shew evil."

More than one hundred years ago Rev. Dr. Ashbel Green noted that patients at Virginia Hot Springs experience temporarily, while under treatment, an aggravation of their symptoms. Of one of the patients he says: "He used the waters . . . . and for nearly two weeks he complained that he rather grew worse than better. At length, however, his pains left him so suddenly that he could scarcely believe they were gone. The pains did not return and the patient went away well."

The obvious lesson from this is that it is wise to forewarn our patients of such a possibility and thereby disarm criticism. If nothing is said in advance our explanations may carry little comfort, the patient seems incredulous and discouraged.

Cases of acute gout and rheumatism are usually better treated at home and should probably be spared the discomforts of long railway journeys, especially the dangers of a trans-Atlantic voyage. So, also, patients with cardiac disease, especially if uncompensated, should not be sent on the long trip to Nauheim, even were that spa able to receive them as in times past. Circumstances render it necessary to look elsewhere and Americans are now learning to make use of their own resources. We have already briefly mentioned some of the specially indicated American spas.

Experience at the Hot Springs, Virginia, and observation at other spas where patients come for the relief of chronic gout, rheumatism, arthritis, fibrositis, and kindred maladies lead to reliance on the following measures, modified according to individual resistance and susceptibility:

1. A tub bath at 102°, 103°, or 104° F. Vigorous (or gentle) rubbing in the tub, especially of affected joints or other areas. Duration of bath, 6 to 12 minutes.

2. The hot, dry pack. The patient on emergence from the tub is instantly wrapped in a hot and dry sheet, laid on a couch where he is closely enveloped in hot, dry blankets, care being taken as the three or four successive blankets are applied to leave no chance for the entrance of outside air. Duration of pack, 10 to 25 minutes.

3. Cloths wet in ice water to be applied to the head while the patient lies in the tub and in the pack.

4. After the pack a douche of cold water all over the body; or, in more delicate patients a sponge dipped in cool water applied quickly two or three times up and down the spine.

5. A more or less vigorous rubbing all over the body for five to eight minutes with pure alcohol; where, on account of the condition of the skin, alcohol is contraindicated, cocoanut oil may be used.

6. After three successive baths a day of rest.

7. As an additional measure to institute on the fifth day the use of a warm douche (104° F.) for five to ten minutes preceding the tub bath. The douche to be applied all over the body excepting the head and breasts; the pressure from a ¼-inch nozzle to equal 10 to 20 pounds to the square inch and preferably a fixed jet from an unvarying natural supply of thermal water.

8. Rest after the bath, preferably in the patient's bed.

*Report of the Committee on Standard Therapeutic Measures from American Electro-Therapeutic Association, Sept. 15, 1914.

9. The total number of baths to be governed by individual needs, twenty or twenty-one for average cases.

10. An "after cure" or period of relaxation from the bathing régime, under favorable climatic surroundings and under more or less medical observation, with tonic measures prominent.

11. Dietary provision and advice during treatment and for future use.

A NEW APPLICATION OF ERGOTHERAPY BY THE KELLOGG-BERGONIE METHOD IN THE TREATMENT OF OBESITY AND OTHER CHRONIC DISORDERS.

By A. J. READ, M.D.,

BATTLE CREEK, MICH.

Under the name of the Bergonie treatment a method of automatic exercise has within the last few years become deservedly popular in all parts of Europe in the treatment of obesity, and has recently awakened interest in this country. As a matter of fact the method is

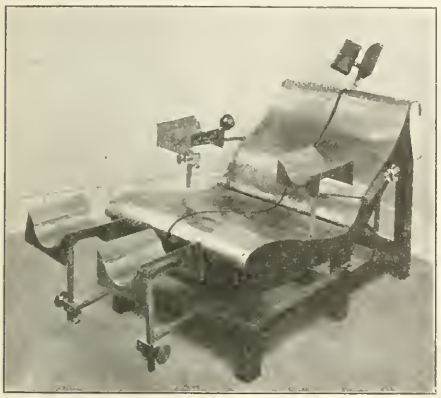


Fig. 1.—Chair for use in the application of automatic exercise.

not new. In 1886 Dr. J. H. Kellogg of the Battle Creek Sanitarium discovered the sinusoidal electric current, which he described in a paper before the American Medical Association at its Cincinnati meeting in 1888. Four years later, d'Arsonval discovered and described the current and gave it the name sinusoidal.

A most remarkable property of the sinusoidal current to which Dr. Kellogg called attention in his first paper and in later papers is its ability to evoke painless muscular contractions. d'Arsonval failed to notice this remarkable property for the reason that the currents with which he experimented were of very high frequency (10,000 to 1,000,000 per second), very high voltage (100,000 volts or more), and of very small quantity, whereas the apparatus studied by Kellogg produced a sinusoidal current having a comparatively low voltage (1500 volts), slow alternation, 4 to 60 per second, and quantity sufficient to produce a strong muscular contraction at each alternation of the current.

Kellogg early made use of this very remarkable property of the sinusoidal current as a method of automatic gymnastics. It was at once employed as a means of developing weak abdominal muscles, the weak groups of muscles in scoliosis, paretic or paralyzed muscles in cases of hemiplegia and infantile paralysis, and shortly afterward Kellogg employed it in the treatment of general and local obesity and described the method in various papers. The method of application was essentially the same as that which has been recently suggested by Bergonie.

The records of the Battle Creek Sanitarium and Hospital show that the sinusoidal current has been employed in more than 100,000 applications and in many hundreds of cases.

The method of Kellogg has several advantages over that of Bergonie. One very important advantage is that with the sinusoidal current which he has always employed very powerful muscular contractions may be induced without pain or other sensation than that due to the muscular contraction itself, whereas the faradic current employed by Bergonie produces more or less unpleasant skin sensations which requires of the patient considerable exercise of fortitude if the current is applied with a sufficient degree of intensity to secure maximum efficiency. Nevertheless, Bergonie rendered an important service in calling attention to the value of electricity as a means of inducing muscular work and the success of his method, notwithstanding its defects, has justly aroused much interest among the laity as well as among the members of the profession especially in connection with the treatment of obesity.

Obesity is a disorder of metabolism. The body fails to burn its fat, thus permitting it to accumulate, just as in diabetes the body fails to burn its sugar and allows it to be lost through the kidneys. In diabetes the problem of preventing the metabolic fault so as to enable the body to utilize its sugar is exceedingly difficult and rarely wholly successful. In obesity, however, the task is comparatively an easy one, it is only necessary to increase metabolism by increasing the activity of the muscles and to decrease the intake of fat-forming foodstuffs. During vigorous activity the rate of metabolism may be increased to eight or ten times the rate in the state of rest. The difficulty is to induce the patient to take the needed amount of exercise. A fat person becomes easily fatigued; the heart is often weak, the breath short, and not infrequently obese patients suffer from rheumatism in the knees or feet which renders much walking painful or impossible. Disease of the heart and kidneys also contraindicates prolonged or vigorous muscular exercise. Sometimes the chief obstacle is the patient's indolent disposition which may insure failure instead of success. Automatic exercise or electrical gymnastics induced by the Kellogg-Bergonie method overcomes all these objections.

The Method.—The patient lies upon a couch or reclining chair (Fig. 1) with electrodes adjusted to the groups of muscles which underlie the principal masses of surplus fat and the current is turned on. Vigorous rythmical action is produced in the several muscular groups either in alternation or simultaneously as may be desirable for the individual case. The amount of work done may be regulated by adjusting sand bags to each muscular group over the electrode so that at each contraction the muscles are compelled to lift a weight and thus do actual mechanical work (Fig. 2). It is possible to make an approximate calculation of the amount of work done; for example: A sand bag weighing 50 pounds placed over the abdominal muscles may be lifted an inch at each contraction with the muscle contracting at

the rate of twice a second or 120 times a minute. Thus a single group of muscles may in thirty minutes do 15,000 foot pounds of actual mechanical work. The large muscles of the thigh and the muscles of the arms may be made to work at the same time, increasing four fold the amount of work done and by setting the muscles of the back to work also, the total amount of work may be made sufficient to increase the total, at a very conservative estimate, to 25,000 or 30,000 foot pounds in half an hour, or say 50,000 foot pounds in an hour. These figures really represent only about one-fifth of the actual energy expended by the body since the physiologists have shown us that except under the most favorable conditions, the amount of heat produced as a by-product of muscular work represents three or four times as much energy as the mechanical work done. Taking this into consideration the real energy expended would amount to about 250,000 foot pounds.

Actual metabolism tests made by the respiration apparatus of Benedict, which measures the amount of O_2 consumed and of CO_2 produced, showed the body metabolism to be increased from 300 per cent. to 500 per cent. during a seance of automatic exercise in which the Kellogg apparatus was used.

Advantages of Automatic Exercise.—1. Perfect Adaptation. The dissipation of local fat accumulations over muscular groups which are too little exercised is more efficiently accomplished by this method than any other for the reason that the muscular work may be localized and may be increased to any degree of intensity. In general obesity there is a very uniform distribution of fat over the entire body, but even in these cases little fat accumulates about the hands or forearms or feet and lower legs, probably on account of the fact that the muscles of these parts are exercised more freely than those of other parts of the body. In the great majority of cases of obesity the fat is not equally distributed but accumulates in certain regions, especially about the abdomen and thighs and often in women about the shoulders and chest. The Kellogg-Bergonie method lends itself perfectly to both these classes of cases for the automatic exercise may be applied to all the principal groups of muscles in the body or the application may be confined to the principal masses of accumulated fat.

In the matter of adaptation to individual requirements, especially in the treatment of localized obesity, the Kellogg-Bergonie method is especially valuable since by means of it the increase of metabolic activity can be excited at the very point where it is required. A person who has an excessive accumulation of fat about the abdomen may certainly reduce fat by a large amount of muscular work, such as walking, hill-climbing, etc., but such exercises require the activity of the entire muscular system and increase the consumption of fat not only in the places where fat reduction is desired, but over the entire body. This method must involve then an enormous waste of energy, whereas with the Kellogg-Bergonie method the energy expenditure and resulting fat consumption are induced at the particular point where the reduction is needed.

Fig. 2.—Application of automatic exercise with patient lying on a couch.

2. Freedom from Fatigue. The obese person on exercise becomes very quickly fatigued, out of breath, over-heated, and can only with difficulty be induced to continue his efforts long enough to secure definite results. The majority become discouraged because the results obtained appear to be so small when compared with the efforts required. While

undergoing treatment by the Kelogg method the patient experiences no fatigue. There is no energy expended by the brain or spinal cord whatever, the patient simply lies on his couch or easy chair while his muscles are contracting vigorously under the influence of direct painless electrical stimulation.

This is a matter of very great consequence, especially in the treatment of neurasthenics who often refuse to exercise because of the distressing sensation of fatigue of the brain and nerves which follows even moderate exertion. By the use of the automatic electrical exerciser stimulus is applied directly to the muscles so that no expenditure of brain or nerve energy is required. The patient can be made to do as much muscular work as though he had walked a number of miles and without any unpleasant sense of fatigue; any exhausting effect following the application is neutralized by the tonic effects of the electrical current.

The sinusoidal current is so penetrating and so efficient in producing muscular action it passes di-

Fig. 3.—Automatic exercise apparatus (Kellogg) for the application of ergotherapy.

rectly through the skin and penetrates the body of the muscles and brings every fibre into action either gently or vigorously according to the amount of current employed. The action is absolutely automatic and independent of the patient's volition. The patient may, indeed, in the meantime occupy himself with reading or any appropriate diversion, being quite unconscious of effort or any other sensation than that of strong muscular action in the parts undergoing treatment. Not only is the patient free from fatigue and exhaustion in this treatment, but at the same time he experiences the tonic effect of the electrical currents which are constantly playing through his body. That work is being done is very soon evidenced by the fact that he experiences the sensation of increasing warmth that accompanies exercise and is soon bathed in copious perspiration. Any discomfort from this source is relieved by the attendant who wipes away the perspiration and if necessary bathes the face and applies cold cloths to the head so the patient experiences no fatigue even though an enormous amount of muscular work may be going on.

Obese patients suffering from severe cardiac disease, gout, or rheumatism are able by this method to receive the advantage of efficient muscular exercise notwithstanding their inability to engage in voluntary muscular effort to a sufficient degree to secure any reduction in weight.

3. The Kellogg-Bergonie method admits of the most perfect regulation of the dose of exercise to meet any condition or requirement. The intensity of the application may be so great as to convulse the body with the powerful muscular contractions and on the other hand it may be so modulated as to produce only the most gentle muscular action. The treatment may thus begin with a minimum dose and steadily increase in intensity from day to day as the patient's endurance increases until the maximum effects are produced.

The results under judicious management are exceedingly gratifying. The actual loss of weight which occurs during the seance is always a source of encouragement to the patient. The amount of weight lost during the half hour of an ordinary seance varies from half a pound to one pound, according to the vigor of the application. The loss of weight is rarely less than half a pound and in some cases as much as one and one-fourth pounds. It is true that this reduction of weight is largely due to the loss of water through the skin, but it must be remembered that the evaporation of the water from the skin cannot be effected without the use of heat derived from burned fat. Evaporation of a pound of water from the skin requires the burning of an ounce of fat, or its equivalent. Free perspiration is thus a sure evidence of the effectiveness of the treatment.

Under the influence of the Kellogg-Bergonie method in conjunction with proper regulation of the patient's diet together with voluntary exercise which should always accompany the treatment, if possible, weight may be reduced with any desired degree of rapidity. A reduction of half a pound a day is about the minimum rate of weight loss which should be expected. The steady loss of one pound a day or even higher rate of loss may be maintained for a short time, even for a few weeks, if care is taken to protect the patient from the evil effects of acidosis. It must always be remembered that too rapid a loss of flesh is not desirable. It is certain to result in very marked vital depression of the patient and serious disturbance of metabolism and in the most favorable cases will be soon followed by a rapid return of the flesh that has been gotten rid of at the expense of so serious an effort. What is required is that the fault in the patient's metabolism should be corrected so that with reasonable attention to regimen and the following of a few simple rules his health may be maintained on a higher level and his weight kept within reasonable limits.

Necessary Precautions in Reduction of Weight.—It is highly important to avoid such a degree of severity in the measures employed as will make necessary so rapid an attack upon the body tissues as to induce acidosis. Acidosis is always present in starvation as well as in advanced cases of diabetes and for essentially the same reason. The patient's basal metabolism is maintained at the expense of the body tissues. If the usual food intake is reduced to less than three-quarters the amount necessary to supply the energy require-

ments of the body acidosis is likely to appear. This is shown by acetone in the breath and the appearance of acetone and diacetic acid in the urine. A high ammonia content of the urine is also an indication of acidosis and is one of the most convenient methods of determining this condition. Metabolism studies by means of the respiration apparatus are on this account highly useful in connection with the treatment of cases of obesity, although it is possible to dispense with this somewhat technical method of examination by exercise of extreme care and good judgment.

It is highly important that the water intake should be increased in the reduction of body weight. It is impossible to increase fat consumption without at the same time to some degree increasing the breaking down of the nitrogenous tissues. According to Van Noorden this may be estimated as about ten per cent. of the fat consumption. It is possible by simply noting the intake of protein and determining the total nitrogen of the urine to establish a nitrogenous balance. It is desirable in all cases of weight reduction to maintain a plus balance, hence care should be taken that the protein intake is sufficient to compensate for the extra loss due to increased metabolic activity and also to provide the extra protein needed for increasing the muscular tissues that occur as a natural result of increased exercise. It must not be forgotten that the exercise required in the treatment of obesity creates an exchange of fat for muscular tissue so that the fat reduction is always more than is indicated by the scales. A portion of the fat loss is balanced by the very advantageous gain in muscular tissue.

The increase in protein metabolism naturally requires a very considerable increased intake of water to wash away the nitrogenous wastes. An extra supply of water is also required to compensate for the loss of water from the skin made necessary by the increased heat production resulting from muscular work. On an average the consumption of water should be from three to four quarts daily; the amount should be sufficient to maintain a urinary output of three or four pints or at least 1½ liters.

To aid the patient in restricting his diet and also to lessen the burden of the kidneys which are necessarily required to do much extra work, it is important to reduce the consumption of salt to about one-half of that to which the patient is accustomed to take, or even less. In some cases salt may be wholly omitted from the food with decided advantage. The lessening of the salt intake also encourages loss of weight by diminishing the water content of the body. For every ounce of salt held in solution in the fluids of the body 140 ounces of water are required to maintain the normal specific gravity of the body fluids, and a normal osmotic exchange. If by lessening the salt intake the amount of salt held in the body is diminished one ounce, the result will be a discharge of 140 ounces of water from the body or a loss of about 8 or 9 pounds of body weight for each ounce of salt.

In the use of the Kellogg-Bergonie method some little care must be exercised at the first seance to avoid too intense or prolonged applications. The failure to take this precaution may result in making the patient's muscles so sore as to discourage him. The soreness will disappear in a few days. The vigor may be rapidly increased after the first three or four days, as the muscular soreness disappears.

This method of producing automatic exercise of the entire muscular system or of individual groups is capable of rendering the very greatest service in many classes of cases besides patients suffering from obesity.

The method is particularly serviceable in the following cases.—(1) As a general application in convalescence following typhoid or other fevers. (2) After abdominal section or other surgical procedures in which the patient has necessarily been confined to the bed for some time. (3) In cases of chronic rheumatism. (4) In cases of osteoarthritis. (5) In cases of gout, sciatica and other cases in which the patient is unable to walk. (6) In cases of rest cure. (7) In a great number of cases of enteroptosis or viceroptosis which is common in women on account of the weakness of the abdominal muscles. By this method the abdominal muscles may be rapidly strengthened and enabled to hold the vicera in place and to maintain the intra abdominal pressure necessary for good blood circulation. (8) In cases of paralysis and cases of deficient muscular development as in cases of scoliosis.

This list might be very greatly extended for, as a matter of fact, there are few cases of chronic disease in which the Kellogg-Bergonie method may not be employed, not as a substitute for exercise, but as a highly useful means of supplementing other forms of exercise.

A CASE OF DIPHTHERITIC TRACHEOBRONCHIAL CASTS IN A WOMAN 50 YEARS OF AGE.

By A. LEVINSON, M.D.,
CHICAGO.

TRACHEAL membranes are not uncommon in diphtheria, in fact most cases of laryngeal diphtheria present a tracheal membrane post mortem or ante mortem (when coughed up or removed by the introduction of an intubation tube.) Tracheal membranes, however, are of most frequent occurrence in children between the ages of 1 and 5, this period supplying the greatest number of laryngeal diphtheria. (See Schick's Table in the *Zeitschrift für die gesammte experimentelle Medizin*, Band IV, Heft 2.) With advancing age laryngeal diphtheria becomes less frequent. This may be due to the fact that the older child or adult calls attention to the oncoming disease when it is still located on the tonsils and thus prevents its further progress, or the shape of the young child's larynx, which is so much narrower than that of the maturer person may render it more susceptible to the formation of a membrane. We thus see very few cases of laryngeal diphtheria in adults, especially in old age.

While serving as resident physician at the Chicago Contagious Hospital, I had occasion to treat a case of diphtheria, in a woman of 50, in which the disease extended over the larynx, bronchi, and bronchioli. Besides its infrequency I found the case interesting for the rapidity with which new membranes formed over the trachea and bronchi, and for the formation of the casts which the patient coughed up. The history of the case follows:

Mrs. H. Y., aged 50 years, had diphtheria in infancy. A scar was still to be seen on her neck from the blisters applied to it, which was a very popular treatment for diphtheria in those days. She had also had scarlet fever, measles, chickenpox, and whooping-cough in her childhood. With the exception of these diseases, her health was good until two years ago, which marked the beginning of her menopause, when she began to feel pain in her abdomen. She had three ovarian cysts re-

moved, recovering from the effect completely in three months.

On August 28, 1911, patient had a sore throat and a temperature of 99.4 , but she paid little attention to either. On the 29th she had chills and her temperature rose to 100.2 . She complained of severe headache. She called in a Christian Scientist, who had been treating her very frequently for nervousness. The Christian Scientist made light of her condition, and assured her prayer, for which she was to pay $2 per visit, would cure her. On August 31 her condition grew worse. Her temperature rose to 103 , and the family becoming alarmed called a physician, who swabbed her throat with nitrate of silver, and took a culture which he forwarded to the municipal laboratory. The day following, the culture having been found positive, the physician administered 10,000 units of antitoxin and sent the patient to the Chicago Contagious Hospital. On the way to the hospital, the patient claimed that she had coughed up a big cast, a fact, however, which was not verified by the ambulance surgeon.

Upon arrival at the hospital at 5:30 P. M. patient showed a temperature of 103 , pulse 108, respiration 24. On examination a membrane was seen over the tonsils, fauces, extending way down to the larynx. The glands on both sides of the neck were swollen and tender to the touch. A scar was noticed on the neck, as previously mentioned. Heart was normal in outline; heart tones weaker than normal. Dry râles were heard all over thorax; otherwise negative.

A culture was taken from throat which, morning after, presented a thick membrane-like growth consisting of Klebs-Loeffler bacilli.

Ten thousand units of antitoxin were injected into patient at 10 P. M. in order to allow time for the first dose of antitoxin to take effect; 1 grain of calomel was administered followed by 2 ounces of sulphate of magnesia. Hot compresses were applied to the neck and hot water was given to the patient very frequently. She was very restless all night, but her temperature gradually subsided so that at 8 A. M. the next morning (September 2) it fell to 98.8° and the pulse to 84. Respiration, however, still continued at 26 per minute and was very labored. Patient started coughing in the early morning and at 11:30 after a paroxysm of eight minutes she coughed up a cast which had the impressions of the thyroid cartilage, all the tracheal rings,

Fig. 1.—Diphtheritic cast coughed up by woman 50 years of age, extending over larynx, trachea, bronchi and bronchioli. Unfortunately the nurse put it in alcohol, which coagulated the membrane and caused it to fall to pieces, leaving only the part that lay over the tracheal rings.

right and left bronchii and bronchioli on the left side (Fig. 1). After this she was entirely relieved and rested comfortably the rest of the day. We administered 10,000 units of antitoxin on that day and 10,000 more the next day, which she spent comfortably. At night (September 3) patient again became restless after having coughing spells every few minutes, and at 10:30 the next day she coughed up a membrane similar to the previous one except for its size, this one being about ¾ inch longer (Fig. 2). The tempera-

Fig. 2.—Diphtheritic cast, second (according to patient third) to be coughed up inside of 24 hours. Cast shows the markings of the thyroid cartilage, tracheal rings, bronchi and some bronchioli.

ture fell to 99.8° and did not rise any more. Ten thousand more units were given on that day, making a total amount of 95,000 units of antitoxin. Patient felt very well after she coughed up the last membrane except for the weakness she experienced. The cultures taken from her throat showed involuted bacilli and on the fourth day the culture was entirely negative. The patient was very anxious to get out of bed, though warned repeatedly that the slightest exertion on her part might result in an acute dilatation of the heart. This really occurred on September 19, when she got out of bed and walked around in the ward. She was put back to bed and stimulated by strychnine sulphate and camphor, but her heart did not return to normal, and on September 20 she succumbed to acute dilatation.

30 N. Michigan Boulevard.

The Communicability and Control of Whooping-Cough.—E. Feer calculates the incubating period in this disease as from seven to twelve days. He finds that it is infectious chiefly during the catarrhal stage at a time when the diagnosis cannot yet be established. There is a psychic factor which comes into play in the control of the attacks. Replacing an anxious mother by a tactful nurse frequently has a favorable influence in the entire course of the disease.—*Medizinische Klinik.*

A CASE OF A ROUND CELL SARCOMA OF THE MENINGES OF THE BRAIN.

By G. A. RUECK, M.D.,

NEW YORK.

(From the Department of Pathology, Fordham University Medical School, New York City.)

BRAIN tumors are rare as compared with other diseases of the central nervous system and for that reason the following case is reported, although its history is incomplete.

Anna G., 24 years old, Irish, single, domestic, in the United States 8 months, was admitted to St. Francis Hospital August 11, 1911, with the diagnosis of meningitis. The patient related that she had received a blow on the right side of the back of her head some time ago. Her present illness started three weeks prior to the admission to the hospital with a dull frontal headache, neusea, and vomiting. These symptoms continued until her death. She was conscious when she entered the hospital and could walk and read. The temperature ranged from 99° to 103° F. The patient died within 24 hours after her admission to the hospital. (I reported this case to the Bronx Medical Association, March 28, 1912.)

With permission of the coroner's physician, Dr. Riegelman, I performed the autopsy August 12, 1911.

Photograph of brain and tumor (taken by James Coughlan, M.D., surgical intern at St. Francis Hospital). The left half of the brain is somewhat distorted by an improper position in the jar during the process of hardening. The dotted line points to the tumor.

Autopsy: A middle-sized, fairly nourished Irish girl. The viscera were negative. The hymen was intact.

Brain and Meninges: The dura was normal. The brain convolutions were somewhat flattened and the fissures comparatively narrow due to internal hydrocephalus produced by the pressure of a tumor. The tumor was situated between the left lobe of the cerebellum and the left occipital lobe of the cerebrum. It was visible posteriorly where it was not covered by the overhanging left occipital lobe. Judging from this visible portion alone the tumor might have been taken for a spherical structure. Anteriorly the tumor reached to the pons. The left lobe of the cerebellum was slightly pushed over to the right and its upper surface on which the tumor rested was smooth and depressed. There was also a smooth depression made by the tumor on the inferior surface of the left occipital lobe of the cerebrum. Depressions made by the tumor on the pons and cranial nerves were not noticed. Except for a reddish hue the tumor was of the same color as the brain. It had nearly the shape of a hen's egg, weighed 7 grams and was 40 mm. long, 25 mm. wide and 20 mm. thick. It was not adherent to the brain substance, was of a denser consistency than the brain and contained small yellowish granules which did not grate on section.

Microscopic Examination.—The cells making up the chief bulk of the tumor had an alveolar arrangement. They were closely packed and of the size of large mononuclear leucocytes; some of them were of the size of lymphocytes. Most of them were round, some elliptical and some polyhedral. They had little cytoplasm and large, deeply staining, granular nuclei. Some of them had a deeply staining nucleolus. These round cells of the tumor must have originated from the walls of the blood vessels and, being closely packed in an alveolar arrangement they must have been en masse the yellowish granules seen macroscopically. Trabeculæ forming a reticular framework traversed the tumor. In some places they were narrow strands, in others they were as wide as three diameters of the microscopic field of the low power objective. The trabeculæ were made up of connective tissue cells of the embryonic type. The nuclei of these cells were large and elliptical; a few were sausage-shaped or polyhedral. The cytoplasm cell processes and cell cement took a lavender color with an eosin-hematoxylin stain; the nuclei stained somewhat darker. This framework of the tumor originated from the sheaths of connective tissue surrounding the blood vessels of the pia. It carried comparatively few blood vessels. No blood vessels were seen in the "alveoli" of the tumor. There was no free hemorrhage in any part of the tumor. Each section showed many small and a few large areas of necrosis.

The pia surrounded the tumor as a thin capsule. There was no infiltration with tumor cells of the neighboring brain substance. (Brain and tumor were given to the museum of Fordham University Medical School and have the number 721.)

According to the above description the tumor was a round cell sarcoma. This case would have been excellent for brain surgery.

1070 TIFFANY STREET.

CARCINOMA IN THE YOUNG.

REPORT OF CASES.

By ROYALE H. FOWLER, M.D.,

BROOKLYN, N. Y.

CASE I—*Carcinoma of the Rectum, Diffuse Peritonitis.* P. W., age 15, was admitted to St. Luke's Hospital, New York City, service of Dr. Robert Abbe, in November, 1907. The chief complaints were pain in the rectum and abdomen. Patient had been in good health until somewhat less than one year ago when he lost his appetite and had cramp-like pain in the abdomen. Six weeks later the stools became tinged with blood. The bowels had previously been constipated. He visited several hospitals and was later sent to the country. No relief was obtained and finally examination under ether revealed an inoperable condition. There had been a marked loss of weight. No vomiting, cough, urinary, or other symptoms. His condition grew worse and the boy was admitted to St. Luke's Hospital in a pitiful condition suffering in addition from multiple bed sores and a pararectal abscess. The boy's mother died of cancer of the stomach.

Clinical findings. Blood examination revealed on admission a leucocytosis of 19,400, Polys 83, Lymph. 17. Temperature varied from 98 to 102, the pulse from 120 to 144. Respiration from 16 to 28. Stools became involuntary. The patient was beyond help and died. The autopsy performed by Dr. Hans Zinsser is herewith appended. The body is that of a very much emaciated boy. No signs of external injury. There is extreme edema of both lower extremities below the knees. Both feet are enormously swollen. Pupils equal and mid wide. There are numerous bed sores at various bony points. Above the anus and around it there is some superficial ulceration of the skin and on the left buttock, one-half inch from the anus, there is the opening of a sinus which leads into the ischiorectal region. It exudes pus. Upon inserting the finger into the rectum a hard ulcerated mass is felt 3 x 4 cm., about 6 cm. from the anal opening. External genitals normal. Superficial axillary and cervical lymph nodes slightly enlarged. The inguinal are three times the normal size.

Thorax: Lungs show old tuberculosis scars at both apices, organs edematous, slightly congested at base. Bronchial lymph nodes slightly enlarged. Left bronchi exude pus. Thymic remains small, no enlarged mediastinal glands. Heart wall of the left ventricle is thin.

Considerable atheroma just above aortic valves and of the aortic arch.

Adbomen: Thick grumous pus upon opening peritoneum. Contained no feces. Liver, congested, moderate perihepatitis. Slight amyloid and fatty degeneration. Kidneys, embedded in soft purulent adhesions in which capsules are involved. Ureters free. Pancreas, suprarenals, gall-bladder, and ducts normal. Intestines, large and small, are matted together by fibrinous and purulent adhesions, wall thin, serosa lustreless and covered with fibrin. Mucosa intensely congested. Mesenteric lymph nodes slightly enlarged. Rectum is embedded in a thick mass of new growth. It is firmly adherent to the walls of the pelvis. This mass has infiltrated and displaced muscles of the pelvis and has grown through the sacrosciatic foramen. The entire region is burrowed with intercommunicating sinuses which are filled with pus. The wall of the rectum is so infiltrated and thickened that slight tension tears it. No perforation of the rectum. Appendix normal.

Microscopic diagnosis, adenocarcinoma of the rectum.

This case is of interest on account of the extreme youth of the patient, the rapidity of the growth, and because of the failure of early diagnosis.

Carcinoma is rarely observed in such young subjects. When it occurs in the bowel it is most frequently encountered in the large intestine, the sigmoid usually being credited with the site of predilection.

Twenty-one cases of carcinoma of the large bowel occurring in young persons have recently been reported by French observers. Of these nine were in the cecum and twelve in the sigmoid. As regards age, two cases were under ten years of age, eleven were under twenty, and seven were under twenty-five. Thirteen cases occurred in males. In this series the disease progressed rapidly to a fatal issue. In all but two cases, seven or eight months elapsed between the first signs of trouble and death. In these, two and four years elapsed respectively.

The first symptoms to attract attention are usually: (1) local pain, (2) melena, (3) diarrhea. Four cases had progressed to advanced stages. In three cases sudden complete ileus occurred, in one ascites. In five cases the growth was removed. Three were said to be cures "for the time being."

Case II.—*Mammary Carcinoma, Recurrence, and Metastasis.* Bessie M., Russian Hebrew, aged 20, was admitted to the Kings County Hospital, service of Dr. J. Bion Bogart, on Sept. 17, 1914. The patient first noticed a growth in the breast when 17½ years of age. She was married at 19 and immediately became pregnant. The growth was observed to increase rapidly in size at this time. At the Mount Sinai Hospital, in February, 1914, pregnancy was terminated and radical amputation of the right breast performed by Dr. Berg. Upon microscopic examination the tumor was diagnosed scirrhus carcinoma. Multiple incisions were made subsequently in the axillary flap for drainage. Following operation she felt well until nine weeks prior to admission to the Kings County Hospital, when she first noticed pain in the right knee, which radiated to the thigh and hip. Pain was also experienced in the right shoulder. This was constant with consequent impairment of function. It was worse at night. The pain in the shoulder was more severe. She had not rested well at night since onset. There was loss of appetite, marked loss of weight and weakness. The stomach was "easily upset" and she vomited occasionally. Constipation present. Physical examination on admission. The patient is a young Jewish girl of medium frame. Skin and mucous membranes of fairly good color. Head: Pupils equal, react to light and accommodation; tongue, fairly clean, teeth good.

Neck: Posterior cervical glands palpable. Right supraclavicular space more prominent than left.

Thorax: On the right side of the chest there is a scar of a radical amputation of breast, which is much thickened throughout its entire extent. Below and external to the main scar there are numerous smaller ones about one-half inch in length. These are also hypertrophied. High up in the axilla there is a small reddened papule suggesting metastatic malignant disease. In the axillary line there is a similar reddened papule in a small hypertrophied scar.

Left Breast: There is a hard diffuse infiltrating swelling at junction of third rib with sternum (upper inner quadrant). It is somewhat moveable and of indefinite dimensions, not tender. Overlying skin uninvolved. There is a scar in this situation which feels nodular. Palpation of the axilla on this side shows moderately enlarged glands along the upper border of the pectoralis major.

Heart, action regular, fairly strong; displaced or enlarged slightly downward; no murmurs heard. Lungs, negative.

Abdomen: Liver and spleen apparently not enlarged. No masses or tenderness. There seems to be a slight resistance just below and to the right of the umbilicus.

Genitalia: External, normal. Cervix, small, stellate scar, in axis of vagina. No adnexal masses felt. Body of uterus retroverted. Not enlarged and drawn over to patient's right.

Extremities, negative.

Reflexes, brisk. Babinski, negative. Clonus, negative. Sensation, good.

Mentality, good.

October 23, 1914, patient seems somewhat improved, appears much brighter, and complains less of pain. Wassermann, negative. Gonococcus fixation, negative. Urine, routine examination negative. Gastric contents: Total acidity, 15; free hydrochloric acid, 5; organic acid and salts, 5.

On October 29, 1914, a small papule was removed under novocain anesthesia and sent to the laboratory. An area of scar tissue was also removed for diagnosis.

Pathological report by Dr. Terry: A diamond shaped piece of skin and subcutaneous tissue. In the center of the piece of skin the epidermis is thin and slightly reddened. Beneath this area the subcutaneous tissue is found to be firm. On examination with a hand lens this tissue is found to contain interlacing white silvery strands which reach the epidermis. The relation of strands to epidermis cannot be made out, although the epidermis does not appear thickened over the strands.

Frozen section. Microscopical examination. The stratified squamous epithelium of the skin shows some slight irregularity in its growth, but none of the downward growing projections invade the underlying tissues to any great extent. Beneath the epithelium there is an increase in the connective tissue and in the crevices of this stroma are seen dark staining cells often arranged in long columns. These columns of cells anastomose and suggest epithelium.

Rapid paraffine section. Microscopic examination. The staining of the columns of cells is better and their relation to the fibrous stroma is better seen than in frozen section.

Diagnosis: Scirrhus carcinoma.

The radiographs of the right shoulder and thorax showed hazy areas of infiltration in the head of the humerus and left side of the chest very suggestive of metastatic carcinoma.

The patient was discharged at her request October 9, and was readmitted November 14, 1914, complaining of headache, vomiting, pain in the chest, and hoarseness. Pain was severe and situated on the left side of the thorax. The left breast showed a large crusted ulcer. The pulse was rapid, irregular, and of poor quality and required active stimulation. The respirations were rapid and shallow. The patient was in very poor condition. Temperature 98°, pulse 120, respirations 28. She became progressively weaker and expired November 16.

To recapitulate: When 17½ years of age this girl first observed a swelling in the left breast. This grew rapidly following pregnancy which occurred one and one-half years later. At the sixth month pregnancy was terminated. Following this when 19 years of age she was subjected to radical amputation of the right breast by Dr. Berg at the Mount Sinai Hospital.

Our studies at the Kings County Hospital six months later revealed recurrences in the main scar as well as in the multiple scars resulting from incisions for purposes of draining the axillary flap. The latter are not to be regarded as instances of implantation carcinoma but true recurrences. (The

incisions were made subsequent to operation.) There was invasion of the opposite breast and enlargement of the axillary lymphatic glands upon that side as well as invasion of the left lung and right humerus. These are to be regarded as evidences of metastasis. She died in less than nine months following operation or in less than eighteen months since the tumor was first observed.

We have again in this patient a case of great interest because of the youth of the subject, and because of the rapid progress to the fatal termination and wide dissemination of the disease.

In this connection, a case of mammary cancer occurring in a young boy is of interest, reported by Robert C. Bryan of Richmond, Va.

A. C., aged 14 years, 8 months, operated on February 6, 1913. In August, six months before operation, the boy, while playing golf, was struck a violent blow on the right breast in the region of the nipple by a golf ball in flight, which made him quite sore for several days. He soon got over the soreness, paid no further attention to it, but six months later, in January, while bathing, noticed a little lump under and very close to the right nipple. It was not painful, but recalling the blow he received, his family decided to have the tumor investigated. On examination the boy was found to be an exceedingly well developed specimen, 5 feet 2 inches in height, weighing 116 pounds, erect in figure and enjoying the best of health. The family history is negative throughout; heart and lungs negative. Uranalysis negative, and the blood count of no particular interest. A small, round, hard tumor, about the size of the smallest cherry stone, was found in the lower right quadrant about one-eighth of an inch from the nipple, freely movable under the skin and on the underlying fascia. There was no retraction of the right nipple or dimpling. The skin over the tumor showed nothing unusual and the most careful investigation of the glands in the axilla and about the clavicle and the inguinal region gave no evidence of their enlargement. In the last week the growth had been handled and palpated considerably and consequently was a little tender.

Under general anesthesia a semicircular incision was made under the breast, the flap dissected back, the tumor and surrounding fascia were removed down to the pectoral muscle, and the wound brought together without drainage, the patient leaving the hospital in three days. A report by Dr. S. B. Moon, pathologist to Grace Hospital, states that "the specimen, 1014, is adenofibroma with distinct scirrhous carcinoma in scattered areas of rather active cell proliferation."

The youngest case which Bryan was able to find in the literature was reported by Bloodgett.

His attention was called to a boy, 12 years of age, who was born of healthy parents and in whom no suspicion of malignant heredity could be found. Up to the age of twelve years this boy presented no indication of glandular or other disease. Soon after this time swelling was noticed in the left breast, beneath and attached to the nipple, which was slightly reddened and harder than its fellow of the opposite side. The growth on microscopic examination presented the typical structure of carcinoma, and had invaded all visible glandular tissue of the breast. The wound healed by first intention and there was no indication of recurrence or metastasis five years after operation.

Carcinoma has appeared in youth in almost all the favorite sites of the adult.

Carcinoma of the prostate is reported by Gardner and Commins in an American machinist apprentice, age 17, admitted to hospital October 2, 1911. His last illness began seven weeks before with colicky pains in the left side of the abdomen accompanied by vomiting. The pains radiated to the left testicle. There was no hematuria. Incontinence of urine. Three weeks previously the pain had shifted to the right side of the lower abdomen and radiated to the right testicle. He had lost much weight. The uranalysis was: Clear; sp. gr. 1018; acid; no sugar nor albumin; no casts. Death occurred January 12, 1912. Permission for a partial autopsy only was granted, so an examination of the thoracic organs and central nervous system could not be made. The clinical diagnosis was sarcoma of the prostate, the pathological, (1) carcinoma of the prostate and retroperitoneal lymph-nodes; (2) chronic interstitial splenitis and hemosiderosis; (3) passive congestion of the liver; (4) chronic parenchymatous nephritis; (5) hydronephrosis and hydroureter; (6) chronic interstitial pancreatitis.

Instances of carcinoma in other situations in youth are not lacking. The writer recalls a case of primary carcinoma of the liver in the person of a young woman of twenty-two, who was operated upon by the late George Ryerson Fowler at the Methodist Episcopal Hospital.

Smithies has recently undertaken a study of sixteen cases of gastric cancer in patients under thirty-one years of age.

Reports upon gastric cancer in the first three decades may be of interest here. According to Smithies, six cases have been recorded under the age of ten years (dubious). In but eight of thirteen cases in the second decade were there reliable pathological reports. Thirteen cases have been collected in the third decade, however, with but few pathological findings.

The proportion of gastric cancer in the young, according to 150 cases analyzed by Osler and McCrea, was 4 per cent. In larger series, the percentage has varied, thus in 2,038 instances tabulated by Welch the ratio was 2.8 per cent. In Smithies' group of 721 cases, from the Mayo Clinic and Augustana Hospital, the percentage was 2.2.

BIBLIOGRAPHY.

Bryan, R. C.: Surg. Gyn. and Obstet., May, 1914.
Bloodgett: *Boston Med. and Surg. Jour.*, 1897; cxxxvi, 611.
Gardner and Commins: *Cal. St. Jour. Med.*, 1914; xi, p. 279.
Smithies, Frank: *Jour. A. M. Ass'n*, Nov. 21, 1914.
Osler and McCrea: Cancer of the Stomach, Phil., 1900, p. 16.
Welch: Proceedings Boston Society for Medical Improvement, V, appendix p. 109.
Bauer and Berteni: Archives générales de chirurgie, June 8, 1914, No. 6, p. 641.

280 Jefferson Avenue.

AN APPLIANCE FOR PRODUCING SIMULTANEOUS SUCTION AND PRESSURE FOR USE IN TONSIL AND ADENOID OPERATIONS.

By J. G. L. BORGMEYER, M.D.,
Ophthalmic, Aural, and Laryngological Surgeon, Bayonne Hospital,
and
CHARLES J. LARKEY, M.D.,
Bayonne, N. J.
Anesthetist, Bayonne Hospital.

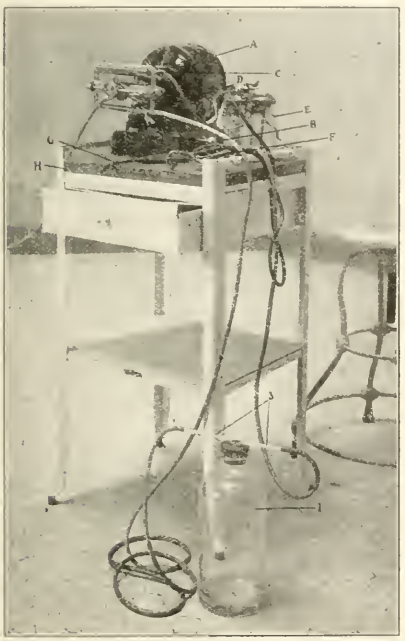
In operating for the removal of tonsils and adenoids the proper mode and means of administering the anesthetic and the keeping of the field of operation free from blood has been a question. Having struggled along for a long time in this line of work, adding this and discarding that, we have finally adopted the apparatus shown in cut.

We are able, owing to the strong suction, constant and even, to keep the operative field absolutely clean continually, and the patient fully under the anesthetic.

Our method of procedure is as follows: We first anesthetize the patient by the open drop method, using a 25 per cent. solution of the oil of bitter orange in alcohol to mask the odor of the ether, which we then use in the ordinary way. After the

patient is fully anesthetized we substitute for the open mask a mouth gag, which has vapor tubes soldered to it. This gag is connected by means of a rubber tube to a three bottle Gwathmey inhaler, which in turn is connected also by means of another rubber tube to the pressure cylinder of our apparatus.

The main feature that we sought in our apparatus was a simple means of driving a constant, even, and easily regulated stream of vapor, and at the same time with the same motive power, to have a machine that would create suction constant and powerful. This is accomplished by attaching an aspiration bottle, by means of rubber tubing, to the cylinder of the pump, as shown in the cut, and a metal suction tube is attached to the bottle also by means of rubber tubing. Of course, the bottle contains a rubber cork with metal tubes inserted in



Suction and Pressure Apparatus. A, motor; B, rheostat; C, pressure cylinder; D, suction cylinder; E, Gwathmey three-bottle apparatus; F, mouth gag with vapor tubes; G, metal suction tube; H, grooved wooden slab; I, aspirating bottle; J, metal tubing.

two openings connected to the rubber tubing. We use the metal tube instead of glass, as the glass is often broken.

We have discarded entirely the rubber nose tubes as used by a great many surgeons for suction, because we have found them unnecessary and inefficient, and use instead the metal mouth tube, which, if properly handled, is never in the operator's way and is absolutely efficient, as every move of the operator can be followed and the field of operation is always kept clean.

Apparatus.—We use a one-eighth horsepower motor of the R. G. S. type, mounted on a wooden slab that is grooved to receive the base of the motor to prevent creeping while in action. This slab also contains grooves for the Gwathmey apparatus to prevent the bottles from being tipped over. This slab is placed on the anesthetist's table. To the motor we attach a double cylinder pump for suction and pressure. One cylinder pumps the air through the Gwathmey apparatus for anesthesia, while the other produces suction, thereby drawing the blood and mucous from the field of operation to the aspirating bottle. The motor has a rheostat attachment to regulate the rapidity and force of its action.

We have been using the above apparatus for the past eighteen months, both in private and hospital practice, and have found it very satisfactory.

Medicolegal Notes.

Defense of Malpractice Suits by a Medical Society.—On October 15, 1910, an action to recover $25,000 damages for malpractice, alleged to have occurred August 5, 1909, was commenced against the plaintiff, who immediately presented the summons and complaint to the secretary of his State Society and demanded that it proceed in accordance with its by-laws and assume the defense. This officer declined to take the papers, declaring that, as the alleged malpractice occurred prior to the adoption of the by-laws in which the Society assumed the duty of defending its members the association was not thereunder required to defend the action. The Society's legal adviser also declined to take the defense. The malpractice action was dismissed, and another, based on the same claim for the same amount of damages, was commenced. In defense of this the plaintiff incurred the expense sued for. The defendant, however, had no notice of the second action until after its determination.

It was held that the by-laws were applicable to claims arising prior to their adoption, the only exception therein relating to causes of action antedating membership, and none other could be implied. Subject to the specified conditions the by-laws imposed upon the association a legal obligation to defend suits against members. The plaintiff, having made due application to the defendant's secretary for assistance, was not required to apply to its council; nor was it necessary to give notice of the second action after the defendant's refusal to defend the first. The burden of pleading and proving that a demand for aid thereunder involved a claim upon which the plaintiff was not entitled to aid was upon the association.—Penhall v. Minnesota State Medical Association, Minnesota Supreme Court, 148 N. W. 472.

Authority of General Manager to Bind Company for Medical Services to Employees.—A corporation engaged in the publication of a daily newspaper was sued by a practicing physician and surgeon for attendance on an employee of the former, who, while engaged in the line of his duty in the pressroom, had his hand crushed. The injury was received at a late hour at night when all officers, including the general manager and the assistant general manager, were absent. The night editor, the highest agent of the company on duty, upon being notified of the employee's condition, called the plaintiff over the telephone to attend the injured man. He responded and gave first aid treatment, respecting compensation for which no question was made, the company having admitted liability therefor. The contest was over that part of the bill which represented subsequent visits to the employee at a hospital to which he was removed and office treatment. It was held that there could be no recovery of this, under the rule (not invariably followed by the courts) that even the general manager of a commercial corporation has no authority or power implied from his official position to commit his company to the payment of ordinary attendance (as contradistinguished from emergency attendance) by a physician or surgeon on an employee of the corporation injured while in the line of duty.—Journal and Tribune Co. v. Loves, Tennessee Supreme Court, 169 S. W. 760.

Liability of Board of Medical Examiners.—The Supreme Court of Colorado holds that the members of the State board of medical examiners are answerable for their official conduct to the chief executive of the State, and their civil or criminal liability is a question for judicial determination, upon a full and complete hearing in the light of the law and the facts appearing.—Kenehan v. Barber (Col.), 143 Pac. 370.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 1, 1915.

CONTRADICTORY FINDINGS IN THE WASSERMANN TEST.

DOUBT has been thrown, more than once, on the accuracy of the findings of the Wassermann test. This element of doubt, however, does not mean to say that the test is not a reliable index of the state of the blood, but it rather infers that the method is not invariably carried out with the scientific care that is necessary. Dr. Abraham L. Wolbarst of New York has pointed out in a paper published in the *Interstate Medical Journal* for February, 1915, that the test is not always satisfactory, and has called attention to some of the defects of the method. Wolbarst's personal experience in the study of such contradictions has been that in the presence of active lues, the Wassermann reaction is apt to be uniform in the hands of several serologists; in latent lues, however, or in cases which have been under treatment for some time, the contradictions are most frequently found. In the paper here discussed the views expressed are based on a careful study of 134 private cases. The conditions under which this study was made adhered as closely as possible to the conditions under which the average practitioner obtains his Wassermann tests. The results of the findings of these cases in three laboratories are tabulated and analyzed, and it is shown that there were many contradictions.

The conclusions arrived at by Wolbarst were as follows: (1) Three serologists working independently, tested sera simultaneously in 85 cases; they agreed in 42 per cent., differed more or less in 19 per cent., and there were gross contradictions in 39 per cent. of the cases. Two serologists working independently and simultaneously, examined sera in 49 cases; they agreed in 65 per cent., differed in 23 per cent., and there were gross contradictions in 12 per cent. of the cases. (2) The Wassermann reaction is dependent for its result on the skill and knowledge of the serologist. (3) The results of the test depend in a great measure on the absolutely perfect standardization of the reagents used; these are subject to variation in the hands of different serologists. (4) As a result of these differences, diversity in results is not infrequent. (5) It is a gross error to accept the findings of one serologist as conclusive; his work should be checked up by one or more equally competent workers. (6) If more than two competent serologists report on a given serum, the majority opinion may be accepted as fairly conclusive; frequent re-examinations are always of advantage to the patient. (7) All mention of results of the Wassermann test, in the literature or elsewhere, should be accompanied by the name of the serologist who made the test, in order that the measure of accuracy and skill employed may be estimated. (8) The serologist should be selected with the same care and caution that are exercised in the selection of a consultant or expert in any other branch of medical science. (9) Reagents should be prepared and distributed at a central station; all workers should adopt a uniform, recognized method which has been found reliable; meanwhile, Wassermann reports should be accompanied by the name of the individual worker who made the test, together with a brief statement showing the method, apparatus, and reagents used. In this way only can be determined the degree of confidence to be placed in the reports handed in by serologists.

Undoubtedly, there have been and are contradictions in the findings of the Wassermann test, but this fact must not be allowed to weigh against the value of the test, which has, on the whole, absolutely proved its worth. Yet, it is open to error in manipulation, and the very greatest care should be exercised with regard to the accuracy of the technique. The blood should be fresh, and a uniform, recognized standard of doing the method should be adopted, and, as Wolbarst suggests, reagents should be prepared and distributed at a central station, perhaps by the Board of Health. Also more than one serologist should do the test, and due attention should be paid to the clinical history of the case.

EXTRAVASCULAR THROMBOSIS.

THAT all of the bodily cells contain a ferment that activates the formation of fibrin has been generally recognized ever since the experiments reported by Spangaro and Arthus in 1900. The subject of the rôle played by the blood platelets in the process of clotting was veiled in obscurity until Ribbert's announcement in 1914 that following a vascular lesion there are formed in the neighborhood of the latter trabeculae of blood platelets exactly similar to those that develop during the process of thrombosis within the lumen of a blood vessel. The prime element in the process of thrombosis that occurs in the tissue spaces in the neighborhood of a wounded blood vessel therefore appears to be an agglutination of the blood platelets.

Further investigations on this subject have been carried out by Silvano Menghetti (*Lo Sperimentale*, January 20, 1915) whose conclusions are largely in agreement with those advanced by Ribbert. He finds that the hemorrhagic foci formed outside of the wall of an artery or vein as the result of an injury of this wall, there develop sooner or later typical thrombi not unlike those that are formed within the blood vessels. These thrombi appear within one to three minutes after the infliction of the injury. The process of their formation begins with an agglutination of the blood

platelets to which there is added not infrequently an agglutination of the leucocytes. This process is closely related to the presence in the extravasated blood of remnants of tissue which are deposited in the neighborhood of the injured blood vessel. The cause of the clumping of the blood platelets is partly of a chemical nature, being bound up with the alterations in the endothelium of the blood and lymphatic capillaries; and partly of a mechanical nature, for the physical character of the cellular surface with which the blood is normally in contact has an important rôle in preventing the formation of thrombi. Adipose as well as muscle and connective tissue possesses conspicuously the property of being the seat of extravascular thrombi. Neither the slowing in the blood current nor other mechanical alterations such as the development of vortices, etc., are essential in the causation of the thrombi of platelets or of the secondary thrombi that consist in the deposition of fibrin. The fact that fatty tissue favors the formation of thrombi may be turned to practical advantage in the use of transplants of fat as a means of effecting hemostasis.

CARE OF THE FEEBLEMINDED.

IT is quite patent that the whole scheme of caring for the feebleminded is in as chaotic a state to-day as was the provision for the insane before the advent of State care in 1889. To set this whole matter right, it is obvious to the careful student of the subject that a broad and comprehensive policy needs to be outlined for meeting the problem of feeblemindedness in this country.

A unique opportunity is now at hand for New York State that has done so well in its pattern of State care for the insane, to develop and put into practice a proper regime for the care and protection of the feebleminded. A general plan of approach to the whole subject has been excellently outlined by a special committee of the New York Psychiatrical Society, as published in the MEDICAL RECORD of April 17. This carefully thought-out plan signally appeals to us, and the next step would seem to be to ask that in the coming revision of the New York State constitution there be placed among its articles a provision for a State mental deficiency Commission, and that the same should then be left to the Legislature to carry into execution.

Obviously the first thing to do, once such a commission is provided for in the constitution and properly established by legislative enactment, will be to place on the board members of the different groups of societies most widely interested in the subject. When this is done it may then be possible for such a fully representative commission to formulate a coherent and all-embracing plan to meet the present needs of a State-wide policy for handling the question of feeblemindedness. Then, and not until then, will it be possible for us to get away from a purely speculative program as to what should actually be done. Such a commission would have as a guide the British Royal Commission, whose epoch-making report, carried to its finality by Parliamentary enactments, has solved the problem of the progressive governmental control of the whole question. Until such a commission is established and proper surveys made, it behooves us all to contribute so far as possible our aid and support to the essential tenets laid down in this preliminary study, which we have been pleased to publish, and to the support of which we would earnestly urge the medical profession.

THE MEDICAL PROFESSION AND THE SINGLE STANDARD.

PROFESSOR Münsterberg in his "Psychology and Social Sanity," published in 1914, shows that he is very much behind the times regarding the opinion on sex morality among reputable physicians. He writes: "The hope that man will become sexually abstinent outside of married life is fantastic, and the book of history ought not to have been written in vain. Any counting on this imaginary overcoming of selfish desire for sexual satisfaction decreases the chances of real hygienic reform. It would even be an inexcusable hypocrisy of the medical profession if, with its consent, one group of specialists behave as if sexual abstinence were the bodily ideal, while thousands of no less conscientious physicians in the world, especially those concerned with nervous diseases, feel again and again obliged to advise sexual intercourse for their patients. We know to-day, even much better than ten years ago, how many serious disturbances result from the suppression of normal sexual life."

Professor Münsterberg is mistaken about the prevailing opinion of the medical profession in this country, and as to that of the medical profession in Europe we can quote Mr. Flexner who made a special study of prostitution over there. In "Regulation of Prostitution in Europe" (*Social Hygiene* December, 1914) he says: "Time was when European medical men favored this view, and practice conformed without opposition to this demoralizing theory. Now, for the most part, they take precisely the opposite view. They regard masculine continence as feasible and wholesome; sexual irregularity is in consequence less generally condoned and is probably beginning to diminish."

Most scientists and physiologists, who have given this subject thought, have expressed themselves unequivocally that there is no absolute necessity in the physiological structure of humanity for sexual intercourse. Moreover no enlightened physician, even aside from his natural human interest, could advise promiscuous sexual intercourse in face of the facts that such an overwhelming proportion of the women found in commercial vice are infected with venereal disease.

NEWER BACTERIA OF THE COLON TYPHOID GROUP.

BETWEEN the years 1905 and 1911 Castellani of Ceylon described three new microorganisms of the above group: the *Bacterium columbense*, the *Bacillus asiaticus I*, and the *Bacillus asiaticus II*. The last two were isolated from four cases of fever of uncertain origin, in which the possibility of typhoid, paratyphoid, or undulant fever, or of malaria

was excluded. The *Bacillus asiaticus I* was present in two cases of greatly prolonged fever, intermittent and remittent respectively; the *Bacillus asiaticus II* was isolated from two cases which had at first been regarded as instances of protracted typhoid, but in which there was neither enteritis, roseola, nor splenic tumor. The Widal reaction was negative as were likewise the attempts to make a differential diagnosis with reference to typhoid and paratyphoid fevers. The *Bacterium columbense* was isolated from three cases closely resembling typhoid fever (pyrexia falling by lysis, splenic tumor in two cases, and constipation or mild diarrhea) and agglutination tests with the sera from cases of infection with the *Bacillus paratyphosus A* or *B*, the *Micrococcus melitensis*, and the *Bacillus asiaticus I* or *II* were negative.

Cultures of the new microorganisms were sent to the Pathological Laboratory of the Royal Institute in Florence, Italy, and were there studied by G. B. Carlo Fulle, who reports his results in *Lo Sperimentale*, January 20, 1915. He finds that the three bacteria are actually three new and distinct species differing in their morphological and cultural characteristics and in their immunizing reactions from all the other members of the colon-typhoid group. In their cultural features the asiatici approach the typhoid bacillus and somewhat also the paratyphosus B. In the absence of motility they resemble the members of the dysenteric group. The *Bacterium columbense* is a motile organism presenting certain coliform characteristics such as the fermenting of lactose. There is evidence of a slight virulence of the new microorganisms with reference to the rabbit. The reactions of agglutination and of deviation of complement show that the new microorganisms are distinct from one another and from the other members of the typhoid-colon group. There appears to be a community of receptors for the three new bacteria, and a closer affinity between the two asiatici than between either of these and the *Bacterium columbense*.

Statistics of Venereal Infection in the War.

Mobilizations in times of peace are fruitful occasions for the spread of venereal diseases. As for similar experiences in the present war we must be content with individual reports. For example, at the very outset in Strassburg a special hospital with 550 beds for these diseases was provided. From Aug. 1 to Dec. 1, 912 patients were admitted, of which gonorrhea claimed 651, syphilis 188, and chancroid 73. But few cases were of local origin. The work of the troops concerned was mobilization, operation, and occupation, and it was during the occupation of foreign territory that the worst cases were contracted. The measures for checking the perils of occupation are all reducible to keeping the sexes as much apart as possible, and supervising both sexes in regard to health. Wolff read a paper on this subject at a recent meeting of medical men at Strassburg (*Muenchener medizinische Wochenschrift*, February 4), in which he gave the facts above cited. Jaenicke stated that the frequency of venereal diseases in the various armies was as follows, beginning with the greatest offenders: English, Russian, Austrian, French, Prussian, and Bavarian. Jacobi set the greatest value on individual prophylaxis. For prevention of gonorrhea he recommended protargol, of syphilis sublimate ointment. There was considerable difference of opinion at the meeting as to how far cases could be treated at the front. There was general argument, however, that if gonorrhea was treated in special reserve hospitals it might be months before the men could be pronounced cured.

News of the Week.

Report of the Treasurer of the Committee of American Physicians for the Aid of the Belgian Profession for the week ending April 24, 1915:

Dr. George W. Crile, Cleveland, Ohio	$100.00
Salt Lake County Medical Society (third contribution), Salt Lake City, Utah	21.00
Dr. C. P. Thomas, Los Angeles, Cal.	5.00
Portland Medical Club, Portland, Me.	25.00
Dr. C. H. Henninger, Pittsburgh, Pa.	5.00
Dr. J. J. Buchanan, Pittsburgh, Pa.	25.00
Receipts for the week ending April 24th	$181.00
Previously reported receipts	6,324.50
Total receipts	$6,505.50
Disbursements for the week ending April 24th:	
80 Standard boxes of food at $2.30	$184.00
Previously reported disbursements:	
1625 Standard boxes of food at $2.20	$3,575.00
1194 Standard boxes of food at $2.30	2,746.20
Total disbursements	6,505.20
Balance	$0.30

Through an error in the report of April 17th, the contribution of The Bennington County Medical Society, Bennington, Vt., was credited to the Secretary, Dr. Lucretius H. Ross.

For National Quarantine.—A largely attended meeting was held at the Academy of Medicine on April 20 to discuss the advisability of the transfer of the quarantine at this port from State to Federal control. Speeches were made in favor of the transfer by ex-President Taft, Henry James, Jr., and Dr. William C. Woodward, Health Officer of the District of Columbia, and many letters from representative physicians and civic organizations throughout the country were read, all indorsing the efforts of the Academy to effect the transfer. The Academy also adopted resolutions urging the Governor of the State to take immediate steps looking to this end.

The Plague in Turkey.—It is reported that bubonic plague is prevailing to a very alarming extent in Constantinople and elsewhere in Turkey and that it is spreading rapidly. Several cases are reported from Salonica.

Typhus Fever in Serbia.—It is stated that the epidemic of typhus fever shows no sign of abating in Serbia, and an appeal has been made for 1,500,000 suits of underclothing to be used in the fight against the disease. The number of physicians who have died of typhus during the present epidemic is thus far 102. The British Government has sent thirty physicians and the French Government fifty to combat the disease. This is not purely altruistic but is largely a measure of self-protection, as it will be less difficult to strangle the epidemic while it is still confined to Serbia than to conquer it should it reach the armies in Western Europe. Dr. Richard P. Strong, head of the American Commission recently sent to Serbia to study typhus, has arrived at Nish, where he was received by representatives of the Foreign Office and the Ministries of War and Interior and by the president of the Serbian Red Cross Society.

Killed by an Ambulance.—A rapidly moving hospital ambulance struck a stationary automobile one evening last week and threw the latter against

a woman standing on the sidewalk, fracturing her skull and inflicting other probably fatal injuries. The driver of the ambulance was found to have no chauffeur license, although he was in the employ of a large hospital.

Congratulations to Dr. Stephen Smith.—The founder of the American Public Health Association, Dr. Stephen Smith, recently received the following resolutions which were passed at the last meeting of the association, held at Jacksonville, Fla., in December:

Resolved, That the American Public Health Association desires to extend to Dr. Stephen Smith, one of the first organizers of this Association in 1872, its congratulations on his continued enjoyment of health and its joy and pleasure in being able to illustrate the outcome of his efforts and those of his colleagues in the present prosperity of the Association, which has expanded until it represents the public health interests of four countries and of one hundred and twenty-five million people.

Resolved, That the Association wishes Dr. Stephen Smith all of the happiness which the contemplation of a life spent in public service for the amelioration of the sufferings of mankind may bring.

Prof. William T. Sedgwick, Boston, *President.*

Prof. S. M. Gunn, Boston, *Secretary.*

Dr. Harold B. Myers has been appointed professor of materia medica and pharmacology at the University of Oregon, and Dr. Howard D. Harkins professor of biological chemistry at the same institution.

Dr. Samuel T. Darling, formerly chief of laboratory on the Canal Zone, has been sent by the International Health Commission of the Rockefeller Foundation to the Malay States for the purpose of studying tropical anemia and other diseases in the Far East.

Dr. J. George Adami of McGill University has been appointed editor of a medical history of the war and has gone to England to begin his work in the British War Office.

Patronage des Blesses is the name of a society in Paris organized for the purpose of securing aseptic first aid for the wounded and of supplying hospitals at the front with radioscopic apparatus and with thermometers, autoclaves, and other necessary sanitary material. The radiological service was organized by Mme. Pierre Curie. The Museum of French Arts in this city has issued an appeal for subscriptions for the purchase of another automobile circulating laboratory to be presented to the society. Subscriptions may be sent to the treasurer of the museum, Mr. Frank W. Knolhoff, 402 Madison avenue.

Brevium.—It is announced in Boston that Professor Goehring of the Physico-Chemical Institute at Karlsruhe announces that he has discovered a new chemical element, which he calls brevium. It is radioactive and is a disintegration product of uranium.

Salvarsan in England and France.—Owing to the impossibility of getting this drug from Germany the governments of England and France suspended the patent and granted a license to two firms to manufacture the product. In England the drug is now made and sold under the names kharvisan and neokharvisan and in France as arsenobenzol-Billon and novarsenobenzol-Billon. The sale of the drugs is permitted in England on the condition that all samples are submitted to biological tests by an authority approved by the government.

The Death Rate in New York City during the week ending April 17 was unusually high, chiefly owing to the prevalence of influenza. The number of deaths reported during the week was 1,778 as against 1,566 during corresponding week of 1914, the death rate increasing from 14.63 to 15.98 per one thousand of the population. The death rate for the first sixteen weeks of 1915 was 14.66 per one thousand of the population as against a rate of 15.47 during the corresponding period of 1914, a decrease of .81 of a point; the decrease in the death rate for this year up to the last week of March was 1.5 of a point, so that the effect of the increased virulence of influenza during the past three weeks has been to change this decrease in the death rate by almost 50 per cent, from January 1 to date.

A Haul of Alleged Quacks.—Forty-three irregular and advertising practitioners of medicine, some licensed to practice, others not, were rounded up by the police in one afternoon last week and held for examination as law breakers. Many of them were associated with "anatomical museums" or "medical museums" and the latter places were closed by the police as constituting public nuisances.

The American Section of the International Association of Medical Museums held its eighth stated meeting in St. Louis on April 1. Thirty-two papers were presented dealing with Museum Technique, Microscopic Technique, Illustration Medical Teaching, Museum Research, and Special Exhibits. The American Association of Pathologists and Bacteriologists held its meeting in St. Louis at the same time.

The A. Jacobi Division for Children of the German Hospital.—In a notice of the opening of this building last week it was stated that the hospital was planned by Dr. Charles Goodman. We should have said Dr. A. L. Goodman of 136 West 87th street, who is attending physician of the division.

A Medical Assistant for the District Attorney.—Governor Whitman has signed the Mills bill authorizing the District Attorney of New York county to appoint a medical assistant whose duty it shall be to report on all cases of suspicious death or injury coming under the jurisdiction of the District Attorney. Dr. Otto H. Schultze has been appointed.

American Gastro-Enterological Association.—The eighteenth annual meeting of this Association will be held in Osler Hall, Medical and Chirurgical Building, Johns Hopkins University, Baltimore, Md., on May 10, 1915. Physicians are cordially invited to attend. Those desiring further information may apply to the secretary, Dr. Franklin W. White, Boston.

A Meeting Commemorative of the Twentieth Anniversary of the Discovery of the X-Ray will be held at the New York Academy of Medicine, Hosack Hall, on May 5, 1915, under the auspices of the Roentgen Ray Association of Greater New York. The following addresses will be delivered: "The Influence of Roentgen's Discovery on Physical Science," by Prof. Bergen Davis of Columbia University; "Roentgen's Discovery, Its Recent Developments and Future Possibilities," by Wm. D. Coolidge, Ph.D., of Schenectady, N. Y.; "Historical Review of the Development of the *X*-Ray Tube" (illustrated by lantern slides), by H. Clyde Snook, Ph.D., of Philadelphia, Pa.; "The Physical Characteristics of Roentgen Radiation with Reference to the Questions Involved in Treatment," by Prof. J. S. Shearer of Cornell University; "The Influence of Roentgen's Discovery on Medicine," by Ludwig Kast, M.D., of

New York; "The History and Development of the Art of Roentgen Ray Diagnosis," by Percy Brown, M.D., of Boston, Mass. The secretary of the association is Dr. I. S. Hirsch, 96 Park avenue, New York City.

American Association for Promoting Hygiene and Public Baths.—The fourth annual meeting of this association will convene at the New York City Hall, on Tuesday, May 11, at 10 A.M. At the evening session of that date to be held at the New York Academy of Medicine, addresses will be made by his Honor Mayor John Purroy Mitchell, the President of the Association, Dr. Simon Baruch, and others. Physicians are cordially invited to participate in the discussions.

Prize Essay on Social Hygiene.—A prize of $1,000 is offered by the Metropolitan Life Insurance Company to be awarded to the author of the best original pamphlet on social hygiene for adolescents between the ages of twelve and sixteen years. Competition for this prize is open to all. The Metropolitan Life Insurance Company desires to use the winning pamphlet among its industrial policy holders. The Committee of Judges, to be selected by the American Social Hygiene Association, will conduct the competition in accordance with the following conditions: Contest closes July 31, 1915. Manuscripts should not exceed 3500 words and must be in English and must not have been previously published. They must be typewritten on one side only of plain white paper 8″ x 10½″, and must be paragraphed and punctuated for submission as "copy" to printer. More than one manuscript may be submitted by the same author. The winning manuscript, in consideration of the award of $1,000, becomes the property of the donor of the prize, all rights therein being surrendered by the author. The right to purchase any manuscript submitted, at the rate of 5c. a word, is reserved by the Metropolitan Life Insurance Company and by the American Social Hygiene Association. Manuscripts and requests for further information should be addressed to the American Social Hygiene Association, 105 West 40th Street, New York City.

The Late Dr. Peck.—The following resolutions were passed at a recent meeting of the Medical Board of the City Hospital: *Whereas*: It has pleased Almighty God to remove from the sphere of his earthly usefulness our Colleague Edward Sprague Peck, M. D., who for thirty-five years served the City Hospital as Attending and Consulting Ophthalmic Surgeon, and *Whereas*: The Medical Board of the City Hospital desires to express its feeling of personal sorrow and professional loss, therefore be it

Resolved, that in the death of Dr. Edward Sprague Peck the Board has lost an Associate of genial personality, high character, and scientific attainments. *Resolved* that the Board extends to members of his family its sincere sympathy and condolence in this hour of grief and sorrow. *Resolved:* That this preamble and Resolutions be entered in full upon the minutes of this meeting and that copies be sent to the local Medical Journals for publication and to the family of our deceased colleague.

Richard Kalish, M. D., Chairman,
Charles E. Quimby, M. D.,
Daniel S. Dougherty, M. D.,
Committee.

Mr. Bernard Roth, the well known London orthopedic surgeon, died recently at the age of 63 years. He was in active practice for twenty-seven years in both London and Brighton with office hours in London in the forenoon and in Brighton in the afternoon.

Obituary Notes.—Dr. GEORGE WILLIAM MARSHALL of Milford, Del., a graduate of the Jefferson Medical College, Philadelphia, in 1876, a member of the Board of Trustees of Delaware College, ex-State Commissioner of Insurance, and a member of the American Medical Association, and the Delaware State and Sussex County Medical Societies, died at his home on April 18, aged 61 years.

Dr. JOHN ANDREW RANDOLPH of Willow, Cal., a graduate of the Missouri Medical College, St. Louis in 1884, a member of the American Medical Association and the Medical Society of the State of California, and a member and former president of the Glenn County Medical Society, died at his home on April 10, aged 65 years.

Dr. RICHARD POTTS DANIEL of Jacksonville, Fla., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1851, a surgeon in the Confederate Army during the Civil War, and a member of the American Medical Association, the Florida Medical Association, and the Duval County Medical Society, died at his home, after a long illness, on April 10, aged 87 years.

Dr. JEFFERSON D. WRIGHT of Louisville, Ga., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1882, died at his home on April 14, aged 55 years.

Dr. WILLIAM H. CARTER of Altoona, Ia., a graduate of the American Medical College, St. Louis, in 1880, died at his home suddenly on April 11, aged 76 years.

Dr. CHESTER ALFRED MAYER of Louisville, Ky., a graduate of the New York Homeopathic Medical College and Hospital, New York, in 1881, and for many years a member of the Kentucky State Board of Health and of the Faculty of the Southwestern Homeopathic Medical College, died on April 10, aged 58 years.

Dr. JOHN L. BROWN of Mt. Sterling, Ky., a graduate of the University of Louisville, Medical Department, in 1865, died at his home, from paralysis, on April 13, aged 52 years.

Dr. CHARLES L. EDWARDS of Sebree, Ky., a graduate of the Missouri Medical College, St. Louis, in 1866, and a member of the Kentucky State Medical Association and the Webster County Medical Society, died suddenly, while attending a patient, on April 12, aged 52 years.

Dr. CHARLES W. RAY of Springvale, Me., a graduate of the Dartmouth Medical School, Hanover, N. H., in 1881, and a member of the Maine Medical Association and the Piscataquis County Medical Society, died at his home, from pneumonia, after a short illness, on April 10, aged 55 years.

Dr. JOHN JOSEPH HECTOR MCALLISTER of New Bedford, Me., a graduate of the Harvard University Medical School, Boston, in 1903, and a member of the Massachusetts Medical Society and the Bristol South District Medical Society, died at his home, after a short illness, on April 16, aged 39 years.

Dr. DANIEL FRANCIS LEE of Omaha, Neb., a graduate of the University of Nebraska, College of Medicine, Omaha, in 1902, former county physician and city physician of Omaha, and a member of the Nebraska State Medical Association and the Omaha-Douglas County Medical Society, died at his home, after a brief illness, on April 13, aged 37 years.

Dr. CHARLES C. KNIGHT of Peekskill, N. Y., a

graduate of the New York University Medical College, New York, in 1855, consulting physician to the Peekskill Hospital, and a member of the American Medical Association and the New York State and Westchester County Medical Societies, died at his home on April 21, aged 82 years.

Dr. JOHN MILLER FAISON of Faison, N. C., a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1884, a member of the Medical Society of the State of North Carolina and the Duplin County Medical Society, and a former president of the latter, died at his home, suddenly, on April 21.

Dr. GEORGE COLEMAN ABELL of Texarkana, Tex., a graduate of the Hospital College of Medicine, Louisville, Ky., in 1890, and a member of the American Medical Association and the Arkansas Medical Society, died at his home, from meningitis, on April 10, aged 54 years.

Dr. DAVID STUART died at New Castle, Del., on April 9, at the age of 70 years. He was graduated from the medical department of the University of Pennsylvania, in the class of 1872.

Dr. EUGENE T. OLIPHANT of Bridgeport, N. J., died at Cooper Hospital, Camden, on April 11, at the age of 66 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1875.

Dr. MAX JOHANNES WALTER died at Philadelphia in an attack of apoplexy on March 17 at the age of 41 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1912. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. SAMUEL S. O. WARREN of Roy, Wash., died at his home on April 10, after a short illness, aged 76 years.

Dr. JAMES S. IRVIN of Danville, Va., a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1893, and a member of the American Medical Association, the Medical Society of Virginia, the Danville Academy of Medicine, the Southern Surgical and Gynecological Association, and the American College of Surgeons, died suddenly at the General Hospital, Danville, shortly after having completed an operation, on April 10, aged 45 years.

Dr. LORENZO W. PHINNEY of Wappinger's Falls, N. Y., a graduate of the Geneva Medical College, Geneva, N. Y., in 1866, a member of the American Medical Association and the New York State and Dutchess County Medical Societies, and physician to the Gallandet Home for Deaf Mutes, died at his home on April 20, aged 74 years.

Dr. AMOS PATTERSON WEBBER of New Bedford, Mass., a graduate of the Bellevue Hospital Medical College, New York, in 1883, a member of the American Medical Association, and the Massachusetts and Bristol Districts Medical Societies, and attending physician to St. Luke's Hospital, New Bedford, died at his home, after a long illness, on March 20, aged 55 years.

Dr. GEORGE DICKINSON THAYER of Northampton, Mass., a graduate of the New York University Medical College, in 1881, city physician of Northampton for nine years, and county physician for thirty-two years, one of the staff of the Dickinson Hospital, and a member of the Massachusetts and Hampshire District Medical Society, died suddenly at his home on March 15, aged 57 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

REPORT OF PARLIAMENTARY COMMITTEE ON PATENT MEDICINES—CEREBROSPINAL FEVER—ARCHITECTS' INSTITUTE ON NEW BUILDINGS OF KING'S COLLEGE HOSPITAL—OBITUARY.

LONDON, April 9, 1915.

THE report of the Select Committee on Proprietary Medicines, though mentioned from time to time, seems scarcely to have received adequate notice, for it is very full and deserves careful consideration. To set a committee to inquire into the sale of patent and proprietary medicines, preparations, appliances and advertisements relating thereto, was no light task, but to that was also added the state of the law on the matter, and whether any amendments were necessary or desirable, and if so, what? The committee set to work with commendable energy and organized their proceedings. They have held thirty-three public sittings, and examined forty-two witnesses, to whom they put 14,000 questions. These are summarized in the report which, with other matter, extends to twenty-eight pages, many of which are occupied with the recommendations. The leading one of these is that the administration of the law governing the advertisement and sale of all secret and proprietary medicines and appliances be co-ordinated and combined under the authority of one Department of State. This would be undertaken most naturally by a Ministry of Health, but hitherto we have not set up such an authority. The report, however, takes it for granted that such a department will be created, and goes on to advise that in the meantime the work be committed to the Local Government Board. Another recommendation which causes perturbation among those concerned is that there shall be kept at the department a register of manufacturers, proprietors and importers of patent, secret and proprietary remedies, and every such person must apply for a certificate of registration, to obtain which an exact, complete statement of the ingredients and their proportions in every such article must be made, other than wine and the alcoholic strength of medicated wines. Further the therapeutic claims made or to be made must be fully stated, and a specimen of every appliance for the cure of ailments other than recognized surgical appliances must be furnished to the department or Ministry of Health. But this information as to the real nature of secret remedies will not be disclosed except under special circumstances, but will be controlled by analyses of government chemists. A court is to be constituted to permit or prohibit, in the public interest or in support of the law, all such secret or proprietary articles, to every one of which will be assigned a special number, which must be printed on every bottle or package. Inspectors will be placed at the disposal of the department or ministry to examine advertisements and observe the sale and other points connected with the articles. There are some other recommendations, but these are enough to make one wonder that a committee should officially propose them, and to heave a sigh on asking oneself if any or how many one may hope to see adopted in this generation.

Cerebrospinal meningitis, which is becoming more commonly called cerebrospinal fever, is not exactly a rare disease in this country, and though we have from time to time slight epidemics they are neither

so severe nor so extensive as are reported to us from your side. The danger of spreading is, however, so distinct as to call for decisive measures directed against the extension. Some cases for the last month or more have been reported from different localities, and the Public Health Committee of the Local Government Board have issued a revised memorandum of that formerly circulated as to the measures recommended by their medical officer to prevent the spread of the disease. As it chiefly occurs in small and distinct outbreaks, there are many medical men who have not met with it in practice, or not for several years, so that there is some danger of the early cases not being properly diagnosed. To promote early recognition the County Council are prepared, on the request of the Medical Health Officer of the locality, to send a medical officer to collect material from the throats of contacts for bacteriological examination in their own laboratory, and also samples of cerebrospinal fluid from suspects. Obviously, this is the most reliable means of determining the diagnosis, and when there is meningitis the attendant may well be glad to avail himself of such assistance. A number of other important statements make this official memorandum valuable.

Mr. W. A. Pite read a paper at last week's meeting of the Royal Institute of British Architects on the new King's College Hospital. He pointed out that though the grand pile of Thomas Bellamy was no more, its fine traditions, associated with the names of Lister, Todd, Fergusson, Priestley and many others, had transferred themselves to the new buildings. I may compliment him as their architect. It is the first example in this century of the removal of one of the large general hospitals from a crowded central district of London to one of its suburbs, where such an institution was needed, and where, with our modern methods of transit, it can easily be reached.

Surgeon-Colonel C. P. Costello died on the 1st inst., in his 80th year. He had seen much active service in India. He was at the forcing of the Umballa Pass in 1864, and took part in the Jawak Expedition, 1877-78; went through the Afghan war, 1878-80, and was mentioned in dispatches for his work eleven years later in the Manipur Expedition. His son, Major E. W. Costello, also of the Indian Army, received the V. C. for his work in the defence of Malakand.

Sir John Lentaigne, a past president of the Royal College of Surgeons in Ireland, died suddenly on the 30th ult., aged 59. He was for many years surgeon to the Mater Misericordiæ Hospital, and held other important posts, among them consulting surgeon to the Royal Hospital for Incurables.

Several other deaths of well-known members of the profession have lately occurred. Among them Sir George Turner, well known for his great services in South Africa, during his work in connection with leprosy; Dr. W. Murray Dobie of Chester, on the 12th inst., aged 86. In the epidemic of cholera at Chester in 1867 his work was greatly appreciated. Later he was made a freeman of the city and his portrait presented to him. He had long been a J. P., and was greatly esteemed by the citizens throughout a long retirement from work. Dr. Lewis Jones, on Easter Sunday, aged 58. He was consultant of the electrical department at St. Bartholomew's Hospital, past president of the Electro-Therapeutical Society and delegate of the British Government to the Congress at Liege, 1905, and of Paris, 1910.

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 15, 1915.

1. A New Preparation for Pyelography. E. L. Young, Jr.
2. Communicable Diseases and Their Relation to the Handling of Food.
   I. Introductory Remarks. E. O. Otis.
   II. Dangers in Handling Food by Persons Afflicted with Communicable Diseases. A. J. McLaughlin.
   III. Dangers in Handling Food by Persons Afflicted with Communicable Diseases. H. Linenthal.
   IV. Tuberculosis in Its Relation to the Handling of Food. C. Floyd.
   V. Dangers from Syphilis. By Abner Post.
   VI. Suggestions in the Employment of Labor. T. K. Cory.
   VII. Suggestions in the Employment of Labor. H. Abrahams.
3. Note on the Recent Extension of Out-Patient Work in Massachusetts Hospitals for the Insane. A. Warren Stearns.

1. A New Preparation for Pyelography. — E. L. Young, Jr., believes that collargal and other soluble silver salts are absorbable poisons when injected into the renal pelvis. About one and a half years ago Kelly and Lewis reported the use of a 5 per cent. emulsion of silver iodide for pyelography. They claimed that it was non-irritating and gave a good shadow. Others who tried it found it impossible to use satisfactorily, for when the mucilage was stiff enough to hold the iodide in suspension, it was too stiff to use, and when thin enough to inject, it was worthless as a suspension and, moreover, had the danger of leaving behind in the pelvis a foreign substance. The necessary requisites are: a substance in itself nonirritating and sterile, sufficiently fluid to flow easily through a ureter catheter, and easily and quickly soluble and diffusible in water in order to fill evenly a kidney pelvis, not form any coagulum, and to leave the kidney pelvis as readily. Mucilage of quince seed was selected as offering the greatest possibilities. This was the vehicle used by Siter in 1905 when he used silver iodide in urethritis. The author, in collaboration with Godsoe, found, however, that any mucilage they made always became contaminated with a fungus in a short time. Moreover, dilution with water to make thin enough to use resulted in a poor suspension. The following is the method used by Godsoe: Quince seed, 100 grains, water 8 oz. Macerate for 24 hours with frequent agitation. Do not crush the seed. Strain through cloth. Add 2 per cent. boric acid up to 20 ounces. It is important to extract with water and not with the boric acid solution, as boric acid solution does not make a good mucilage. Enough of this mucilage is added to 12½ c.c. of argentide to make 50 c.c., and vigorously shaken for two minutes. Again, the shaking is an essential part of the process. The resulting emulsion lasts several weeks, and is a thin, clear fluid flowing readily through a ureter catheter. It is on the method of preparation and the character of the resulting emulsion that the value of this substance depends.

New York Medical Journal.

April 17, 1915.

1. The Psychopathology of Neurosis. B. Sidis.
2. Limitations of Functional Tests of the Kidneys. V. C. Pedersen.
3. Misapplied Bone Surgery. H. Augustus Wilson.
4. Perforation or Rupture of Gravid Uterus Bicornis Unicollis. D. W. Tovey.
5. The High Cost of Advertising. W. Brady.
6. A Comparison of American and European Methods. J. H. Schrup.
7. Joint Tuberculosis. L. W. Ely.
8. The Relation of Physicians to the Public School System. I. S. Wile.
9. The Physician's Life. M. Ginsburg.
10. The Present Status of Syphilis Therapy Abroad. A. Strachstein.

3. Misapplied Bone Surgery.—H. Augustus Wilson concluded that in order to lessen or prevent misapplied operative orthopedic surgery, the following facts should

be remembered: Operations are rarely necessary in cases of fractures that have been treated on scientific principles from the onset. Before operating for non-union, definite radiographic information should be obtained concerning the presence of callus, as well as that of bone atrophy involving the fractured bone or neighboring bones. Bone transplants, or other operations for securing ankylosis, are not applicable to the early stages of bone tuberculosis, when functional recovery may be obtained with the control of the pathological process. When it becomes apparent that the pathological process has proceeded to an extent beyond the possibility of functional restoration, ankylosis may be secured by either the brilliantly conceived Hibbs operation or that of Albee of broader application. Ankylosing methods do not cure the bone tuberculosis, and therefore they must not be relied upon solely, but must be associated with prolonged fixation and other accepted methods of treatment. Before resorting to any operation, except in an emergency, a consultation should be held, preferably with the attending internist. When operative procedures are finally determined upon, the patient should be told the truth concerning his operation. If this information were reduced to writing and duly signed by those participating in the consultation, the total number of operations might be reduced, but the impressions that patients often appear to entertain in regard to the functional results obtainable would be removed.

Journal of the American Medical Association.

April 17, 1915.

1. Chemotherapy and Tumors. R. Weil.
2. The Significance of Bacillus Coli in Pasteurized Milk. L. P. Shippen.
3. The Small Heart in Tuberculosis. A Suggested Physiological Explanation. F. M. Pottenger.
4. The Physician's Responsibility in Acute Osteomyelitis. J. P. Warbasse.
5. Leucocytosis a Deceptive Sign in Abdominal Hemorrhages. L. A. Levison.
6. The Normal Differential Leucocyte Count. A Proposed Classification of the White Blood Cells. L. M. Warfield.
7. Radium in the Treatment of Keloids. F. E. Simpson.
8. Primary Carcinoma of the Liver; Operation for Recurrence Over Seven Years After Primary Operation. F. C. Yeomans.
9. Chronic Enteric Intussusception Due to Intestinal Tumors. G. J. Winthrop.
10. An Adaptation of Frank's Segment Capsules for Clinical Use. C. J. Wiggins.
11. Nature of the Idiosyncrasy to Egg-Protein in Human Beings. Preliminary Note. J. Bronfenbrenner, V. L. Andrews, and Z. P. Scott.
12. Subdiaphragmatic Inflammation, with a Syndrome of Physical Signs and Spontaneous Recovery Without Suppuration. R. I. Lee.
13. Hereditary Anirida, an Interesting Family History. S. D. Risley.
14. Possible Tuberculin Reaction in the Breast-Fed Child After Diagnostic Dose to the Mother. G. T. Palmer.
15. One Source of Infection in Clean Surgical Cases. M. Pitzman.
16. Blood Transfusion Simplified by Use of New Method and Apparatus. H. W. Abelman.

1. Chemotherapy of Tumors.—R. Weil reviews the history of the treatment of tumors by chemical preparations, which treatment has recently been investigated by Wassermann and his followers. An accidental observation led Wassermann to believe that selenium possesses a high degree of affinity for tumor cells, and he devised a method for carrying it into the blood by the use of an eosin combination. Wassermann has not followed up his work with a scientific report, and it has been extensively criticized by Keysser and others. A number of observers, however, following Wassermann's suggestion, have reported striking therapeutic effects from various chemical substances. Keysser's criticisms have been reviewed by Weil, who says that all of the facts taken together constitute a very remarkable and convincing piece of scientific investigation, permitting of but one conclusion, and that is that none of the preparations which claim to be therapeutically effective, exercises any direct influence on the life or development of the tumor. Under certain definite and restricted conditions, however, they do seem to produce certain changes in the tumor, and even cures in a small proportion. In subcutaneous tumors, not smaller than a cherry pit in size, Keysser thinks that this is due to the constant palpation and examination of the growths, causing circulatory changes leading the injected substances to lodge in the tumors, and therefore causing or helping autolysis. The author does not consider this explanation final. He has found that some other substances seem to gather in the necrotic parts of the growths, which might well undergo liquefaction under their influence, without having any direct effect on the vitality of the living part. The small percentage of cures reported is explained by the emphasis on the fact that 95 per cent. of the experimental animals die under the treatment, and the necrotic areas and those with such a tendency, like foreign growths in general, would be especially liable to be affected. It has been largely assumed that metals take a colloidal state in the tumors, and in this form have a peculiar characteristic influence in their destruction, which theory he rejects. Clinicians have followed up the experimental attempts, working with selenium in the colloidal form. These preparations seem to produce but slight disturbance as a rule, and their effects have been reported as encouraging. It has of course been impossible to duplicate the large doses used in animals, and the author suggests as an explanation that the mental effect is largely responsible. He believes that the demonstrable reduction in size of a tumor, of a kind not to be attributed to the natural processes of evolution of that tumor or of its associated lesions, is the one essential feature of effective therapeutic intervention. Using this standard, it is apparent that none of the methods above discussed can lay claim to therapeutic effectiveness. The modifications attributed to them occur spontaneously in a large proportion of cases as a result of a natural evolution of the disease process, and this is a fact which cannot be too strongly emphasized, and is likely to be overlooked by optimistic physicians in a hopeless disease like cancer.

2. Bacillus Coli in Pasteurized Milk.—L. P. Shippen finds that, as observed by De Graef and De Jong, certain strains of *B. coli* are not killed by a temperature exceeding that commonly used in pasteurization. The thermal death point of this and similar organisms is not a constant quantity but varies for different strains of the same bacterium. In the case of *B. coli communior* this variation was found to be as great as thirteen degrees. The presence of *B. coli* in pasteurized milk cannot be taken as an index of its improper pasteurization or subsequent contamination.

3. The Small Heart in Tuberculosis.—F. M. Pattenger advances the hypothesis that the small heart in tuberculosis is the result of compensatory circulatory changes, believing that the correctness of this explanation is supported by the fact that the small heart is also found in enteroptotic persons. The action of the inspiratory enlargement of the thorax increases the negative pressure in the thoracic cavity and dilates the large veins and heart chambers. The interference with respiration in pulmonary disease and of the contraction of the diaphragm by enteroptosis causes an interference with the suction action of the intrathoracic vessels, and a smaller amount of blood is delivered to the heart. That the heart is an organ which adapts itself to various circumstances is undoubtedly true, and the organ undergoes a compensatory contraction under the above conditions. The small heart is a result and not a cause of tuberculous infection.

4. Acute Osteomyelitis.—J. P. Warbasse, in discuss-

ing this disease, emphasizes the following facts: The diagnosis is easy, the treatment simple, and the cure effective. Two symptoms are sufficient for its recognition: pain of rapid onset, usually in the end of a long bone; and fever, often high, are characteristic. The blood picture and prostration of serious infection are present, and local tenderness follows the pain. Redness and swelling appear only after the moment advantageous for treatment is long past. Any marrow bone may be affected, and the *x*-rays are not necessary or of special value for early diagnosis. It is a common disease, especially afflicting the poorly nourished. Many surgical diseases recover without surgery. Some are made worse by surgery. But acute osteomyelitis is most easy of diagnosis from the very beginning. It invariably does badly unless treated surgically. Its treatment is so simple that surgery at its worst cannot do as much harm as the disease. In most surgical procedures skill is the important factor, but in acute osteomyelitis, expedition is the one prerequisite for success.

5. **Leucocytosis in Abdominal Hemorrhages.**—L. A. Levison concludes that a leucocytosis should not be relied on as a differential point when the clinical signs demand the differentiation of appendicitis or other inflammatory trouble in the abdomen from an intra-abdominal hemorrhage. Leucocytosis due to intra-abdominal hemorrhage is to be distinguished from the posthemorrhagic leucocytosis which follows any severe bleeding. Leucocytosis from intraabdominal hemorrhage comes on within twenty-four hours and lasts until the second day. It is ascribed to an irritation of the blood-forming organs by the absorbed constituents of the blood. The peritoneum may be a factor in the formation of white cells. The morphological blood picture is not changed.

12. **Subdiaphragmatic Inflammation without Suppuration.**—R. I. Lee has had the opportunity of observing four cases which all gave a similar syndrome of physical signs and a similar roentgenogram. All four were considered at first to be suppurative processes. All, however, recovered spontaneously. These cases indicate that there are inflammatory processes of infectious origin situated below the diaphragm which do not necessarily go on to suppuration. At any rate they recover spontaneously. The signs might well be interpreted as having their origin above the diaphragm, and it is to the *x*-rays that one owes the ability definitely to decide that the process is below the diaphragm. While the statement of Picqué that subdiaphragmatic inflammation is a direct indication for surgical procedure holds true in a large proportion of cases, yet apparently there is a group of cases of subdiaphragmatic inflammation not hitherto recognized that recover spontaneously. This group of cases seems to form a clinical entity. The last two cases of the author's series were recognized clinically. The diagnosis was made by the clinical signs. It is probable that on account of the difficulty of differentiating processes above the diaphragm from those below the diaphragm without the use of the *x*-rays, this group is larger than at first appears. The roentgenogram is that of subdiaphragmatic abscess. The differentiation of this particular group of cases from the usual type of subdiaphragmatic abscess must be made on clinical evidence.

The Lancet.

April 10, 1915.

1. Wound Infections and on Some New Methods for the Study of the Various Factors which Come into Consideration in Their Treatment. Sir A. E. Wright.
2. War and Cholera. W. J. R. Simpson.
3. Some Cases of Blood Infection by an Anaerobic Organism Secondary to Wounds. A. Stokes.
4. Note on a Case Showing the Frequent Occurrence of an Auriculo-ventricular Rhythm Associated with a Long A-C Interval. A. W. Falconer.
5. A Case of Acholuric Jaundice. W. Harmens.
6. Cerebrospinal Meningitis: Meningococci Found in Peripheral Blood Films. A. C. Coles.
7. Injection of Oxygen as a Treatment for Tetanus. H. O. Howitt and D. H. Jones.

1. **Wound Infections.**—Sir A. E. Wright states that in the present war practically every wound is heavily infected. A special outstanding feature is a mixed infection of streptococci with fecal organisms, chiefly the gas-phlegm bacillus and the tetanus bacillus. The presence of these microbes makes the first period of the wound infection—the period of imprisoned discharges—a specially critical time for the patient. As soon as a free outlet has been provided and aerobic conditions have become established in the wound its bacterial flora changes. The ordinary pyogenic infection gains the upper hand, and instead of an infection of the imprisoned discharges one now has an infection of the granulating wound surfaces and of the flowing discharges. The chief bacterial agents here at work are the streptococcus and staphylococcus and *Bacillus proteus*. In the treatment of these wound infections there are three different therapeutic measures: treatment by antiseptics; treatment by physiological methods, such as opening up and draining of the wound, which bring the antibacterial powers of the blood to bear on the infecting microbes; and lastly, treatment by vaccine therapy and similar methods. The second method is the most important. By means of a special technique, which consists essentially of a method of making anaerobic cultures in capillary tubes, the author sought to answer the question, Can the microbes which are found in wound infections live and multiply in the unaltered blood fluid? Serum cultures made by this method furnish a very striking and uniform result. One obtains in the cultures implanted with the higher dilutions of the pus a pure culture of the streptococcus, and in the cultures more heavily implanted with the pus the streptococcus mixed with a certain number of other microbes; in particular, a few staphylococci and an anaerobic wisp-like diphtheroid bacillus, which often is abundant in pus, being found both intracellularly and extracellularly. All the other pyogenic microbes appear to be inhibited in undiluted normal serum, and when they put in an appearance it is only after fairly heavy sowings with pus, and comparatively late. Out of these facts comes a practically important classification of pyogenic microbes—a classification into, on the one hand, *serophytes*, and, on the other, *serosaprophytes*. The serophytes would be those which, presumably because they find their foodstuffs ready made in the blood fluids, are at home there, and can in the absence of phagocytes grow and multiply there without restraint, or practically with restraint. The serosaprophytes would be those which cannot grow and multiply in the blood fluids until a change which one may, pending nearer investigation, call simply a degenerative change, has passed over those fluids. The next question that presented itself to the author was: Does the lymph which pours into the wound provide a favorable nutrient medium for the microbes which have been growing in that wound? Experiment provides an affirmative answer. The next problem to be determined is the cause of that "corruption of the lymph" which converts it into a favorable nutrient medium for serosaprophytic microbes. This cause the author believes to reside in the reduction in the antitryptic power of the lymph. The antitryptic power of the blood would appear to be increased in every case of severe wound infection. This is perhaps a defensive reaction of the organism directed against a possible invasion of the blood by serosaprophytes.

2. **War and Cholera.**—W. J. R. Simpson believes that the remarkable absence of scurvy, dysenteries, and epidemic diseases that has so far characterized the European war gives no assurance that the condition of affairs will continue in the coming summer and autumn, or in the succeeding year. A combination of war, flood, and earthquake, ending in famine in some localities, and in scarcity of food in others, is calculated to be a powerful force favoring in due season the manifestation and spread of epidemic diseases. Cholera is not an endemic disease in Europe, but it has visited that continent in nine separate invasions in a little over ninety years. There have been only three wars in Europe coincident with its presence in the area of hostilities: the Russo-Polish War in 1831, the Crimean War, and the Balkan War. The danger of cholera prevailing in the zones of hostilities next August is not a remote one. Measures should at once be taken to prepare to combat this diesase. Preventive inoculations with Haffkine's prophylactic give a very high protection against cholera attacks for at least one year. During the military operations of the Greeks in Macedonia in 1913, a general vaccination of the army and civil population was carried out. Approximately half a million persons were inoculated. Ninety-nine per cent. of the persons inoculated twice remained refractory to the epidemic; and in this way Greece was saved from a serious visitation of cholera.

6. **Meningococci in Peripheral Blood.**—A. C. Coles reports the case of a male, aged 33 years, who died fifty hours after the onset of the first symptoms of a profound septicemia. This was characterized by the chills, vomiting, bodily pains, rise of temperature, and profuse purpuric rash. Meningitis was suspected mainly by the process of exclusion, and also because the disease was epidemic at the time. No mennyococci were found in the cerebrospinal fluid, but antimeningitis serum was injected into the subarachnoid space. The patient became comatose and died. The point of interest in this case is the fact that blood films obtained shortly before death showed typical meningococci.

British Medical Journal.

April 10, 1915.

1. On Wound Infections; and on Some New Methods for the Study of the Various Factors Which Come into Consideration in Their Treatment. (Part I.) Sir A. E. Wright.
2. Cerebrospinal Meningitis: Diagnosis and Prophylaxis. Is Lumbar Puncture Justifiable? A. Lundie, D. J. Thomas, and S. Fleming.
3. Prophylactic Inoculation against Tuberculosis. W. M. Crofton.
4. A Method for Localization of Bullets. W. S. Lindsay.
5. Some Notes on the Treatment of Bites by Venomous Snakes. J. Crofton Fox.

3. **Prophylactic Inoculation against Tuberculosis.**—W. M. Croftan states that it has been his practice for the past eight years to urge the members of families whose parents were tuberculous, or in which cases of tuberculosis had occurred, to undergo a short course of tuberculin. The tuberculin he has used until lately has been Koch's T. R., and the doses he has used for adults have been, as a rule, 0.001 c.mm., 0.005 c.mm., and 0.01 c.mm.; for infants 3 months old 0.0001 c.mm., 0.0005 c.mm., 0.001 c.mm. Sometimes further doses are given. There is sometimes a slight rise of temperature in the evening if the injection has been given in the morning, but otherwise no serious disability. The usual interval is seven days. The improvement in health in many of the members of tuberculous families thus treated has been most satisfactory, and so far no case has occurred among those who have been inoculated, but the numbers are far too small to have any value. T. R., however, is not a very good antigen, nor are any of the ordinary tuberculins on the market. Some years ago the author discovered that tubercle bacilli would dissolve in benzoyl chloride, and that this solution produced very marked focal and general reactions in tuberculous patients. When using it for therapeutic purposes, the initial dose had to be very small—0.0000001 mg. in lung cases, and 0.000001 mg. in extrapulmonary cases. The highest dose that had to be attained was 0.01 mg. The clinical results have been so satisfactory that the author now uses no other for therapeutic purposes. The doses are increased as follows: 0.0000002, 0.0000004, 0.0000006, 0.0000008, 0.000001, and so on. The dilutions are made in liquid paraffin, containing 2 per cent. benzoyl chloride, and the author generally adds 0.032 gram iodoform dissolved in ether, so as to combine immuno- and chemotherapy. For prophylactic purposes the initial doses may be larger and the rises more rapid.

5. **Treatment of Snake Bites.**—J. C. Fox injects a full dose of cocaine hydrochloride at the site of the puncture caused by the fangs of the snake, followed later on by appropriate treatment of symptoms as they arise. J. D. Aitken of South Nigeria has shown the efficacy of cocaine in the treatment of scorpion stings. It not only relieves the very severe pain, but also, if the treatment be immediate or not long delayed, causes a complete absence of the swelling that is usually so rapid and characteristic. Cases which the author has treated with cocaine combined with potassium permanganate include those bitten by *Echis carinatus*, *Naia nigricollis*, and *Bitis arietans*. Cases treated primarily with cocaine alone consist only of those bitten by *Echis carinatus*. At first the author used to incise punctures deeply, and rub into incisions potassium permanganate, and then inject hypodermically a solution of cocaine hydrochloride proximally. In cases of *E. carinatus* venom there was uncontrollable hemorrhage from the incision starting on the second or third day. The incision and the potassium permanganate were omitted in the next case, but there was still troublesome oozing hemorrhage from all mucous surfaces, which reduced the patient to a dangerous state of anemia. For this there were given large doses of a solution of gelatine by the mouth.

Berliner klinische Wochenschrift.

March 8, 1915.

Clinical Observations on Tetanus at the Front.—Goldscheider states that tetanus in animals is at first localized at the point of (experimental) inoculation and this behavior is not uncommon in mankind. Bilbroth knew of tetanus limited to one hand. In amputation cases the disease may begin with twitchings in the stump. There is no doubt that observations like these and the teachings based thereon have been largely ignored or overlooked. The author has never failed to observe the behavior of the muscle groups nearest the wound. Local tetanic phenomena are least likely to occur on the trunk and head. The group of symptoms comprises muscular twitchings, muscular rigidity and increased reflex excitability. Sometimes this picture occurs isolated, sometimes associated with the later developments. The chewing muscles often exhibit this isolated local phase before actual trismus develops, but this is readily confused with everyday sensations. When trismus has actually developed, the injured limb may be found in the stage of local tetanus. In about half of the cases, the increase in induced reflex excitability is marked in the affected limb. This involves the skin, bone and tendon reflexes. Parallel with this is the irritability toward sounds, touch, concussion.

The author devotes a large part of his space to the behavior of the patient toward a great number of reflex phenomena, which he regards as of extreme significance and which deserve monographic consideration. Trismus is not a very trustworthy guide for prognosis in certain cases, although it forms the basis of a good general law. It has been known to fail outright, to constitute the sole symptom, to cease spontaneously before death, etc. There is a trunk type and an extremity type of tetanus in which the muscles of one locality are involved to a much greater degree than those of the other. In both types trismus occurs. The extremity type in reality refers to the lower extremities in the majority of cases, although an arm type also exists. Rose's head tetanus is of course well known. Nevertheless the various local forms are as a rule without type as a study of individual cases shows. Generalized tetanus often occurs and trismus remains the most constant of all symptoms. The site of the wound tends to complicate the extremity types: for example a subject has the lower extremity type with local tetanus in the wounded arm.

The Psyche of the Wounded.—Münzer states that in almost every wounded soldier the psychic condition "goes back" to a greater or less extent. The man feels helpless and abandoned. He wishes himself at the dressing station. His comrades fight onward while he, with the other helpless, is left behind. He must often wait for hours for a stretcher because the crews can do little in the day time in the hail of bullets. He bleeds and thirsts. Minutes pass like hours. At last darkness arrives and he is borne to the dressing station. Even once there he must wait long for a surgeon. The psyche sooner or later passes into a state of apathy, and he is as indifferent to his surroundings as he was acutely influenced by the psychic trauma caused by his sufferings. The slightly wounded soon regain their psychic equilibrium. If the injury is severe enough the subject is of course collapsed from the first. In the ordinarily severely injured the shock of operation is added to the traumatic shock, but the psyche does not participate further. When all shock wears off, which should happen within 24 hours, the psyche is again active and two kinds of behavior are noted. In the first the subjects are quiet, patient, resigned. They crack jokes and are deeply grateful for any little attention. These men are the real heroes of war. The other kind of man shows more or less traumatic neurasthenia. He is irritable, excitable, content with nothing. They wish to go home, complain bitterly when their wounds are dressed. Nevertheless these men are not to be treated as normal subjects. They are ill in mind, very largely as the result of their hardships in the trenches. They may have gone into battle in a famished state as must often happen. In a word they were "all in" before the battle and the wound. The condition of the psyche after the shock is eminently natural to the average man under the circumstances. It is a fact that a larger proportion of wounded officers exhibit this behavior than of wounded troops. The former have a finer, more sensitive organization, and the change of life from peace to war is more of a hardship to them.

Berliner klinische Wochenschrift.

March 15, 1915.

War and Traumatic Neuroses.—Oppenheim gives the status of this subject in civil practice. Then came the war. Did its traumatic neuroses bear out the teachings of civil practice? At first it seemed so. The psychic traumas of war seemed to affect the predisposed. But presently it began to be noted that these neuroses attacked many who were of sound stock. The insults of the battle are mechanical, psychical, or mixed. A detonation, for example, affects the auditory nerve by concussion, and also shocks the psyche by the fright engendered. Aside from the frequent absence of predisposition there is a sufficiently close conformity between the traumatic neuroses of peace and war. We do not often see pure types of neuroses. Neurasthenia stands as a rule in the foreground, with its headache, vertigo, insomnia, irritability, sensitiveness to sounds, general weakness and exhaustibility, tremor, vasomotor symptoms, etc. Objectively the symptoms most prominent are increase in the tendon reflexes, and fibrillary twitchings which may go so far as myokymia. Hysteria is manifested in aphonia, mutism, abasia, hemoanesthesia, paresis of extremities. But in some phenomena of psychogenic origin we miss the hysterical character and stigmata. Neurasthenia and hysteria are associated in the majority of cases of traumatic neuroses, in war as in peace. Tics, muscle spasms, and various tremors are common, and may be regarded as in part hysterical, but the author finds that suggestion has little power over them. The motor irritant phenomenon known as spastic neurosis, and which may be manifested as a tonic spasm of the muscles of a limb (giving rise to spastic palsy) is not hysterical, perhaps not even psychogenic in its expression, although probably due originally to psychic trauma. Sudden paralyses in the nonhysterical are common, and the soldier is unable to declare just when the accident occurred. Hence Oppenheim terms it akinesia amestica. Of course, there is nothing to prevent the occurrence of this accident in an hysterical person and the type may be more severe in such. In the nonhysterical cases of spastic neurosis, akinesia amnestica, and reflex paralysis even a long course of systematic treatment sometimes proves to be without effect.

Magnesium Sulphate in Tetanus.—Meltzer, who introduced the use of this remedy for tetanus discusses very fully some of the more advanced aspects of the subject, such as the combination of intramuscular injections with mild ether narcosis. He believes firmly that which some authors profess to deny, that tetanus itself is nearly always the direct cause of death—in other words, death is the result of the convulsions which cause fearful sufferings, prevent nourishment, and wear out the circulation and respiration.

Clinical Observations on Tetanus at the Front.—Goldscheider continues his article, covering the subjects of prognosis and treatment. Concerning the latter he discusses a special group of 23 cases. Of this number 2 were brought in moribund, 2 died of sepsis, 1 died from the severity of the injury, while 8 died of tetanus *per se*. Ten patients recovered. Good care he regards as principally responsible for this showing. Narcotics are of use because they render the nerve cells less susceptible to the action of the tetanus virus. Death is then less likely to occur from the indirect causes of convulsions (suffocation, cerebral hemorrhage, exhaustion). His main narcotic is chloral, always given by enema, lest if taken *per os* it cause suffocatory paroxysms. The author thinks delayed serum injections may be beneficial. He has seen no benefit from magnesium.

Muenchener medizinische Wochenschrift.

March 9, 1915.

Experiences of a German Physician Captured by the French.—Finckh fell into the hands of the French on September 11 along with his staff and dressing pavilion. A French captain who spoke some German told

him it would not be safe to return him to his command at the time, although this could have been done *via* Switzerland. The captain placed a corporal's guard in charge of the dressing station, and the corporal saw that Finckh and his staff were well fed and housed. The corporal, however, could not resist the temptation of buckling on a revolver, flask, etc., belonging to the German staff, and parading up and down before his guard. The German wounded of the dressing station lay in a barn near at hand, and the French soldiers looked on in wonderment but without any expression of resentment. They even shared with them bread and wine. Soon some French surgeons and clergymen arrived on the scene. Upon the author's request dressings were supplied in great quantities, along with camphor, caffeine, and morphine. The French continued to bring in new German wounded, and reported that many still lay on the battlefield who had not eaten nor received medical attention for 4 or 5 days. An officer then took Finckh in his auto to the place and the unfortunates received food and medical attention until the French sanitary corps could come up and take charge. The wounded in the barn fared similarly in the latter respect after an interval of several days. The author was transported with the wounded prisoners and was *en route* three days and two nights. At stops crowds showed curiosity but no further emotions. However, they were relieved of their overcoats, in return for feeding them lavishly. A French surgeon at one station volunteered to take off some of the severely wounded; the others also received fresh dressings. The only insults received in transit were from a few French women. Arrived at the terminus, the author was placed among the German officer prisoners. A great hospital, a ramshackle old structure improvised for the purpose, had to be shored up before receiving the added load of prisoners. Here the author saw his wounded interned. Everything was forlorn and furnishings and conveniences were all wanting. Broken wine bottles served for urinals, old shoes for bedpans. These were emptied into a vat, and the latter was evacuated the next day. The food contained at times maggots and small beetles. Naturally all these deficiencies were remedied, although very slowly. During the author's 8 weeks' sojourn he was constantly striving to improve these conditons. The French surgeons were most willing but powerless. The usual diseases were present, and of the 400 wounded 7 per cent. died; 20 or 2 per cent. developed tetanus and only 3 recovered, one of whom died later of typhoid. The author was treated with the greatest courtesy by his medical colleagues. The latter regard a German military surgeon as a man to be honored and respected. He was allowed his freedom and the privilege of wearing civilian clothing but found no time to leave the hospital. For his work as surgeon, in sparing the French chief much of the labor of treating the German wounded, he received the salary of a French aide-major. Even after having a prospect of returning to Germany, he stayed voluntarily for several weeks to look after his charges. When he was enabled to return his French colleagues accompanied him to the train.

A Simple Prophylaxis Against Lousiness.—Eysell recalls the old observation that workers in sulphur mines escape malaria. It is now easy to see that mosquitoes could not exist in the presence of sulphur vapor which contains more or less hydrogen sulphide. The author now proceeded to dust precipitated sulphur over all body linen and underwear. Garments were reversed and the sulphur brushed in with special reference to seams, etc. As thus applied the sulphur is presumably inert, but when the garments are worn the perspiration activates the sulphur. The latter is also efficacious against bedbugs, fleas, stinging diptera and other vermin.

Deutsche medizinische Wochenschrift.

March 18, 1915.

Subdiaphragmatic Heart Massage. — Weitz states that Lane introduced this resource into medicine in 1902. Cackovic then took up the subject and was able to secure reanimation in nearly one-half of a considerable material. The method is indicated after failure of the usual methods of resuscitation, as tongue traction, artificial respiration, and precardial heart massage. It must be begun before the fateful ten minutes. The chief indication is in syncope following chloroform narcosis. The intervention is of a considerable severity, and therefore dangerous. The author tested it in a case of white narcosis syncope. The patient was a man aged 30, of an old family. He had been wounded by a bullet which had shattered the right tibia. General condition normal. It became necessary to open an abscess at the inner malleolus, and chloroform was the anesthetic. Everything went ahead smoothly. Another abscess formed near by, and some signs of infection came in evidence. This time the chloroform suddenly set up collapse symptoms. Heart and respiration came to a standstill. Tongue traction and Sylvester's method of artificial respiration, and precardial massage were practiced, the palm being struck rhythmically on the precordium, but no improvement could be seen. The epigastrium was then quickly disinfected with iodine, and median laparotomy was performed, the right hand was introduced beneath the flaccid diaphragm, grasping the apex of the heart, while the left hand continued to practice precardial massage by a sort of bimanual manoeuvre. After three minutes there was a general response in the heart action and respiration. Saline infusion and camphor injections were begun as adjuvants. As the circulation was aroused the wound, hitherto bloodless, began to bleed. The patient was kept alive for thirty hours, and whether death was cardiac or respiratory cannot readily be pronounced. The sensorium never became clear. An autopsy, which was refused, might have cleared up the confusion.

Gas Phlegmon of the Pia Mater.—Korbsch describes the following case: On January 1, 1915, a 20-year-old infantryman received a tangential shot on the left side of the forehead. He arrived at the hospital exhausted, "dried out," unable to swallow. Highly offensive cerebral tissue was escaping from the skull wound. A trephine opening showed that fragments of cranium had been driven into the brain. A curette was used to remove the necrotic brain tissue, whereupon the characteristic odor of gas gangrene at once became apparent. After all debris had been removed a funnel-shaped cavity remained, the lining of which, still infected, was carefully scraped away. The cavity, which was of the size of a small apple, was packed with iodoform gauze. The patient made a remarkable functional rally, and seemed to be out of danger when he suddenly developed fever and mental confusion, and died soon afterward. Section showed that the wound was directed toward the anterior horn of the lateral sinus, but had not reached it. The tamponned area seemed to be in a healthy condition. On the other hand, there was a surprising find on the surface of the brain—a pronounced leptomeningitis, with marked vascularization, the vessels invested with pus, in which a few bubbles were visible. The condition was at its maximum at the margin of the wound, and gradually became less marked as it reached the limit of the leptomeningitis on the occiput.

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN"

BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 622.)

The investigation was based upon the total number of losses from tuberculosis which the Gotha Company had suffered up to the end of 1904 among those insured since 1881. These numbered 1,428 cases. Not all, especially among those accepted in the earlier years, furnished data for complete bodily measurements, which explains why in the several measurements the number of cases varies. From the outset all measurements were excluded which had not been obtained by the actual use of the tape and scales at the examination.

Of great importance for the usefulness of the results to be attained was the control measure upon which the investigation was based. The selection was so made that the control subjects were persons who had been accepted for insurance at the same time as those who who had died of tuberculosis. The controls belonged to exactly the same accession and business periods as the tuberculous subjects, and had—especially for the time of admission—the same make-up as the group of tuberculosis decedents. Even the average accession age is, as one would expect, nearly the same; so that even without reckoning the age the comparisons are entirely trustworthy. Cards were used in the investigation, and in order to keep the latter strictly uniform they were selected by myself from 2,856 applications.

Compiling the averages from the tables made we obtain the summary given in Table II. It is shown in the first place that the height (with the exception of the juvenile period, 15-19 and 20-24) is almost the same in both groups; that the chest measure of the tuberculous subjects is notably behind that of the controls, and the waist measure and weight still more so (with the exception of the youthful period, 15-19 and 20-24).

In the second place, the difference between the two groups is the more considerable the higher the age of the risks at the time of insurance. The group which died of tuberculosis were, upon their acceptance for insurance—according to their measurements (in other words their constitution)—essentially inferior to the group of controls.

Let us now omit for the time any further conclusions, and endeavor first to understand the striking relationship between the youthful and higher ages. Are the adherents of the pure contagion doctrine of tuberculosis right when they regard constitutional inferiority not as a cooperative cause of the later disease but only as a consequence of the existing malady; and have we been actually insuring those of ages twenty-five and after who were already sick, while those of ages under twenty-five were still free from disease? It is impossible, for all have submitted to the same selection, and certainly not one has been insured who was in the least infected with tuberculosis.

Assuming, however, that the impossible happens, then must it be demonstrable in figures if we analyze the ages from twenty-five up according to the duration of insurance. For then the first insurance years must in their constitution values be differentiated quite considerably from the following, in which the duration of tuberculosis may be limited merely to months or a few years; because with the briefness of the expired time between the entrance examination and the death the *habitus phthisicus* must have asserted itself in its most severe form; while the latter in those insured for twelve years and upward cannot have come in evidence at all upon acceptance, so that the measurement values must have been the same as those of healthy controls.

(*To be continued.*)

Failure to Disclose Disease Arising Between Application and Delivery of Policy.—An applicant for a life insurance policy in his application answered "No" to questions whether he had ever been afflicted with renal colic. He had in fact, however, suffered from one or more attacks of renal colic prior to the date of the application, and, between the date of the application and the date of the delivery of the policy, he was seized with an attack of renal colic which persisted through several days, and was informed by his physician as to the nature of the disease. In an action on the policy it was held that it was the duty of the insured to have disclosed such illness to the defendant prior to the delivery of the policy, and his failure to do so constituted such fraud as would avoid the policy. "The authorities," the court said, citing the cases, "almost without exception are in agreement upon the doctrine that an applicant for such a policy must use due diligence to communicate to the proposing insurer facts materially affecting the risk, which arise after his application has been made and before the contract has been consummated by delivery."—Harris v. Security Mut. Life Ins. Co., Tennessee Supreme Court, 170 S. W. 474.

TABLE II—HEIGHT, WEIGHT, AND CHEST AND WAIST MEASUREMENTS OF THOSE DYING OF TUBERCULOSIS AND OF THE CONTROLS

Age When Insured, Years	HEIGHT (INCHES)			WEIGHT (POUNDS)			CHEST (INCHES)						ABDOMEN (INCHES)		
							Full Inspiration			Full Expiration					
	Controls	Died of Tuberculosis	Difference	Controls	Died of Tuberculosis	Difference	Controls	Died of Tuberculosis	Difference	Controls	Died of Tuberculosis	Difference	Controls	Died of Tuberculosis	Difference
15–19	64 41	65.86	−1 45	128	133.2	−5.2	34.13	33.97	0.16	31.37	31.57	−0.20	28 31	28 97	−0.66
20–24	66 69	67.40	−0 71	154	150 6	3. 4	36.02	35 86	0.16	33.07	33.27	−0 20	30.87	30.35	0.52
25–29	67 20	67 05	0 15	160.3	154.6	5.7	37.44	36 42	1.02	34 65	33.98	0 67	32.56	31.54	1.02
30–39	66 89	66 96	−0 07	165 8	159	6.8	37.81	36 93	0.88	35.63	34 68	0 95	34 09	32.56	1.53
40 and over	66 74	66 77	−0 03	174 9	161 9	13.0	38 50	37 09	1.41	36.26	34.96	1.30	36.06	33.38	2.68
At all ages	66 85	66 93	−0 08	164 3	156 4	7 9	37.79	36 69	1 10	35 44	34 33	0 91	33 82	32.16	1.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

109th Annual Meeting, Held in Buffalo, April 26 29, 1915.

(Special Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES

Monday, April 26—First Day.

The PRESIDENT, Dr. GROVER W. WENDE of BUFFALO, IN THE CHAIR.

Address of the President.—Dr. GROVER W. WENDE of Buffalo, after thanking the officers and committees of the Society for their support of his administration during the past year, suggested that it would subserve the best interests of the society if the retiring president, who during his term of office acquired a knowledge of the affairs of the society, were retained in an advisory capacity. He recommended that the constitution be amended so that the retiring president should become a member of the council for one year. In view of the deficit in the treasury during the past year when there had been no unusual or emergency expenditures, and of the fact that such an annual deficit was bound to occur unless their financial policies were changed, and since the three expenditures, Malpractice Defense, the *Journal*, and the Directory, were approximately about 75 per cent. of the total, he recommended that a referendum of the following question be decided by a vote of the membership at large: "Shall the Medical Society of the State of New York continue or discontinue its expenditures for Malpractice Defense, publication of the *Journal*, and publication of the Directory?" In speaking of the scientific work of the society, Dr. Wende said that the wisdom of the reorganization of this part of the society's activities had been amply demonstrated. He expressed regret that the Section on Public Health and Preventive Medicine had been allowed to fall into "innocuous desuetude" and recommended the establishment of a Section on Public Health which would become a clearing house for the critical consideration of all questions bearing upon State as well as preventive medicine; it would exercise a watch over the enthusiasm of public health officials, while at the same time supporting them in their duties. He recommended that this section be known as Section on Public Health, Hygiene, and Sanitation. This year a Section on Syphilis had been inaugurated to emphasize conspicuously the great importance of this disease to humanity, to the profession, and to the State and to establish a precedent for the guidance of other associations in its consideration. A large part of the consideration of syphilis should come within the purview of the Section on Public Health, Hygiene, and Sanitation, as next to the highest expenditure of State funds, which proper preventive medicine could greatly diminish, was the maintenance in institutions of inmates suffering from the effects of syphilis. In view of the ravages wrought by syphilis and in recognition of the inadequacy of existing facilities for checking its dissemination, he recommended the establishment of a system of confidential notification of all cases of syphilis for statistical purposes and the making of arrangements for the diagnosis and treatment by boards of health of all cases of syphilis for which no other provision could be made.

A very instructive course of illustrated lectures had been prepared for the public on much discussed medical questions of the day to be given by eminent authorities on the special subjects chosen. By thus putting the weight of its authority upon the right enlightenment of the people on questions involving preventive and State medicine, this society would protect the public from the evils of ignorance, superstition, and charlatanry, would prove the altruism of the profession, and would create a better understanding by the people of the rational treatment of disease as practised by their profession. He recommended that such a public educational course be made a permanent feature of the annual meetings of the Medical Society of the State of New York.

In speaking on the subject of membership, Dr. Wende said the society should ever keep in mind the fulfilment of that high purpose of the constitution—"to federate and bring into one compact organization the medical profession of the State of New York." After discussing the conditions, all of which might be grouped under illiberality and indifference, which were interfering with the increase in membership of the society, he recommended that a committee of three be appointed to prepare a more exact and clear definition of what should constitute eligibility to membership for the instruction and guidance of the county societies, and to outline some feasible plan for more rapidly increasing their membership.

During the past year the onslaughts of the "antis" and the irregular practitioners upon the legal defenses of the health and physical welfare of the people now on the statute books of the State, had been as many if not more than usual; but with this difference, that they had been pushed with greater vigor and had fallen just short of victory. A communication was early posted to the officers of the county societies which contained a carefully prepared statement of the dangerous pass to which these attacks had come and which made an earnest appeal for prompt and vigorous action. The very indifferent results that followed proved conclusively that something was radically wrong with the methods pursued in regard to legislative matters by both the State and county societies. It was indubitably shown that many of the county standing committees on legislation were simply standing soundly asleep or else had eased their consciences of responsibility by passing the contest up to the State committee. It was evident that a radical change be made in the present method of securing and influencing legislation. The indifference of the members of this society stood in sharp contrast to the efficient organization and enthusiasm of the representatives of the various sects. It had been borne in upon him that the frequent avoidance of defeat was due to the enthusiastic efficiency of the capable chairman of the State committee on legislation. In view of the fact that the legal protection of the health and welfare of the people would never be free from attack so long as there was an annual change of political complexion in the State Legislature, and since the State society in itself had assumed the office of guardian of public health he suggested the following: the creation of a State council on legislation which would act in an advisory capacity to the State committee on legislation and which should consist of the chairman of the State committee on legislation and the chairman of each of the county committees on legislation. They should employ a highly capable man, not necessarily a physician, to be known and to act as secretary to the State committee and the State council on legislation. Dr. Wende recommended that a committee of five be appointed to consider the above suggestion and such other suggestions as had been made or might be made, and to report therefrom a comprehensive plan for consistent attitude and approach on all medical legislation.

With reference to public health administration, Dr. Wende said that by securing the enactment of favorable laws enlarging the duties of departments of public health and granting them autocratic powers without checks of any kind, the profession was aiding in the gradual upbuilding of a powerful centralized organization. However capable the physician at the head, these laws placed inherent human weakness at the mercy of all kinds of destructive pressure by all kinds of ignorance that for the time being had popular support. It seemed that some method must be devised whereby this unwholesome trend must be checked. It seemed, therefore, that in consideration of the necessity for centralized autocratic power and the danger necessarily attendant upon the residence of such power in one individual, this society in conjunction with other legally recognized State medical societies should act as a watch dog over the official acts of such a dictator to protect him in right action and to condemn and prevent wrong action on his part. To this end he recommended that the duties of the committee on public health be so enlarged that it should cooperate with other legally recognized State medical societies in the consideration of the acts of the Commissioner of Health of the State of New York.

Dr. Wende reviewed the subject of Workmen's Compensation, speaking more particularly with reference to the fee-bill, and said that considering that one of the objects of the Society was "to protect its members from imposition," and considering the vast importance of this and like economic questions and the present inertia of the membership and its unjust criticism of those who had failed to "stem the tide" it was imperative to find some other way of handling such questions, and he therefore recommended that a standing committee con-

sisting of five members be created to be known as the Committee on Economics .hat should be on the watch for the appearance of any movement affecting the economic life of the membership, that should at once begin an investigation when such a movement was discovered, and that should report its findings and make recommendations to the House of Delegates at least annually.

A committee had been appointed by the House of Delegates at the last annual meeting to be present at the Constitutional Convention for the revision of the Constitution of the State of New York, and thereat to proffer advice and suggestions upon all such matters of public health and medical practice as might come before the convention. One serious danger possible at this convention was that zealous regulars and fanatical irregulars would endeavor to have written into the fundamental law of the State, provisions governing medical matters that would render them almost as unchangeable as adamant and that in the long run would work mischief to the State, the individual, and the profession. It was Dr. Wende's opinion that regulation of public health and medical practice should be left to the police powers of the Legislature so that all those laws grouped under the "Public Health Law" might have a mobility impossible under constitutional provision.

The speaker called attention to the drawbacks of the present system of State licensure and reciprocity and urged a license to practice medicine that should be nation-wide in its grant. He also endorsed the plan presented at the American Medical Association Council meeting last February for the reexamination every five years of all physicians in practice. Such a procedure would eliminate fossilization and promote advancement in the profession; it would check the aspirations and conduct of irregular practitioners; on the part of the people it would inspire loyalty and confidence and renew their interest. The sole object of such a reexamination would be to prove fitness to practise. Such a plan would make unnecessary the further increase in the requirements of those preparing to enter the profession, and would quickly eliminate any undesirable practitioners while not putting prohibitive restrictions upon ability. The trend of reexamination would be to bring diagnosis to the front as the most important professional attainment, and to relegate to the background the cure of disease upon which the irregulars placed so much stress and upon which their vicious hold upon the public entirely depended. The President recommended that this matter as well as the question of the advisability of adding a fifth year to be spent in hospital work to undergraduate requirements be referred to the Committee on Medical Research for consideration. The continuance of the investigations of the Committee on Midwives was recommended. In addition it was suggested that the Committee on Medical Research should be asked to consider the necessity for aiding the State Department of Health in educating and training would-be public health officers. Finally, Dr. Wende recommended that the functions of the Committee on Medical Research be enlarged and that it be known as the Committee on Medical Education.

Discussion of the President's Recommendations.—The House of Delegates adopted the first recommendation by making the President a member of the Council of the Society. After a lengthy discussion as to the relative values of the Malpractice Defense, the *Journal*, and the Directory, and explanations with reference to the financial status of the Society which showed that the apparent deficit was due to bad debts, some of which had been collected and that in reality the Society had assets amounting to about $9,000, it was decided that it was unnecessary to submit the proposed referendum to the members of the Society for a vote. The recommendation with reference to the notification of all cases of syphilis was adopted, but the one recommending the treatment of cases for which no other provision could be made by boards of health was defeated. It was pointed out that the State Board of Health now made provision for making Wassermann tests. The other recommendations were adopted with the exception of those requiring a change in the By-Laws which were permitted to take the usual course.

Report of the Secretary.—Dr. WISNER R. TOWNSEND presented this report which showed that the membership of the Society had increased by 382 in 1914, which was a larger increase than during any previous year. The total number of physicians in the State was 14,114 on October 1, 1914, while the membership of the State Society on January 1, 1915, was 7,621. Renewed and continued efforts were necessary in every county to increase the membership, but care should be exercised that no undesirable men were admitted. The argument that such men could be better controlled when members than when non-members did not always work out well in practice. The time was not far distant when the majority of the profession as represented by the County and State Societies must take steps to control the conduct of non-members as well as of members. This was an important and delicate question, but one that should be given serious thought, because the public did not discriminate between members of the State Society and non-members but considered all physicians as part of the profession. In the legal profession, the Bar Association, which corresponded with the State Medical Society, investigated complaints against non-members and, if they were found guilty, referred them to the Appellate Division for Punishment. If the State Society were to undertake the investigation of non-members when a complaint was made, it might refer all questions of discipline to the State Board of Regents, who by law had the right to suspend or revoke licenses to practise for various offenses.

The clerical work of the office had greatly increased during the past year owing to the many attempts to break down the medical laws in regard to the practice of medicine, antivivisection, antivaccination, etc. The Committee on Legislation sent out over 10,000 letters, and hundreds of telephone messages and telegrams had been sent and received. On this account it seemed desirable to increase the Committee on Legislation, so that it would have more representatives throughout the State. The District Branch presidents and the councilors might be added as actual members of the committee. The County Society committees could be placed in charge of the District Branch presidents and this enlarged body would be organized for effective work. This report also called attention to the distinct improvement in the work of the County Society officers and to the value of the scientific work of the District Branches and County Societies.

Report of the Treasurer.—Dr. ALEXANDER LAMBERT presented this report containing the certified balance sheets showing the receipts and expenditures for the year 1914 and the bank balances for the past nine years which showed an excess of income for that period of $5,086. The year 1914 showed a loss of $759, which was nearly all due to the large amount of doubtful debts charged off in 1914. A considerable part of this would probably be paid during the current year. The Committee on Publication had already made arrangements to reduce the expense of the *Journal* and the Directory for 1915. These economies together with the increase in revenue from dues, which was estimated at $1,000 for 1915, would probably provide for a satisfactory surplus at the end of the year.

Report of Committee on Publication.—This committee, of which Dr. Floyd M. Crandall was chairman, reported that the regular monthly issue of the *Journal* was 8,500 copies, an increase of 200 per month over the preceding year. During the year the revenue from advertising had been materially increased by the assistance of the Cooperative Advertising Bureau of the American Medical Association. In order to reduce the cost of publishing the Medical Directory the committee recommended that in the 1915 edition all society data excepting the County, State, and National Societies, Societies of Specialists, Academies of Medicine, and Hospital and Alumni Associations be omitted; that the data of the Board of Health of New York City be abbreviated and that a less expensive cover be used.

Report of Committee on the Regulation of the Introduction of Medical Expert Testimony.—Dr. DWIGHT H. MURRAY reported that owing to conditions in last year's Legislature they had not deemed it wise to present a bill. This year they had introduced a bill which had passed both houses of the Legislature and had been signed by the Governor. This bill, Dr. Murray said, was not so farreaching as it should be; it covered criminal cases only, but it was an entering wedge and they hoped to get some changes in the Constitution of the State at the convention now in session.

Report of Committee on Public Health.—Dr. JOHN M. VANCOTT of Brooklyn presented this report, in which he stated that the only important communications which the committee had received during the past year was one from the Committee on Public Health of the State Legislature, entitled "An Act to Amend the Public Health Law, Relating to the Practice of Medicine," and one from the New York Committee for the Pre-

vention of Blindness asking the endorsement of the Medical Society of the State of New York to resolutions approving the contemplated action of the State Department of Health to have all cases of redness or swelling or discharge from the eyes of newborn infants reported promptly in such a way as to secure adequate medical treatment for cases not in the care of physicians, or such assistance from the health officer in the shape of nursing, or consultation or laboratory investigation, as the attending physician might desire. In order to further the efforts of the State Department of Health and the New York Committee for the Prevention of Blindness to extend in New York State an educational campaign among laymen for the conservation of vision, they suggested that the Medical Society of the State of New York recommend to the Public Health Council of the New York Department of Health that it declare suppurative conjunctivitis a reportable disease as well as ophthalmia neonatorum. This report further stated that the committee could not agree with the attitude of the Commissioner of Health of the State in opposing the compulsory vaccination of children in the public schools. They deplored any act that looked toward letting down the bars with reference to compulsory vaccination. The opinion was expressed that there was reason to believe that the United States would be menaced with cholera and other highly communicable diseases after the European War ceased, and it was to be hoped that the Governor and all others in authority would be liberal in granting to the Quarantine Station such appropriation of moneys as might be necessary in the judgment of the health officer of the port of New York. They reiterated the opinion expressed in a former report that the Quarantine Station should remain a State and not become a Federal institution. Though they considered it difficult to form a reliable opinion as to the operation of the new drug laws, they believed that with proper amendments, which time and experience would suggest, they would prove rather beneficial than otherwise.

Report of Committee on Legislation.—Dr. Louis K. Neff reported for this committee, reviewing the bills which had been introduced into the Legislature which did not become laws. These bills were mostly designed to further the interests of irregular practitioners, to do away with compulsory vaccination and with vivisection.

Report of the Committee on Midwives.—Dr. John Van Doren Young reported for this committee, stating that four meetings had been held and that they had endeavored to get as much information as possible by correspondence. The scope and importance of the work had grown until the committee had realized that before any complete and exhaustive study with the necessary recommendations could be made, it would require two or more years' work. It would be desirable to have a committee such as the present one made a more or less permanent feature of the society's work. In taking up this work the committee had found that the problem could best be studied under two heads, that of New York State and of New York City. There were five times as many midwives in New York City as in the balance of the State. There were 1,448 midwives registered in New York City, who delivered last year 52,997 children. The midwives were delivering more than four times as many women as the entire capacity of the lying-in hospitals of the city. Outside of New York City the midwives practised without any definite control such as was exercised by the Board of Health over those practising in the city. The committee believed that at the present time it was impracticable to abolish the midwife and that the problem, therefore, resolved itself into educating and improving her so that her work would be of such a character as at least partially to excuse her existence. It was the belief of this committee that the midwife practised medicine, and in so doing violated the Medical Practice Act of the General Public Health Law. The first effort of the State Board of Health to face this problem was by bringing out Chapter 4 of the Sanitary Code relative to the registration of midwives January 1, 1915. The committee at first believed the requirements too low, but were now convinced that this was a step in the right direction and would eventually be productive of great good by giving the State Board of Health the knowledge of the existence of the midwife and her field of labor, and thus enabling them in the future better to control the situation.

Report of Committee on Medical Education.—Dr. William Francis Campbell presented this report, in which the opinion was expressed that the standard of preliminary education for the study of medicine should be raised so as to conform to the standard adopted by the Council on Medical Education of the American Medical Association. While a minority of the committee felt that the ideal standard would be a preliminary requirement of two years of collegiate work in addition to four years' high school education, the majority maintained what was immediately desirable was to urge the State Board of Regents to adopt as a standard of preliminary work one year of collegiate work, including courses in physics, chemistry, biology, and a modern language, preferably French or German, in addition to a four-year high school education. The subjects upon which the State demanded examination should be as follows: Anatomy, Physiology, Chemistry, Bacteriology and Pathology, Hygiene and Preventive Medicine, Obstetrics, Surgery, and Internal Medicine, excepting therapeutics. The character of the examinations of candidates seeking the license to practise medicine encouraged the quiz cramming methods and discounted real knowledge of how to make a clinical examination and arrive at a diagnosis. The Regents should require practical laboratory and clinical tests. The committee recommended that the Regents of the State of New York require that every person who was to enter the practice of medicine after a certain date should have taken at least one year as an interne in a hospital registered by the Regents of the State of New York as meeting its standards for teaching hospitals. In closing it was urged that in view of the efforts made each year at Albany to secure special legislation which tended to impair their medical educational standards, they should insist that the same educational standards apply to all no matter what therapeutic measures were used in the treatment of disease.

Report of the Workmen's Compensation Committee.—Dr. Alexander Lambert presented a lengthy report of the activities of this committee, relating the method by which they had arrived at what they considered suitable remuneration for services rendered under the Workmen's Compensation Law. By meeting with the representatives of insurance companies and by coming to an agreement with them on this fee bill the committee had succeeded in raising the fees paid to the profession in three-fourths of the cases coming under the Workmen's Compensation Law over that which would have been paid without the agreement between the committee of the Medical Society and the insurance companies. It had prevented the possibility of various corporations doing insurance work underbidding one doctor against another. It had placed the organized profession in the State in a dignified position of agreement and cooperation with those who were endeavoring to put into force a new social law and social condition. It was stated that the committee was aware of the vast amount of criticism and discussion which the question of a proper fee bill had raised and explained its reasons for believing that the Workmen's Compensation Law would bring about a fairer return for work done in hospitals than was at present given to physicians and surgeons and would bring about the correction of many abuses which had grown up in this connection, and on the whole physicians, as a class, would receive more than they were at present receiving for this class of cases. They considered one part of the bill as objectionable, and that was the flat rate for first aid operation and full treatment, which comprised the first column of the charges under the fee bill. They believed that this flat rate should be abolished. The committee believed that the economic questions involving the medical profession under this law were of such importance to the profession that the State Society should have a special committee to interest itself in them.

Report of Committee on Medical Research.—Dr. Frank Van Fleet reported for this committee that certain bills had been introduced into the Legislature to regulate animal experimentation which had been referred to the Committee on Judiciary of the Senate and Assembly and were not reported out of committee.

Report of the Counsel.—James Taylor Lewis presented this report in which he gave an outline of the actions brought during the past year. They were fewer than during the previous year and more had been disposed of. It was the belief of the counsel that the number of private settlements by doctors had now been reduced to such a small percentage as to justify the belief that practically all members of the State Society rested confidently upon the efforts of the Malpractice

Defense of the State Society in cases in which negligence was charged against them. During the past year many physicians who were defended by insurance companies had called upon the counsel of the Society for help, and it was very interesting to note that in all these instances the insurance companies were only too glad to stand aside and permit the counsel of the Society to conduct the case. This, however, did not remove the danger of a policy. It was time that the House of Delegates took some affirmative action in order that the insurance companies who reaped the benefits should not be permitted to make use of the State Society to pull their chestnuts out of the fire. This should be stopped at once. No member of the State Society who wanted to be insured against his negligence should be defended by the counsel of the Society. Members of this great profession should not place themselves in the position of seeking indemnity against their own carelessness; it should be, by statute, made unlawful. Mr. Lewis said that he felt sure that the number of cases brought might be largely diminished if the importance of abandoning their insurance and relying upon their own resources could be sufficiently impressed upon the minds of the various members. For the protection of the professional standing of its members the House of Delegates should take some definite action in this matter.

These reports were all adopted by the House of Delegates after certain amendments had been made. After considerable discussion the report of the Committee on Public Health was adopted with the exception of that part recommending the Quarantine Station at the Port of New York should remain a State and not become a federal institution, which section was disapproved. The report of the Committee on Medical Education was adopted with the exception of the recommendation requiring a fifth year as a hospital interne. It was shown that this recommendation was not practicable at the present time since hospitals were not standardized in this State and there were insufficient places to accommodate all graduates in medicine. The report of the Workmen's Compensation Committee was adopted with the request that the committee should not formulate a fee bill, since there was danger that insurance companies would take the minimum bill as the maximum and thus do physicians a great injustice.

Tuesday, April 27—Second Day.

Election of Officers.—The following officers were elected for the coming year: *President*, Dr. W. Staunton Gleason of Newburgh; *First Vice-President*, Dr. Montgomery E. Leary of Rochester; *Second Vice-President*, Dr. H. L. Winter of Cornwall; *Third Vice-President*, Dr. Thomas McKee of Buffalo; *Secretary*, Dr. Wisner R. Townsend of New York; *Treasurer*, Dr. Alexander Lambert of New York; *Chairman of Committee on Scientific Work*, Dr. Thomas J. Harris of New York; *Chairman of Committee on Public Health*, Dr. Joshua M. Van Cott of Brooklyn; *Chairman of Committee on Legislation*, Dr. James F. Rooney of Albany; *Chairman of Committee on Medical Research*, Dr. Frank Van Fleet of New York. The *Committee on Prize Essays*, consisting of Dr. A. Vander Veer, Dr. John F. W. Whitbeck, and Dr. Edward D. Fisher was continued.

The following were appointed Delegates to the American Medical Association for two years: Dr. Grover W. Wende of Buffalo, Dr. William Francis Campbell of Brooklyn, Dr. Edgar A. Vander Veer of Albany, Dr. Henry L. Elsner of Syracuse, Dr. Floyd M. Crandall of New York, and Dr. John O. Polak of Brooklyn; *Alternates:* Dr. W. E. Bowen of Rochester, Dr. W. D. Ludlum of Brooklyn, Dr. Elias H. Bartley of Brooklyn, Dr. J. R. Kevin of Brooklyn, Dr. J. W. Draper of New York, and Dr. G. A. Peck of New Rochelle.

Saratoga Springs was chosen as the place of meeting next year. The time of meeting was referred to the Council, to be announced later.

Shall the American Medical Association Have Appellate Jurisdiction?—Dr. Wisner R. Townsend read a telegram from the headquarters of the American Medical Association asking that the State Society take action on the proposal made at the last meeting of the American Medical Association that the Judicial Council of the American Medical Association have appellate jurisdiction in differences between members of different county societies, between different county societies, between a county and State society. This simply meant that in case of local differences there would be a court of appeal, as it were. After a discussion of this matter, it was decided that as the proposition now stood it was too indefinite; it did not state whether such jurisdiction applied to matters of fact or matters of procedure. It was the opinion of the House of Delegates that the State Society should be the unit and that it should be able to manage differences that might come up without help from an outside source.

Section on Syphilis Discontinued.—It was voted to discontinue the Section on Syphilis; the work of that section was to be under the new Section of Public Health, Hygiene, and Sanitation. The other sections would be retained as they were now organized.

GENERAL SESSION.

Tuesday, April 27, 1915.

The President, Dr. Grover W. Wende, in the Chair.

Invocation.—The one hundred and ninth annual meeting of the Society of the State of New York was opened by prayer by Rabbi J. Kopald.

Addresses of Welcome.—Dr. Albert T. Lytle of Buffalo, Chairman of the Committee on Arrangements, welcomed the guests in behalf of the medical profession of Buffalo and told of the provisions made for the entertainment of the visiting physicians, calling especial attention to the excellent exhibit which had been assembled and the popular lectures on health subjects which were to be given. He urged that these might become a permanent feature of the meetings.

Mr. Herbert A. Meldrum, President of the Chamber of Commerce of Buffalo, said that it had once been believed that competition was the life of trade, but they had gradually learned that liberal cooperation and not cut-throat competition was the secret of success in business. The same thing was true in medicine; it was by cooperation that they would overcome disease. As health was the most important factor in life and they were here to promote it, he felt that they should be encouraged. Buffalo was a popular convention city, but none came here to which he gave greater honor than to the Medical Society of the State of New York.

Oration on Medicine.—Dr. Victor C. Vaughan of Ann Arbor, Mich., President of the American Medical Association, delivered this address. He explained that the Editor of the *Journal* had not returned his manuscript, so that when they read his address if they found that it did not exactly correspond with his remarks this would account for any discrepancies. Dr. Vaughan said that his recent work somewhat upset their preconceived notions of infection and immunity, and while it was all very interesting he was not prepared to say exactly what practical value it might have in medicine. First, they had all been taught that bacteria were microscopic plants. So far as his work was concerned, this was not true; bacteria were not plants and the reason was easy to explain. The early workers found bacteria, especially anthrax bacilli, not readily soluble in dilute acids or alkalies, and, therefore, said they were vegetable organisms. This error had been repeated until the present time. It should be remembered that horns, skin, hair, and teeth were not vegetable substances, and yet they were not soluble in dilute acids or alkalies. The thing that determined whether a substance was plant or animal was the presence or absence of cellulose in the structure. If there was no cellulose substance present the thing in question was not a plant. It did not follow since they could not say that bacteria were not plants that it could be said that they were animals. They would simply say they were bacteria. Plants gave off oxygen and took in carbon dioxide, while animals took in oxygen and gave off carbon dioxide. Now it was found that bacteria took in more oxygen than they gave off in carbon dioxide, thus there was an excess of oxygen, which indicated nitrogen metabolism. The bacterial cell had a direct nitrogen metalobilsm just as our bodies had. Another question that was of great import was whether the bacteria were nucleated or not. Most bacteriologists had said that bacteria were not nucleated, because they showed no difference in staining, but they did show nuclear staining; he did not specify that the capsule or flagellæ or extraneous substances connected with the bacteria showed the nuclear tissue, but chemical analysis showed nuclear acid, and a carbohydrate group had been identified, showing that bacteria were nuclear tissue. This was important because the chief function of nuclear tissue was to grow and to multiply. Bacteria were as-

similated by the body because they were simple in structure, but in chemical composition they were just as complex and highly organized as the most highly developed cells in the human body. Hence infection did not mean a contest between unequal combatants but a contest among equals. With this understanding with reference to the structure of bacteria they might consider the mechanism of infection and immunity. Whether or not a given bacteria was pathogenic depended on two things. Before one could have any infection there must be a living thing to cause the infection; one could not get infection with arsenic or strychnine, but one could have poisoning. Again the bacteria must live on the animals which were infected, and must not only live but must multiply. Bacteria carried on the surface of the body did not infect. It was estimated that 70 per cent. of the people coming in contact with cases of meningitis carried the meningococcus, but they were not infected with the clinical disease. In a school, where there was an outbreak of diphtheria, it was found that 30 per cent. of the children were diphtheria carriers but they did not all develop diphtheria. Before one could have infection the organisms must grow and multiply. In order that they might grow they must feed on proteids in the animal body. All bacteria had resting stages, not only those that showed spore formation, but in his opinion they must have resting stages even if they did not form spores; for instance, the Shiga bacteria of dysentery, especially in the dry state, did not form spores, but they broke into granules and under appropriate conditions these came to life. All living things must eat and they ate what was in reach and, further, they ate what they could break up and utilize. A substance might be rich in proteid, but if it could not be digested it did not promote growth. The great majority of bacteria were not able to live on the human body and hence were not pathogenic. This also helped to explain the selective activity of bacteria. Again, if the body cells digested the bacteria they were all killed and there was no infection. Bacteria were pathogenic when they could eat body proteins and formed digestive ferments which the body cells could not destroy. One found that in typhoid fever, for instance, no symptoms manifested themselves until six or ten days after the bacilli had been ingested. During this time the host was in good health, but this was the time when the bacteria were growing and multiplying most rapidly; hence it was not the direct growth and multiplication of the bacteria that caused the symptoms of disease. Yet this period was most important and the outcome of the infection depended on what happened during this period. During this period this organism furnished a ferment; and by a synthetical process the soluble proteid was converted into a cellular proteid, that was, simple proteids were combined into complex ones. No poison was liberated, and hence there were no symptoms. During this period normal proteids were converted into foreign proteids. At the end of the incubation period, which need not necessarily be a sharply defined one, when symptoms began the thing that had happened was that the body cells had learned how to combat the invader, first with the phagocytes and then with every living cell. Metchnikoff claimed that the phagocytes only ate the bacteria, and while they owed so much to his investigations they had now learned that not only did the white blood corpuscles eat the bacteria but that all living cells did the same. The body cell having once developed the function of digesting the invading organism in the process of resolving cellular to soluble and complex to simple substances poisons were set free and the symptoms of disease appeared and life was threatened. If this was true, then by the injection of a foreign protein, like egg albumen, in varying doses and at varying intervals, they ought to be able to produce any kind of a fever they wanted to, an acute fever or a fever resembling typhoid. This they had been able to do, reproducing the symptoms of that disease even the morning recession and the afternoon exacerbation of fever. This showed that the fever and the lesions were due to the parenteral digestion of protein. It was the destruction of the protein ferments that caused the symptoms of disease. To be protected against any disease the body cells must be trained beforehand to digest the ferments. In vaccination the body cells were trained beforehand to digest smallpox virus, and hence when that virus got into the body it was destroyed immediately, and the person was said to be immunized against smallpox. It was a misfortune to suddenly develop the power of digestion during an infection so that the poisons were set free too abundantly. In certain infectious disease the death rate was higher among the stronger and more robust than among the comparatively weak and infirm. Dr. Vaughan said he thought he had made a discovery when he found this out independently, but after reading he found that this fact was recognized in the past. The introduction of bleeding as a treatment for fever had its foundation on the observation that more patients recovered after having hemorrhage than when they did not have it. The observation that the strong perished and the weaker frequently survived was noticed by Thucydides in reference to the plague, typhus fever, and perhaps other diseases. A description in the sixteenth or seventeenth century by Cogan described an epidemic of typhus thus, "so it went through the country picking out the handsomest, the lustiest, the best, just as you would go through a flock of sheep and pick out the best." Even Herbert Spencer was wrong when he stated that disease was a good thing in that it killed off the unfit. This might not be true of all infectious diseases, but it probably was true of those in which the combat was waged chiefly by the phagocytes. The cellular substance to which an animal was highly immune killed the animal on the first injection, provided the injection was large enough. The animal with this high immunity split up a very large amount so rapidly that the poison was overwhelming and killed the animal. A non-pathogenic organism injected in sufficiently large quantity would kill speedily. The same thing applied to all vaccines; no vaccine gave complete immunity, but only a relative immunity. The most complete immunity conferred in any disease was that in yellow fever; this was probably because yellow fever infection was carried by the mosquito and one mosquito could not carry a large amount of the infection. In closing Dr. Vaughan said he believed in giving credit where credit was due and that a Spanish physician, named Ferran, had vaccinated against cholera in the nineteenth century and had received nothing but abuse.

SECTION ON PEDIATRICS.

Tuesday, April 27—First Day.

DR. JOSEPH ROBY OF ROCHESTER, IN THE CHAIR.

Hydrocephalus—Later Experiences in Its Treatment by Cisterna Drainage.—Dr. IRVING S. HAYNES of New York presented this communication in which he referred to the procedures of Gaertner and Thayer for securing drainage in cases of hydrocephalus, but did not consider them as practical as the operation which he had devised. He stated that the injection of phenosulphonaphthalein provided a means of determining something in reference to the type of case with which one was dealing and whether operation promised hope for alleviation of the condition, and also the type of operation to be performed. He had operated on 12 cases all but two of which were totally blind. He stated that the only logical means of draining the Cisterna was into the blood stream. This he effected by means of a silver cannula with a short arm and a long arm at right angles with each other. Dr. Haynes demonstrated by means of lantern slides the way in which the tube was inserted from the Cisterna Magna to the sinus into which it was desired to drain the fluid. He also showed simple apparatus to be attached to a table for supporting the head of the patient during the operation. While he had been able by this method to effect drainage and in some cases to somewhat improve the contour of the child's head and to prolong life he was by no means enthusiastic, because there seemed to be little or no improvement in the mental or physical condition of these children.

Dr. GODFREY R. PISEK of New York, said he was not so pessimistic with reference to this operation as was Dr. Haynes. He thought they had learned something worth while. They had learned that there were certain types of hydrocephalus, some operable and others not. It must be forgotten that these were surgical experiments; the cases that he had sent to Dr. Haynes were absolutely hopeless. If they had taken these cases early, made the phenosulphonaphthalein test, and employed the type of drainage that seemed indicated, the results might have been better. If they got the child before he was damaged mentally, or after an attack of acute meningitis when hydrocephalus developed as a complication, this operation might offer hope of accomplishing something. The technique was not simple

and required a surgeon skilled in brain surgery. There was a type of cases in which the fundus of the eye showed no changes, and though there were signs of increased cranial pressure the tests showed that with a pervious foramina it would be a satisfaction to feel that there was a method of treatment that promised something, that they were not absolutely hopeless. Dr. Pisek referred to several cases of hydrocephalus in young infants that responded to lumbar puncture repeated at first after two weeks, then after three and then after six.

Dr. CHARLES W. HENNINGTON of Rochester said that Dr. Haynes' operation seemed to be in line with what they had found in laboratory work in hydrocephalus. Cuchman in his pathological studies showed the absorption of the tufts and villi into the longitudinal and other sinuses. It seemed that in this operation they might have the solution of the problem as to whether the dura and arachnoid should be punctured from the reverse side. He agreed with Dr. Pisek that if these cases were brought early for treatment and the phenosulphonaphthalein test employed to determine the type of obstruction they might get some good results.

Dr. HAYNES said the phenosulphonaphthal in tests for this purpose had come out since he had been doing this work and he had not had the opportunity to test them. He thought the suggestion made Dr. Hennington would give relief when the obstruction was above the aqueduct of Sylvius. This was suggestive since all attempts at anastomosing veins in the brain had been unsuccessful. The technique would be easy. The end of a rubber tube could be thrust into the ventricle and the other into the laterial sinus. Dr. Haynes said he had gone into this work with enthusiasm but the paucity of results had been discouraging and he was glad to hear that they thought this work might lead to something practical.

The Schick Reaction and Its Practical Application.—Dr. ABRAHAM ZINGHER of New York presented this paper, in which he outlined the method of applying the Schick test. He stated that the dose of toxin used was 1/50, the amount required to kill a guinea pig in four days. He emphasized the importance of distinguishing between the true—and the pseudo—reactions. The true reaction left pigmentation and showed superficial scaling, while the pseudo reaction showed more infiltration, but disappeared in a few days while the true reaction lasted considerably longer. It was also necessary to have a standard reliable toxin, the primary dilution being 1/10 in carbolic acid. This would keep for a week or two. If it was too dilute it deteriorated rapidly. Many individuals normally developed antitoxin in their plood and 1/30 of a unit would render the individual immune to diphtheria. The Schick reaction had been carried out in the Willard Parker Hospital in 1,200 cases. Of these 656, or 54 per cent., gave negative reactions. It was not necessary to give diphtheria antitoxin to those who gave the negative reaction. This was the fact that rendered the test so valuable. During the early months of infancy children were comparatively immune but susceptibility increased gradually until between the ages of one and four years 67 per cent. reacted positively. Between the ages of four and six years, 53 per cent. reacted; from six to eight years, 37 per cent. From this time on susceptibility decreased rapidly. It was interesting to note that when an older child in a family reacted positively to the Schick test the younger children were also positive reactors; this happened so consistently that if one found an older child giving a positive reaction it was not necessary to make the test on the younger children. When they found children who gave positive diphtheria throat cultures and a negative Schick reaction, they assumed that such children were only carriers of diphtheria and did not have the disease. Dr. Zingher also showed some of the results obtained by his experiments with toxin-antitoxin, and spoke of the relative value of intravenous and intramuscular injections of antitoxin, the intravenous injections being much more effective and were indicated in cases of diphtheria that were not treated until the third or fourth day. In those children giving a positive reaction, after the effect of the first immunizing dose of antitoxin was exhausted, then a second dose conferred immunity for from seven to ten days only.

The Treatment of Scarlet Fever with Convalescent Blood.—Dr. ABRAHAM ZINGHER of New York presented this paper. (See MEDICAL RECORD, Report of Section on Pediatrics, N. Y. Academy of Medicine, February meeting.)

Results of the Schick Test at the Rochester Orphan Asylum.—Dr. STEARNS S. BULLEN of Rochester reported the results of the Schick test in about 140 children in this institution, which was conducted on the cottage plan. In May, 1914, 132 children were tested. One hundred of the same children were tested again in April, 1915. On both occasions the toxin was diluted with normal saline so that the required amount, 1/50 minimum lethal dose for the guinea pig, was contained in 0.2 c.c. At the time of the first test, 56 of this group of children had at least 1/30 unit of natural diphtheria antitoxin per cubic centimeter of serum. The remaining 44 had less than this amount, and would be considered susceptible to diphtheria. Shortly after these tests were made a small supply of toxin-antitoxin mixture was received from the New York Health Department. It was decided to immunize actively the susceptible children. Only those children who showed strong positive reactions were treated. Forty-one such children were given ¼ c.c. of the toxin-antitoxin mixture subcutaneously, on two occasions with a four-day interval. Of this number, 35 were still in the institution in April, 1915, and were again tested. All except 8, 77 per cent., still gave strongly positive reactions, showing that they had developed very little, if any, antitoxin as a result of the treatment. In 100 children who were first tested and still remained in the institution, the test was applied in April, 1915. Of these, 45 showed more or less strongly marked reactions, while 52 gave no reactions. Eighteen who showed positive reactions eleven months before, now showed negative reactions. Included in this number were the eight cases already mentioned as having developed possible immunity as a result of the treatment with the toxin-antitoxin treatment. Of the children who gave negative reactions on the first test, 15 now gave positive reactions. The author said this series of tests was reported not because it was sufficiently large to enable one to draw conclusions, but because it suggested two things. First, that positive or negative results with this test did not give data which remained the same for an indefinite period of time. Secondly, by combining the Schick test and throat cultures, one would be able to single out the carriers. In none of these 235 injections did any bad results occur.

Immunization Against Measles.—Dr. CHARLES HERRMAN read this paper, in which he declared that the number of cases of measles remained as great as ever. It could only be diminished by immunization against the disease. After giving the mortality statistics for this disease he stated that infants under five months of age were relatively immune, and in exceptional cases in which they were infected with the disease it appeared in a mild and atypical form. One attack of measles usually protected for life. The nasal discharge contained the virus twenty-four hours before the appearance of the eruption. Having convinced himself that infants under five months of age were relatively immune, he obtained the consent of a mother to inoculate her infant then four months old. It seemed logical to assume that as the infant at that age was not absolutely immune, direct inoculation would convert a temporary into a more or less permanent immunity. At no time did the child present any evidence of injury and he then proceeded to inoculate others. The material for inoculation was obtained from otherwise healthy children, taken twenty-four hours before the eruption of measles appeared. A small quantity of mucus from the nose was collected on swabs of cotton. Only perfectly healthy infants under five months of age were inoculated. The swab was applied gently to the nasal mucous membrane. Forty infants were thus inoculated. The majority showed no distinct reaction, fifteen had a slight rise of temperature, and in a few instances a number of small spots were noted on the face or body. Of the forty cases, four over one year of age had come in contact with cases of measles and had not contracted the disease. Having satisfied himself that those infants who were inoculated were immune, two of the forty were reinoculated at the age of twenty-one and twenty-three months, respectively, with negative result. It had been shown that the virus of measles was filterable, but he believed that the filtrate could not be depended upon for purposes of inoculation. It would be desirable to devise some method by which the virulence of the infectious mucous material could be retained for more than twenty-four hours.

Pyelitis: Its Clinical Significance.—Dr. EDWARD J. WYNKOOP of Syracuse read this paper, which he said

he presented because pyelitis unrecognized might cause considerable damage. In girls the infection might gain entrance through the urethra more often than in boys, or it might be carried from the intestinal tract. It might occur as a complication of some other conditions or it might be an independent disease. The bladder need not necessarily be infected. The classical symptoms of chill, fever, and pain in the kidneys might not be present. In relapsing cases the chill might not be repeated. In any case with irregular fever, interstinal symptoms, frequent micturition and anemia, it was well to bear in mind the possibility of pyelitis. In examining the urine a twenty-four-hour specimen only should be taken. Symptoms referable to the urinary tract and anemia should always make one suspicious of pyelitis. This was a condition more frequent than they had believed and should be borne in mind as not every illness in children was to be attributed to the intestinal tract. In treating pyelitis the author had found urotropin and potassium citrate valuable; his preference, however, was for the potassium citrate. Plenty of water and attention to hygienic rules were a great help. Vaccines had not proved as effective as had been hoped. The treatment should be persisted in as long as pus was found in the urine, even though the symptoms had disappeared.

Dr. Walter Lester Carr of New York said all were agreed that in most instances pyelitis was an infection of the colon bacillus type, but the peculiarity of the attack required some consideration as it did not always seem to be associated with intestinal disturbances that attracted attention, nor did it always show itself after a colitis of which one could find record. Many of the cases, according to Dr. Carr's experience, were seen after influenza, and yet cultures of the urine showed pure colon infection. Kelly and Burnham believed the common origin of pyelitis was in the blood stream and the ascending infection was rare. While there was a preponderance of cases among females there were more cases among the males than were formerly noted. As the condition in the male could hardly result from an ascending infection, it would be well to study more carefully the influence of the blood stream infection. At this time he believed they were getting satisfactory results in the treatment both by the free use of alkalies and by urotropin, but he was a little in doubt as to the end results in these children. The only way to record them properly was by examination of the urine over a long period. He was suspicious of reinfection or reinvasion. During the acute attack Dr. Carr said he used irrigations and such laxatives as were called for. The elimination of milk from the diet, if there was constipation or foul stools, was most important and the administration of castor oil at such a time was of unquestionable benefit. In closing Dr. Carr urged upon practitioners the more careful routine of examining the urine in infants and young children who had intestinal disturbance, chills, fever, and prostration.

Dr. Pisek of New York said that the principles of the Schick reaction had been well summarized in the paper. Now all were enthusiastic about this test, but they would find that soon the pendulum would swing the other way and the results of the test would be questioned. Improper technique and inferior preparations of toxins would give doubtful results. The tests should not be undertaken by those who had not had contact with the methods used and experience in observing the difference between true and pseudo reactions at first hand. Dr. Zingher's 600 cases were certainly valuable. They would reap some value from this study of the Schick reaction from the fact that the giving of those tremendous doses of antitoxin, thirty to sixty thousand units, would be discouraged.

Dr. Charles Herrman of New York said the Schick reaction had proved itself of great practical value especially in institutions, schools, hospitals, and asylums. They had recently had several cases of diphtheria in the children's ward of the Lebanon Hospital. Cultures from the nose and throat of physicians, nurses, and patients showed that several gave positive cultures. The Schick test was applied and all who gave a positive reaction were immunized. Only those nurses who had a negative reaction were allowed to attend patients. In addition to the value of the reaction in the selection of patients requiring antitoxin it was useful in determining the proper dose of antitoxin and the relative value of the different methods of administration. It was well known that patients having measles were susceptible to diphtheria. This reaction enabled one to pick out the susceptibles who required reinjection. As to the treatment of scarlet fever with convalescent blood, the blood in all probability contained antibodies against the disease. However, it did not necessarily follow that blood which contained sufficient antibodies to protect against future attacks would also have a specific effect upon the disease when it was already present. There was a quantitative difference; the body of a person convalescent from scarlet fever who was immune contained fifteen to twenty times the amount of blood which was injected into the patient with scarlet fever. They knew that sera which had a specific effect were produced in diseases caused by bacilli which developed toxin. They did not even know whether scarlet fever was caused by a microorganism. There was no doubt but that convalescent blood had a distinct and apparently favorable effect upon the temperature. Rees and Jungman and Koch admitted that complications were not prevented, and when they occurred there was a new rise of temperature. In view of the fact that complications were usually due to secondary infection with streptococcus, it would seem logical to combine the convalescent blood with Moser's serum. It appeared that they would not be able to obtain a definite idea of the value of this disease until it could be successfully transmitted to animals.

Dr. Albert D. Kaiser of Rochester said that they had used the Schick test in 300 cases in the Rochester Hospital and no person who gave a negative reaction had contracted diphtheria, but they had had several violent reactions. In one instance the pigmentation had persisted for several months. The Schick reaction had helped them reduce the dosage of antitoxin; in not many cases were they giving more than two or three thousand units. At Dr. Roby's request Dr. Kaiser related that they had in their hospital a child who was vaccinated on Easter Day. Infection took place and the child developed erysipelas. At the same time they had a woman in the hospital who was having a second attack of erysipelas. They had given the child an injection of citrated blood from this patient who was convalescing from her attack. This had been done yesterday and the child seemed to be improving to-day.

SECTION IN SURGERY.

TUESDAY, APRIL 27—*First Day.*

Basal-Celled Epithelioma: A Report of 200 Cases.—Dr. Robert F. Barber of Brooklyn presented this communication. Kronpecker in 1903 was the first to describe basal-celled epithelial tumors. Were recognized to involve salivary glands, the ovaries and the skin. He stated that various types of cells could not be recognized in the tumors. Barber said these constituent cells did not, under morphological and histological study, show "prickles" or epithelial bridges. The neoplasms were called by some adenomata akin to carcinomata. Of the 200 examined by Dr. Barber he states 14 showed epithelial pearls and only 2 epithelial bridges. They were said to spring from the germinal cells of the skin and were described as having different potentials. These were called the cellular potential, evidenced in the various types of tumors, the glandular potential, accounting for the cystic tumors, and the pigment potential, manifested by the pigmented growths. The types were described as (1) simplest—a "nest" of cells in the dermis, (2) alveolar, with a small amount of stroma, (3) scirrhous, with a large amount of stroma, and (4) adenomatous, with glands and cysts. The increase in the connective tissue was interpreted as evidence of inflammation. Previous lesions were called (in those from whom it was elicited), pimples in 44, warts in 5, burn in 1, and the pressure of eyeglasses in 1. The frequency was 100 in men and 100 in women. The age was in the average case 56 years. There were 2 in the third decade and 4 in the fourth decade. The average preoperative duration was 6 years, the greatest being 28 and 25 years respectively, the shortest 6 weeks. The mean size of lesion was 3 cm., the largest 8 cm.; the smallest under 1 cm. The following table of the duration in years of tumors of the various types was submitted: Scirrhous, 1; adenomatous, 12; scirrhous, 12; alveolar scirrhous, 15; alveolar scirrhous, 6; alveolar scirrhous, 18; scirrhous, 14; adenoalveolar, 15; scirrhous, 16; alveolar scirrhous, 2 years. Recurrence followed excision in 16 cases; *x*-ray, 19; cautery, 6; radium, 3; pastes, 17; acid, 2; curettage, 1. Bone was involved in two cases only. The distribution was: Nasal, 70; orbital, 42; cheek, 40; frontal, 19; ear, 14; lip, 4; scalp, 2; 98 per cent. occurred on the head. The

surface form was ulcerated in majority of growths, occasionally elevated as nodules, rarely pedunculated. The elevated and pedunculated forms were prone to cystic degeneration.

Dr. JOHN B. BISSELL of New York ascribed the curative effect of *x*-ray to the tendency to fibrous tissue development in the neoplasms of Dr. Barber.

Dr BARBER in conclusion presented a case with a "slight bump" noticed 7 years ago; grew to a size of a quarter, was refused operation, but finally excised by a Chicago surgeon. It recurred after 1 year and 2 months.

Removal of Cancer by Radium.—Dr. JOSEPH B. BISSELL of New York described cancer destruction by radium. Radium caused hypertrophy of the nucleus and a keratinization of the cytoplasm. The connective tissue became more vascular, and the cells proliferated. He cited a case of twelve years' duration before excision of the breast for carcinoma. There was glandular axillary involvement as well as extension to the other breast following operation. Radium applied, freed the skin from microscopical evidence of cancer. The deeper cells became monstrous. Fibroblasts became numerous. The abnormal cells seemed most susceptible to the rays. They underwent granular degeneration or were absorbed. The infiltration was first leucocytic then round celled in the cases benefited under radium. He reported several cases, including:

CASE I.—J. S., 61 years, with a basal-celled ulcer of 3 in. x 2½ in. Was operated upon twice. Was healed under radium after 1,560 milligram hours.

CASE II.—Orange-sized growth following recurrence from upper sternal region; 2,020 milligram hours caused it disappear.

CASE III.—Case seen in May, 1914. Was nodular and recurred and burned after several applications of radium. Final report after 5,536 milligram hours in April 15 was few "suspicious spots."

CASE IV.—No trace of growth after 1,120 milligram hours.

CASE V.—Sarcoma of lip caused to disappear after 550 milligram hours.

CASE VI.—Epithelioma of ear cured after several applications of radium.

CASE VII.—Spindle-celled sarcoma removed by 320 milligram hours.

CASE VIII.—Epithelioma from floor of mouth removed by 2,600 milligram hours.

CASE IX.—Epithelioma of upper lip cured by 600 milligram hours.

CASE X.—Two nodular breast recurrences removed by 2,400 milligram hours.

CASE XI.—Ulcer of upper lip removed by 2,440 milligram hours.

Dr. CHASE of Baltimore had seen Dr. Bissel's work, but felt that there existed no proof of cure by radium. He advocated prophylactic use of *x*-rays following operation and the use of the rays in inoperable cases.

Dr. BISSELL concluded by reporting twelve cases of malignant tumors, six of which had already been operated upon, and seven were beyond removal by knife. These patients now living he declared would have died without radium applications.

Cancer of the Bladder.—Dr. J. BENTLEY SQUIER of New York advocated radical surgery for malignant tumors of the bladder. The methods of cauterization included *x*-ray, fulguration, radium, high frequency, and slow baking. The operative measures were palliative, excision, and resection. Abnormal cell was said to be six times as resistant as cancer cell. The dosage of radium was declared incompletely worked out. It was not known within what range and with what dose a cancer cell might be killed. Two inches was mentioned as the limit of expected radium influence upon the cancer cell. The great expense of radium was a serious objection to its use. Most vesical tumors were pappilomata and should have the radium operatively buried within them to inhibit their growth. Radium might be used postoperatively where there was some doubt of complete removal of tumor cells. Heat was called ineffectual because the cancer cells were buried in the perirectal, perivesical spaces, and glands, and therefore inaccessible to the applied heat. It was necessary to remove at times ureteral vesical opening and internal meatus and in the event of muscular invasion of the bladder by the tumor to remove the glands as well. The vesical neck, Squier held, should not be resected. It was declared impossible to diagnose cancer of the bladder through a cystoscope and often impossible after removal of a piece of the tumor. He advocated fulgarization for unquestionably benign growths. Squier further illustrated his technique by lantern slides recommending putting the urachus on the stretch to expose the obliterated hypogastric and subsequently the vas which indicated the vesical end of the ureter. The positions of the ureters, he said, were necessary to be known before the bladder should be retracted for division. The bladder should be incised ventral if necessary and, if indicated, the ureter should be divided after ligation. The growth might then be romoved and the cut distal end of the ureter drawn into remaining bladder. Had performed this operation eighteen times with thirteen recoveries seven of whom were living after eight months to three years. Had had five recurrences.

(To be continued.)

THE PRACTITIONERS' SOCIETY OF NEW YORK.

The Two Hundred and Sixty-eighth Regular Meeting, Held Friday, February 5, 1915.

The PRESIDENT, Dr. WALTER B. JAMES, IN THE CHAIR.

Unusual Cases of Lymphangioma. — Dr. ABBE made these presentations:

CASE I.—A boy, Richard N., aged 4 years, who presented a universal purple birthmark from his right waist line to his toes, with unusual features. At no point was the nevus entirely smooth, but presented a granular surface on a purple base, which did not blanch on pressure. Many of the areas were more rough, while over the knee and popliteal space, down on the calf and along the front, over the instep and around the ankles, were extensive areas of greatly thickened, rough, hypertrophic tissue with adherent crusts and hard epithelioma. In some places it had bled and oozed and so added to the crusts, giving a dark and ominous look. The parents had taken him to a surgeon in New England with no promise of relief and then went to Dr. J. B. Murphy in Chicago, who saw no way of curing the child and referred him to Dr. Abbe. It seemed probable that radium wolud be favorable if the case were a lymphangioma. Dr. G. T. Elliot saw the case and confirmed the diagnosis. Dr. Abbe had twice gone over the entire surface with radium, with marked improvement. The rough surface of some parts had smoothed and as much fading as could be expected had been noted. Some of the thick masses on the calf would now receive more attention, and Dr. Abbe said he would hope to show him cured in a year or more. Such a large lesion had to be aproached with caution. Microscopic study of a piece cut from the calf showed wholly lymphoid growth.

CASE II.—A man, Peter D., 25 years, who was perfectly well as a child, but at 13 years the tongue began to swell, so that for three weeks it was difficult to talk at school. The tongue was never normal after that and continued to swell during the twelve years. Four years before Dr. Abbe saw him he had a rapid increase in swelling, making it difficult to eat or talk. This lasted three weeks and left the tongue larger than before. A third acute accession happened five weeks before Dr. Abbe saw him. It then began to be painful. From the first it had occasionally bled. Examination showed the left half from tip to base, enormously swollen so as to cling to the roof of the mouth. The surface was rough, hard, and covered by thick gelatinous secretion and clotted lymph. It had an irregular, lobulated, purple aspect, unlike any tumor of malignant type. Nowhere was the tongue pink or of usual papillary surface. Under the tongue large tortuous veins and firm swollen mucosa was seen, filling the floor of the mouth on that side. The right half tongue was normal. Speech was thick and difficult and offensive clotted slimy secretion was constantly an annoyance to him. He had been obliged to give up work on account of the pain in the tongue. The massive tongue was about 2 inches thick. Dr. Abbe began radium applications cautiously on March 9, 1910, and in one month there was marked improvement and he could take the photograph shown. Proceeding cautiously he had it half cured in 6 months. At that time the patient was shown to the Practitioners' Society. In one year the surface was quite flattened. Dr. Abbe now gave more attention to the bulk of the tongue and sublingual cavernous angioma and lymphoma. The patient was now cured and had remained well for two years.

CASE III.—This patient, Ethel W., a girl of 7 years, was first seen in April, 1914. Five months previously

a small lumpy sore appeared beneath the tongue, regarded as a canker sore, and was cauterized by silver nitrate. It grew rapidly. Dr. Coolidge sliced it off. It bled and grew rapidly again. It was excised thoroughly under ether when it had become as large as "the end of the finger." It was a curiously granular sort of tumor and went to pieces during removal. It grew again in one week, pushing up under the tip of the tongue. It was now as large as the end of the thumb. It was again carefululy and thoroughly removed. Microscopical examination showed it to be lymphangioma. It again returned rapidly. It was then burned out under ether by cautery. In four weeks it returned. The patient was sent to Dr. Fordyce, who burned it out well. It soon came back larger than for two months and quickly became the size of a marble but spontaneously reduced somewhat as if it were partly cystic. When seen by Dr. Abbe it was a hard, bean shaped, spherical mass, a half inch from the tip of the tongue. It was buried in the tongue and discharged a bloody fluid from an opening on the under side. The whole aspect was that of a hard lymphangioma. Dr. Abbe applied radium for one-half hour, squeezing the growth between two radium cells to compress the growth and cross-fire it by radiations. In ten days the tumor was half its size, and though the tongue was sore for four days the growth then quickly disappeared. For ten months it had remained practically cured.

Case IV.—This patient, Lenore G., girl, 3 years, had since birth a disfiguring mass of pale vesicles on the right side of the neck on the collar line, two inches wide by four inches vertically. The masses were mostly clean, not inflamed, a few were dusky or dark, and it was said some of them darkened and then scaled off. Dr. G. T. Jackson diagnosed them as lymphangioma circumscripta, a rare but classic lesion, which could be cured by ignipuncture of each lymph vesicle, which, of course, would leave a group of scars. He hoped that Dr. Abbe could cure them with radium without scar. Dr. Abbe said he ventured to use the strongest radium, for one hour only. The lesion was cured in six or eight weeks, following a radium erythema. The vesicles which were of the size of rice grains were all cured, but six or eight outlying ones which had not been treated.

Dr. Abbe said he thought Dr. Brewer would agree with him that these cases were hopeless from a surgical point of view. Case I was a mixture of lymphangioma and hemangioma. They responded to radium treatment almost better than any other lesion.

A Case of Recurrent Fever from Rheumatic Infection without Articular Manifestations.—Dr. L. A. Conner presented this case. He said it presented a very unusual temperature curve for what was unquestionably some form of rheumatic infection. It concerned a young man of 18 years, who had had an attack of rheumatic fever four years before, and a second, much milder attack, one year before. Following the first attack, he showed some mild cardiac symptoms and was told that his heart was weak. During the past year he had shown occasionally some palpitation and some dyspnea on exertion. Three weeks before admission to the hospital he had for two or three days mild pains, without swelling, in his ankles and feet, and about two weeks before admission he developed fever which he thought had continued uninterruptedly up to the time of his admission. With this fever there was some malaise, loss of appetite, and some sweating at night, but no other symptoms either local or general. Pain, swelling, and tenderness of the joints were entirely lacking. Upon admission he presented the signs of an old aortic insufficiency, but otherwise the physical examination was negative, except slight general enlargement of superficial lymph nodes. His temperature ran persistently high 102.5° to 104.° for eight days, and then fell by lysis to normal. After remaining normal for twelve days it rose gradually and ran high for eight or ten days and again fell by lysis. After being normal for two weeks it again rose slightly and remained slightly elevated for some ten days, when it returned to normal and remained so permanently. During all this time there were no local symptoms of any sort to explain the fever, except that now and then there was slight pain and very slight tenderness in one of the finger joints and in the left shoulder. No change could be detected in the heart signs at any time during the illness. During the periods of fever his blood showed a well-marked leucocytosis. Three blood cultures were negative, as were also the Wassermann and Widal reactions. No petechiæ were found either in the skin or in the mucous membranes. At the end of the third period of the fever the patient made a good recovery, the signs of his aortic insufficiency remaining unchanged. The view that the recurring attacks of fever were of a rheumatic origin, in spite of the almost complete absence of joint symptoms, seems to be confirmed by the fact that in each of the three periods of fever the temperature began to subside almost immediately after the patient was put upon intravenous injections of sodium salicylates, although little or no response to the use of salicylates by mouth could be noticed. If the assumption that the fever was the expression of a rheumatic infection were correct, it was interesting to speculate upon the question as to whether the fever was due to an acute exacerbation of an old rheumatic endocarditis, or whether the circulation of the rheumatic poison, without evidence of localization, was in itself sufficient to give rise to recurring attacks of prolonged fever and high temperature.

An Unjustifiably Correct Diagnosis. — Dr. Huddleston presented this case. In February, 1912, he saw a widow, 46 years old, with a tumor of the left breast which was later removed by Dr. Blake, and was shown microscopically to be cancer. In April, 1914, Dr. Huddleston saw her again. She had suffered eight months with "stomach trouble," which had been severe for the last four months. She had lost weight and complained of lack of appetite, nausea, heartburn, and attacks of diarrhea. She had had no stomach pain. Some years before she had had a similar attack, lasting several months and ending in complete recovery. The physical examination showed nothing abnormal in in lungs, heart, or abdomen. The urine showed a very faint trace of albumin, but was microscopically negative. The systolic blood pressure was 145. The uterus was retroverted, but competent gynecological examination stated that the pelvic condition did not account for the symptoms. Regulation of the diet, bowels, and stomach was tried without effect. She was compelled by weakness and vomiting to go to bed. There was evidently a nervous element about the case. She was discovered by the nurse apparently endeavoring to induce vomiting and her apparent condition changed sometimes with miraculous rapidity from wretchedness to comfort with the introduction of some outside element. The test meal examination showed total acidity 39, free hydrochloric acid slight trace, no lactic acid, and no blood. Another test meal taken somewhat later showed the same result. In June the patient again got up, began to eat freely and kept down extra meals without trouble. At this date an Abderhalden test was made by Dr. Lowy of Newark, N. J., for cancer, and the result was positive. In July there were several discharges of blood from the bowels, attributed to piles. The fecal discharges at other times appeared normal. Nausea and vomiting returned, the patient was confined to bed, but would stay in comfort for 24 hours or more if not urged to eat. In August the condition improved and the patient gained six pounds. In September an *x*-ray examination, which had been advised in the spring, was made in New York. The patient was brought in an ambulance from her home and was in such a low condition that the wisdom of moving her was questioned. The *x*-ray showed that the stomach and duodenum were deformed by some more or less circular mass, and it was considered probable that there was a tumor at the head of the pancreas, and in view of the previous history this tumor was probably malignant. The diagnosis was then made of cancer of the head of the pancreas. In November the patient gained weight, again got up, and began to eat. In December she developed tonsillitis and pneumonia and died at the end of the pneumonia, as the result of an acute kidney condition. At the autopsy gallstones were found and an adhesion holding up the splenic flexure so as to form a constriction at that part of the bowel. The descending colon and sigmoid flexure were only about the thickness of the finger. The organs were submitted to Dr. Ewing, who reported that the stomach was much reduced in size and deformed by peritoneal constrictions, especially about the pylorus, that microscopically there was diffuse chronic interstitial productive gastritis with atrophy of the glands, that in the peritoneum over the pyloric region there was found a minute focus of fibrocarcinoma loosely attached to the greater curvature. Near the pylorus was a pea-sized lymph node of fibrocarcinoma. The pancreas was firm; its head was abnormally prominent, causing a slight irregularity in the course of the duodenum. The parenchyma showed slight fibrosis but no traces of carcinoma. A lymph node, the size of a pea, on the supe-

rior pancreatic artery was the seat of old tuberculosis and also alveolar carcinoma, the two lesions overlapping in the same tissue. The colon was the seat of a pronounced chronic mucous colitis and there was a productive and exudative inflammation throughout the mucosa. The kidneys showed moderate parenchymatous degeneration. It was obvious that the cancer, although existent, was not significant in causing the symptoms or death. The symptoms were due to interstitial gastritis with possibly related gallstone irritation and to colitis.

Dr. EWING said it seemed possible that these nodules of fibrocarcinoma might have regressed completely had the patient lived. Some had apparently done so already, as he found no tumor cells in some of the scars. The association of tuberculosis with fibrocarcinoma in the same lymph node was rare and interesting. This small tuberculous node seemed to be the only tuberculous focus in the body. The chronic gastritis was very advanced and in the colon there was a very extensive chronic croupous inflammation with large masses of firm adherent fibrin and almost complete atrophy of the mucosa over wide areas. A luetic origin was not probable, but there was a history of severe acute gastroenteritis, "ptomaine poisoning" which might have led to the chronic inflammation. The result of the Abderhalden test was interesting as showing how such tests might lead one astray, for Dr. Ewing believed with Dr. Huddleston, that the traces of carcinoma did not cause the symptoms or the death. He was not prepared to express a decided opinion on the Abderhalden test. Two workers in their laboratory had long been occupied with the technique of this test, but they had not secured enough controls to determine how often the reaction occurred apart from carcinoma. In this case the test was positive, cancer was present, but was not the cause of the prominent symptoms.

Observations on Twilight Sleep.—Dr. JOHN W. BRANNAN presented this paper. (See page —.)

Dr. WILLIAM M. POLK said that the subject was an extremely interesting one. We owed it to our patients to investigate the matter thoroughly. They had the right to claim any help the medical profession could give them. The arguments for contraindications in this case were strikingly like those which appeared at the introduction of chloroform. Dr. Metcalf first used chloroform in midwifery in this country. He received much criticism at the hands of the profession and commendation at the hands of his women patients. He developed a large obstetrical practice on this ground. The attitude of the women was identical with that described by Dr. Brannan. The effects were not unlike those found with the use of chloroform. Chloroform was dangerous in cases of inertia of the uterus not dependent upon nerve irritation. Sometimes with nervous and sensitive women this was found, but leaving out this consideration, with the ordinary cases of inertia and tardy labor you might get hemorrhages. In regard to the child, in chloroform and ether anesthesia the effects on the child were quickly gotten rid of, but the minute you introduced morphine in addition you incurred danger. The combination was dangerous. The advantage to the mother in the parturient state was apparent. As regards exercises Dr. Polk did not see why women should not take them. The handling of women had hitherto been always to keep them very quiet. The point made by Dr. Knipe was questioned by some doctors. He explained the reduction of the uterus to the level of the pubis by the use of exercises. There were other factors in the matter. The size of the uterus was supposed to be that of the "mailed fist" at the end of the second week, but in the minor types of sepsis, not combined with temperature, the involution of the organ was checked. The general muscular condition also entered into the question of involution. If this could be improved he would consider it a very decided change in the handling of the cases. He would share Dr. Brannan's caution suggested in investigation of the influence of the drug upon child life before coming to an absolute decision on the question. In regard to the time of watching, if six hours were necessary that was practically the same thing as with chloroform, especially with primiparæ. The patient apparently suffered less with scopolamine than with ether. With ether she was continuously asleep. Scopolamine was an advantage from the point of view of the mother; it was of no particular advantage from the standpoint of the doctor, and quite as doubtful from the standpoint of the child, especially if morphine be used with chloroform or ether. This summed the matter from Dr. Polk's point of view.

Dr. BREWER said he did not gather from Dr. Brannan's report whether the patients were absolutely unconscious of pain during the uterine contractions. Was there evidence of suffering? Did they merely suffer and forget it afterwards? He had used scopolamine morphine in surgical work. Some years ago he undertook to perform operations with that alone and no other anesthetic. In one case he used it for a major operation. In minor operations the patients gave indication of much pain, although they forgot it. He did not think actual pain was diminished unless a dangerous dose of the drug were used.

Dr. DANA said it seemed to him that more emphasis had been laid on the dangers of this treatment than was warranted by Dr. Brannan's statistics. He was inclined to that view from a report of the Public Health, Hospital, and Budget Committee of the Academy of Medicine, which was based on the opinions of the best obstetricians in the city. He thought Dr. Brewer's point well made. He had wondered why so much stress was laid on relief of pain from the point of view of amnesia. If a man had had a severe toothache and he forgot about it a month after, had he suffered any the less?

Dr. JAMES said that Dr. Brannan's paper was interesting to him because it gave the results of practical observation in a large number of cases. It had more weight with him than the report cited by Dr. Dana, which although based on opinions of well-known obstetricians was largely theoretical. Dr. James had talked with Dr. Cragin, who had not seen many cases, and was not much impressed with it. Dr. James was impressed with the small number of difficulties encountered in a large number of cases. As regards the exercises Dr. Knipe's ideas were very interesting along the line of physiology. He did not think that any physician took into consideration the fundamental elements of intramuscular venous propulsion in the treatment of sick people. The normal individual was active most of the time in some part of the body, and this diffuse propulsion was important to the circulation. Thus, according to Henderson, the filling of the right auricle was important to the work of the aorta. Since time immemorial one had been told that in pneumonia and typhoid an even temperature and quiet were essential, but very actively delirious cases did not suffer the expected ill effects. He believed that people who lived active lives did not suffer so much in proportion. Why then could not a sick man have intramuscular venous propulsion as well as a healthy man? Therapeutics in regard to temperature had been revised—why not revise views of absolute quiet?

Dr. ROPER asked Dr. Brannan if the patient had to have chloroform when the child's head passed over the perineum?

Dr. BRANNAN said yes; that might, in the language of the imaginative German, constitute an "isle of memory." In reply to Dr. Brewer he said that in one case there was analgesia without amnesia. Another woman who kept crying out did not remember anything afterward. Dr. Knipe stated that if memory were destroyed, shock was absent; such shock as would have occurred after labor. That was in line with Crile's ideas on anesthesia. In reply to Dr. Dana he said he thought the report of the Academy was based on the opinions of older men who considered the methods of ten years ago. At that time there was nothing like the careful, methodical way of applying the treatment that Gauss had devised. Dr. Knipe had got good results because he had applied the ideas in the best possible way. As to operative interference Dr. Polk would tell them what the percentage of forceps cases was. In their cases it was 5 or 6 per cent.

Dr. POLK said that under choloroform anesthesia it was nearly as large.

Dr. BRANNAN said in regard to the exercises and muscular atrophy he had seen patients after ten days' illness very much weakened and unable to stand. These women had been through a severe physiological illness and in three or four days were up and about. He did not remember that in cases he used to see. The interest of the women was particularly striking.

Keratosis Follicularis Spinulosa.—J. L. Bunch reports the case of a boy aged 4 years in whom the first skin lesions had been noticed eighteen months before on the neck and later on the arms, back and abdomen. They consisted of small acunimate papules, pale in color which were even more perceptible to the touch than to the eye. To the hand they gave the sensation of a nutmeg-grater but they gave no subjective symptoms.—*Proceedings of the Royal Society of Medicine.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 19.
Whole No. 2322.

New York, May 8, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

SOME COMMON VOICE TROUBLES IN SINGERS*

By IRVING WILSON VOORHEES, M.S., M.D.,

NEW YORK.

Voice, which may be looked upon as a resultant of the highest efficiency which our combined special sense organs are capable of, is one of the most important of all our body functions. Sudden loss of voice is a calamity akin to the loss of sight or hearing, and yet we seldom pay any great amount of attention to this fact unless it is thrust upon us by some experience which lies close to our individual happiness and well being.

In this inquiry I have thought it worth while to consider those voice troubles which are of physiological significance, leaving out of account organic difficulties such as chronic disease, tumors, polyps, cord paralysis, etc.

A broad outlook upon the entire voice problem leads us to some very interesting and important generalizations. One needs to remember that in singing, not merely the larynx or lungs or resonators are used, but the muscles of the chest wall, the diaphragm, the abdominal group, the spinal column, the ears, and most of all perhaps, the brain. Voice is a highly specialized body function and calls upon every member of our organism when in most active use. In singing and to a less extent in speaking the whole body must be used to secure artistic and persuasive effects.

In obtaining and maintaining these effects certain social considerations and general habits of life are of great importance. Excessive smoking, eating or drinking, unbridled sexual license, inhalation of dust and dirt, bad food, chronic constipation and diseases of the gastrointestinal tract in general, road travel, and irregular hours of working and sleeping—all these have a marked influence upon the voice. Very frequently the singer has prolonged rehearsals from which he hurries home, eats a hasty meal, rushes back to the theater or opera house and goes through with his part in the performance. Neither his voice nor his stomach has sufficient time for rest. Furthermore, the demands made upon the singer's mental capacity are often enormous. Ten or twelve different parts may have to be learned during a season. This is particularly true of "understudies," who must always be ready to fill the place of an indisposed artist at a moment's notice. Consequently more rehearsing and more mental and physical work are performed than the highly organized nervous system is capable of. It is no wonder that by the end of the season many singers suffer from nervous breakdown or find their voices deficient in quality, strength and endurance.

The stage and the auditorium communicate directly with each other and are separated at times only by a curtain; therefore very considerable differences in temperature are present, and after the curtain goes up the lightly clad singers are exposed to a severe draft. Moreover, when stage scenery is shifted about a large quantity of dust is set free in the air. An enormous amount of dust is scattered about also in those productions in which there is much dancing. The temperature of the house is unbearably high and the ventilation is very bad. Loss of moisture from the atmosphere causes dryness of the mucous membrane of the entire respiratory tract.

Managers and directors who are responsible for such conditions and who have it in their power to correct them should be publicly censored for such disregard of the commonest principles of sanitation. When they begin to understand that box office receipts are often directly influenced by what goes on "behind the scenes" some steps may be taken to ameliorate these exceedingly objectionable conditions. In some public halls dry sweeping is the rule. It is easy to imagine therefore the condition of the atmosphere when the curtain rises. Obviously the proper time to clean up is after the night performance. At this time the house should be thrown open to the winds of heaven and the vacuum cleaner should be put to work. Ventilation of theatres and opera houses is disgraceful in this day of preventive medicine and public enlightenment upon health questions. In many places the only fresh air that gets in during the winter struggles through during the hurried opening and closing of doors. The air is so vitiated that one finds it almost impossible to keep awake. At intermissions the exits are kept as securely shut as the portals of a 16th century cloister. Prevention of death by slow asphyxiation should be looked after as carefully as prevention of death by fire.

Acute infectious diseases are responsible for many of the singer's ills. Nearly all of them are air-borne infections whose portal of entry is the upper respiratory tract. The first symptoms are referable to mucous membrane disturbances and are often classified under that all-embracing phrase "a cold." Enanthems would in all probability always be found if we were capable of recognizing them. Accurate knowledge of infantile paralysis began only when Flexner and his assistants first studied the nasal secretion in children affected with this dread disease. Scarlet fever, diphtheria, measles, and influenza all begin with symptoms in the mucous membranes.

So-called "catarrh" of the upper air passages is one of the most frequent causes which brings

*Candidate's Thesis presented and accepted for admission to the American Laryngological, Rhinological and Otological Society, February, 1915.

the singer to the physician. In general it involves the entire respiratory tract, nose, nasopharynx and oropharynx, larynx, and trachea. Only a few types of this disease do not follow this order. It is very important in all singers to make a thorough examination of the nose, nasopharynx, larynx, and ears.

Hajek's investigations have shown that while in normal nasal secretion very few pathogenic micro-organisms are present, in the secretion from chronic rhinitis one finds Friedlander's Pneumo Bacillus, staphylococcus pyogenes, and the streptococcus pyogenes. We see therefore that infection of the larynx may occur from above and that it is unwise to pencil with silver nitrate, to use electricity, inhalations, etc., without relieving the causal condition which lies higher up in the respiratory tract. Some authors have gone so far as to say that a more or less pronounced chronic catarrh of the upper air passages is present in almost all singers. Ideal structure and function of the respiratory tract are found only in the rarest cases.

Anterior rhinoscopy frequently shows a puffy condition of the inferior turbinates in singers. This may be pillowlike, elastic and very red, but uniform in color. In other cases there is maceration, and loss of the superficial layer of the epithelium which is thrown off and forms crusts on the surface. In such cases there is considerable sticky secretion also present. In a third group one sees a pale and irregular turbinate showing fibrous areas or humps (hyperplastic rhinitis) with a small amount of secretion. Sometimes this is the beginning of an atrophic condition, and is associated with a feeling of dryness. If one examines a cross section of such a hypertrophied turbinate, one finds increased vascularity and widening of the cavernous spaces. The ciliated epithelium is still intact but below this there is a small zone of round cell infiltration. The gland acini and the connective tissue are not changed. If the cavernous spaces are filled with blood, the turbinate is very markedly enlarged and can entirely occlude the nose.

When the inflammation has existed a long time the ciliated epithelium is partly lost and is replaced by pavement epithelium. The inflammatory zone has then become larger, the gland acini are infiltrated and as a result of this pathological condition the cavernous spaces are widened and deepened. Finally connective tissue substitution takes place, which brings about pressure upon the glands and vessels, limiting the amount of secretion and leading to dryness of the nose and throat. One should never sing during an acute attack of any infectious disease. To vocalize during an infection of the larynx or tonsils or during an attack of rhinitis or bronchitis may permanently damage the vocal mechanism.

Nasal or head resonance is such an important factor in all good singing that the rhinologist should make a special effort to diagnose accurately all causes of diminished or imperfect head tones. If one asks a singer to hum and then presses each nostril alternately the slighest difference in resonance between the two sides can be easily noticed. If there is soft hypertrophy of the inferior turbinates this obstruction will vary from time to time, so that not too much stress should be placed on a single examination. Soft hypertrophy acts like a cushion wherever it be situated and is of relatively greater importance in singers than bony obstruction unless this latter be especially marked.

It is a great mistake to operate upon a singer's nose without first trying what can be done by conservative measures. This matter is I believe of special significance with respect to the septum. An anterior septal obstruction, dislocated columnar cartilage, etc., interferes greatly with "pointing" the head tones forward. Careful removal of such obstructions offers in some cases a great chance of remedying a troublesome defect, but if total resection of the septum is practised resonance may be much impaired, particularly if a perforation happens to occur. Even with a perfect anatomical result a "flapper" may prove exceedingly annoying to the vocal artist. It must be remembered that free discharge or dry discharge in the form of crusts may obstruct almost as much bone. Only in case of urgent necessity should a turbinate be removed. The middle turbinates are especially important in singers although they may seem to be of no great value in other persons. Dr. Frank E. Miller holds the opinion that any imbalance from such removal is always followed by trouble in the larynx, especially by a tendency to thickenings and formations of nodes.

The pharynx is of importance since it is the antechamber to the nasal fossæ and accessory resonators. Its size, shape and condition influence tone to a great degree. The effects of adenoids, bands and adhesions, ulcerations, choanal polyps, etc., scarcely need mention. Discharge flowing down from above if not dislodged and expectorated, passes into the stomach or clings to the arytenoids and other parts of the larynx interfering with the production of a clear tone. Pharyngitis granulosa is of no great importance, representing as it does merely an increase in lymphoid tissue. Cauterization of these isolated areas on the posterior wall is usually quite unnecessary.

Pharyngitis lateralis on the other hand is quite important since a swollen condition of the stylopharyngeus muscle strongly predisposes to fatigue of the larynx. The lateral walls of the larynx should on this account be carefully inspected at each examination by means of the post-nasal mirror or pharyngoscope.

The posterior wall of the pharynx is for the most part at rest and does not produce many symptoms, but if the lateral walls are diseased, the palatal arches and neighboring parts, there can be much interference in tone production and also in the enduring power of the voice. Fatigue, which is a threatening symptom in many singers, may be caused by this condition as well as by faulty placement. Incorrect methods of singing and forced effects, bring about the same result.

There is a form of pharyngitis which is rather suggestive of an associated digestive disturbance. Imhofer has called this "pharyngitis dyspeptica." Pathologically there is dilation of the veins with cork-screw-like appearance and varicose changes in the esophagus. There is also a pickle-like appearance of the mucous membrane either in the buccal cavity, in the pharynx, or in indefinite spots such as the pillars of the throat which appear sometimes pale, sometimes livid in color. Not every gastrointestinal disturbance, to be sure, shows this condition in the pharynx, but it does

occur. It is not usually associated with nasal disturbances but may extend into the larynx if untreated.

The influence of the faucial tonsils on the singing voice has been a matter of much controversy. Some months ago a book on this subject was published in which the author collected the opinions of some of the best singers, speakers and laryngologists. The result is that we are just about as much in the dark as we ever were; for positive statements both for and against tonsillectomy are set down about equally strong. There seems to be no reasonable doubt that diseased tonsils do affect the singing voice just as other diseases in the respiratory tract affect it. It should be understood that the size of a tonsil has little relation to its pathological significance. Very large tonsils if healthy may cause no symptoms whatever save the disadvantages due to size; while a tonsil so small that it can scarcely be seen may cause no end of trouble. In January, 1915, I had under treatment a soprano of large florid, healthy type who suffered so much from severe pains in the right posterior pillar, base of tongue and right side of larynx that she was at times unable to fulfil her engagements. Seven different physicians made seven different diagnoses ranging all the way from "catarrh" to spinal cord tumor. I likewise failed at first to locate the cause, but upon drawing back the anterior pillar with a blunt hook and making pressure against the superior pole of the tonsil, several beads of foul whitish material were forced out. The tonsil in this case seemed no larger than a split pea but contained three badly diseased crypts, local treatment of which was followed by complete disappearance of the pain which had not returned during the two months following.

The risks of removing tonsils in singers are, of course, much greater than in other persons, and it is well to study the patient a half dozen times and see what can be accomplished by local applications. Each crypt should be reamed out with a finely wound cotton application, thoroughly irrigated and then reamed out again with a finely wound applicator moistened with 40% silver nitrate solution. This should not be done oftener than every other day, longer intervals sufficing according to trial. If two or more attacks of tonsilitis have occurred within one year, and if after careful local treatment cheesy masses can still be dislodged, operation should be considered. Several good authorities, notably Miller, do not remove the capsule. Personally I have not proved to myself as yet that any good reason exists for conserving the capsule, but I am open to conviction. Whatever the method, great care should be taken that no injury is done to the pillars, for a contracting scar may pull the uvula and palatopharyngeus muscles out of alignment and appreciably affect the singer's vocal power and resonance.

All of the four tonsils, the uvula, arch of the tongue and false cords must be considered when studying the problem of interference. The lingual tonsil is of special importance in that it may become so enlarged as to press upon the epiglottis. When infected it can give rise to a series of symptoms not the least of which is a troublesome cough. Enlargement of the lingual tonsil is seen in almost all cases of pharyngitis dyspeptica due to hyperacidity of the stomach. If the secretion flows down the pharyngeal walls into the larynx there may be redness of the vocal cords, slight paresis of the approximator muscles and hoarseness.

Leaving out of account the acute infections which give rise to laryngitis such as inhalation of noxious fumes, smoke, etc., the causes of laryngeal disturbances in singers are muscle insufficiency, fatigue, hysteric aphonia, cough, and hypersecretion.

When the vocal cords are highly inflamed they are shorter, thicker and less mobile than when normal. Hence the laryngeal muscles have to work much harder than usual in making the infinite variety of fine adjustments of which the larynx is capable. Muscle fatigue and phonasthenia must be the result. There is sufficient reason therefore for not allowing vocalization during congestion of the larynx whatever the cause of such congestion may be. One must examine carefully the anterior commissure of the larynx in all cases. This region which can only be seen when the patient sings a high note is commonly a site for "catarrh" in singers. Thickening of the cords in the angle of the commissure and infiltration may extend to the entire cord substance and musculature leading to greatly impaired function.

Muscle fatigue may be due to insufficient removal of waste products of which phosphoric acid is perhaps the chief. There may be also deficient oxygenation from either a poor supply of good blood, or a good supply of poor blood, as in cases of anemia, chlorosis, etc.

Finally muscle insufficiency may be due to defects of innervation, the defect being of central origin, disease of the brain or bulbar paralysis, or of peripheral origin due to paresis or paralysis of a recurrent laryngeal nerve from whatever cause.

In singers' fatigue (phonasthenia) there is often a stretched feeling in the sides of the throat especially when high tones have been used a great deal. There is a feeling of insecurity especially noticeable in middle voice when singing pianissimo. In order to keep the voice from breaking, the throat is gripped by the strong muscles and "set." The singer stands with head thrown back, abdomen forward, face strained, grimaced and very red. There is a tendency to slide off pitch into a lower note. Muscular contractions instead of being tonic become clonic and the expired air instead of flowing out in a steady stream escapes in jets giving rise to a tremolo or irregular variations in intensity and heigth. In this "squeezing" act the muscles used in pressing together the vocal cords are the cricoarytenoidei lateralis and the interarytenoidei. All movements of the true cords are accompanied by the action of antagonistic muscle groups, free play of which is necessary for modulation of varying tonal heights. Fatigue symptoms are most frequently seen in "sung out" voices, muscular atrophy from age or disease, tremor senilis and simple nervousness.

Hysteric aphonia is not unlike blepharospasm in the eye. There is complete loss of mental control over the vocal mechanism. If a singer goes on the stage indisposed and illy prepared, sudden fatigue may come on as a result of extreme nervousness and a form of aphonia may ensue. This phenomenon which is called *Lampenfieber* by the Germans is fortunately merely temporary as a rule. However, when called to a case of this kind one must not be too hasty with a diagnosis before making a careful examination. The actual cause of the aphonia may be a bleeding into the cords. Schnitz-

ler and Hajek report such a case in their book, published some years ago.* During the performance of a great opera the prima donna was noted to be in good voice during the first and second acts. In the third act, however, after a sudden sharp outcry she became absolutely aphonic. Examination on the following day showed the left vocal cord relaxed and suffused with blood. In a few days resorption began and in about four weeks the voice became normal. A few months later the same accident again occurred. Rest, astringents, and proper measures to prevent a recurrence finally produced a cure.

Laryngeal cough is frequently of nervous origin. It may also become a mannerism and it then detracts markedly from the singer's influence upon his audience. Funke has ascribed reflex cough to the faucial tonsils. It seems, however, to be more frequent when the lingual tonsil is diseased. Some authorities ascribe it to false breathing. Pressure of the clothing such as a tight collar should not be overlooked.

The question of vocal nodules (chorditis nodosa) will be discussed in the paragraphs dealing with technique.

Tracheitis is very common in singers. It is not different in general from catarrh of the air passages elsewhere. There are redness and swelling of the mucous membrane so that the outline of the cartilaginous rings disappears. Later a thick, lumpy secretion is cast off, which is removed by violent and repeated coughing. Such a condition is frequently very stubborn and disturbs the singer very much in his work.

What now are the results of the catarrhal diseases of the upper air passages upon the voice? The nose and nasopharynx, as we have seen, are of great value for resonance. The so-called head register finds almost its entire resonance in the accessory cavities. Moreover, the chest tones set the air in these cavities into vibration. It follows that if these hollow passages are narrowed or closed by any pathological process whatever, the voice shows diminished resonance, lacks timbre, and is, one may say, "dead."

Just a word as to hearing. While the ears need not be perfect for the reproduction of a melody, any imbalance in tone appreciation may cause the artist to sing off pitch. Most of such cases are due to disturbance of the sound-conducting apparatus. Impacted wax or a Eustachian catarrh with rarefaction in the middle ear are the most common causes of this defect. It is an interesting fact that both Beethoven and Robert Franz were stone deaf, but this was not of congenital origin, of course. Alt mentions two patients who were principals at the Vienna Hofoper. One of these had no idea of the strength of his tones and hence sang sometimes too loud, sometimes too soft. The other did not know that he heard about a half tone deeper in his right than in his left ear.

Imhofer mentions an opera director who ran away abruptly from a dress rehearsal because he found trouble with the pitch in one ear. A large ceruminous plug was removed, with perfect restoration of tonal interpretation.

Various disturbances of the musical sense, such as amusia, musical alexia, musical agraphia, etc., have been described. They are of central origin and are very uncommon.

One need scarcely more than mention the general diseases which affect the voice. Most of these are harmful in that they cause ulcerations in the larynx, loss of substance of the vocal cords, scar tissue, and synechiæ. Diphtheria and syphilis are typical of this pathological dyscrasia. Certain diseases produce affections of the laryngeal joints leading to restricted motion of the cords, which may be mistaken for paralysis. Rheumatism is occasionally found in the cricoarytenoid joint. Its prognosis is ordinarily favorable. Our lamented friend and colleague, Dr. William Kelly Simpson, reported a unique case of gonorrheal fixation of this joint.

In typhoid there may be suppuration of the laryngeal cartilages or joints followed by paralysis during the convalescent stage. Pharyngitis and laryngitis are, of course, very common with typhoid.

Every laryngologist sees cases of laryngeal tuberculosis. Some authorities, notably Imhofer, advise deep breathing in tuberculosis and look upon singing as a valuable adjunct if the case be not too advanced. *A priori* this would not seem to be advisable. I have had no experience in this matter.

Anemia and chlorosis have already been mentioned. When they are associated with obstipation and intestinal atony the voice is poor in quality, indistinct, and of particularly disagreeable timbre.

There are spongy turbinates and much secretion in diabetes. Dropping in the throat, hoarseness, and cough are common symptoms. Freudenthal has described diabetic ulcerations in the respiratory passages. There is also a condition which occasionally occurs in diabetes known as "laryngoxerosis," the voice troubles of which are described by Leichtenstern as xerophonia. This complex consists of dry throat, marked tendency to voice fatigue, and a lacquered appearance of the vocal cords as if they were covered with gold leaf. Such cases must be rare.

The relationship of sex to nose and throat conditions in singers is a matter of some importance. Many cases of tonsillitis in newly married persons have been reported. It is supposed that sudden stimulation of the sexual function brings about a tonsillar reflex, but this is not well understood. Imhofer reports the case of a woman patient who began to menstruate between periods as a result of cauterizing an inferior turbinate. It is important that female singers should not vocalize during menstruation. At this time the blood pressure is increased, there is congestion of the upper respiratory tract, the sensorium is out of harmony with externals, and hence resonance, timbre, volume, and carrying power are affected.

Voice culture should be prohibited during pregnancy. After the third month the entire body undergoes marked changes. The abdomen begins to interfere with normal respiration, the muscles of the chest and throat become easily fatigued, there is diminished power, and loss of both quality and effective expression.

During the climacteric there are many bodily disturbances which may affect the voice, such as dryness, paresthesias, and tickling sensations. The voice may, however, remain fresh and unchanged.

We come now to the matter of voice technique, a subject which is fraught with difficulties, but one which is of fundamental importance.

In a recent volume dealing with the tonsils and

*Since writing this essay I have had a very similar case, the lesion occurring in the left vocal cord as pictured in Hajek's contribution. The patient, a well-known vaudeville singer, suffered sudden severe hoarseness and pain while singing during an attack of laryngitis. Recovery took place in about six weeks.

the voice problem the author says, "It is beyond the knowledge and absolutely out of the sphere of physicians to judge of maladies of the timbre of the voice, of affections of the middle register, of the solidity, intensity, compass, agility, etc., etc." I submit this statement to every thinking laryngologist for analysis and reflection. Not only should the voice physician know at least in a general way the technique of correct singing, but he should be so trained that he can make a diagnosis of the singer's difficulty by his ear alone. This is by no means so hard as it seems. Anyone with a correct ear who has the fundamental facts at hand and who listens to many varieties of singers for a few weeks will find himself able to assist the artist materially in this regard. Many singers are sent to the specialist who are not in need of his services, but whose chief and imperative requirement is the skilled advice and leadership of an experienced voice teacher.

The average specialist knows nothing of voice training and the average voice trainer knows equally little of the anatomy, physiology, and pathology of the nose and throat. The great confusion which now exists in vocal training, and the lack of standardization of vocal methods, are the direct outcome of this age—long disparity between vocal art and vocal science. Laryngologists should cooperate with the vocal teacher in every possible way, teaching him those facts which are derivable only from a sound medical training, and learning from him those elements which are indispensable to artistic voice work.

The laryngoscope which was invented by a great singing teacher, Manual Garcia, is seldom or never found in the hands of the singing teacher of to-day. On the other hand, many specialists do not know how to "try out" a voice at the piano, and cannot tell after hearing an aria whether the singer kept to the pitch or whether his resonance, breathing, and technique in general were anywhere near correct. This is a kind of knowledge which is not difficult to acquire, and those of us who do not acquire it deserve to be censured for our ignorance.

The matter of diagnosis is of prime importance to everyone concerned. Every beginner in vocal culture should be studied both by the vocal teacher and laryngologist, a careful record of all findings should be kept by the latter, and a copy of the same, together with such advice as seems necessary, should be sent to the teacher. Every case is individual and must be considered in a broad and thorough way. It will sometimes puzzle both teacher and laryngologist to determine how and why certain undesirable elements are present in a voice, but there is a much better chance of this being discovered as a result of "team work" than if considered by either alone.

Breathing is the first and most important act in singing. There is a marked difference in the breathing of a beginner and an advanced student. The frequently recommended "forced breathing" is not to be advised for beginners because they do not possess the skill of controlling the volume of air.

Beginners should breathe through the nose with the greatest possible ease, but not too deeply, using little more breath than in speaking. One of the greatest mistakes in breathing is made in the production of high tones: In taking a high note the vocal cords are set in close proximity or rather are set firmly against each other and only a small quantity of air can pass through. It is folly, therefore, to fill the chest with air and attempt to force the entire lung capacity through this narrow chink. Straining drives the blood toward the head, producing redness of the face, and perhaps injuring the voice permanently. The pupil must learn to breathe automatically and use only sufficient air to produce tone, the residual air being held in reserve for large effects or to sustain a prolonged tone. As a result the vocal apparatus will not be injured through straining and will simply be subject to such diseases as may befall it accidentally. Many individuals make a mistake in throwing the tone out in order to bring it forward, instead of placing it properly, and then allowing it to flow forth into the resonance spaces. Through jerking a tone, the entire voice can be shattered. Tremolo and uncertainty soon result and a clearness becomes impossible. The fundamental condition of good tone production is softness, and only by this means can one bring the most pleasing and fullest effect to the air. Every hard effect diminishes the beauty of the voice, which loses its splendor through continued ill-treatment. Not that one should always sing pianissimo, but the stream of air should pass out almost of itself and leave behind a feeling as if the mouth and nasopharynx were filled with tone. When one sings fortissimo there should be a feeling of complete tone control, and during the greatest swelling of tone full elasticity of the muscles participating must be present.

There are in reality two chief kinds of production, the open and the closed. The open corresponds to the so-called chest tones, the closed to the head tones. Middle voice is simply a variation between thoracic and head production; that is, between the open and closed types.

Emphasis should be placed on head production, because here it is that the various cavities of the head function as tone distributors. The sinuses of the head are like the sounding board in the violin; the value of the instrument depends chiefly upon its resonating qualities.

Every correctly placed tone must take origin in the larynx, sail gently upward as far as the soft palate, and there divide, part going into the nasal cavities, part against the hard palate and teeth as directed by the movements of the tongue.

Tone which is produced by the larynx alone is thin and lacks timbre and sustaining power. Only by the aid of the accessory resonators is it transformed into musical sound having color, timbre, and carrying power.

Good tone is not produced in the larynx, chest, mouth, or nose, but is made vibrant and resonant by the entire body. One can feel it with the fingers along the entire spinal column, and can get it from a thoroughly resonant wooden floor if the stethoscope be applied to the floor while the singer sustains a big, full vibrant note.

A tone series is made by linking each tone to the next succeeding tone through an overtone. The junction of greater intervals must produce variations in color if these tone connections are produced upon one and the same vocal sound.

In functional testing of a voice one must have the patient go up and down the scale pianissimo in varying key. Then ask him to sing a song or aria and judge of the strength, enunciation, sense of rhythm, tone character, quality, and errors of placement. Frequently one will be surprised to find a "hole in the voice" where it is impossible to sustain a tone. All notes above and below this point may be correctly, even beautifully, sung, but the hole is

always in evidence. The physician may be unable to find any pathological cause for such an occurrence. Correction of this defect belongs for the most part to the vocal teacher.

One of the great faults is singing out of one's compass. The pupil whose voice is naturally a mezzo-soprano is trained for coloratura work, or a baritone, who might attain some success if confined to his own range, is taught tenor roles to his ultimate dissatisfaction and perhaps ruin.

Some authors deny the existence of a specially constructed vocal apparatus. They do not believe that a soprano has one type of organ, the tenor another, and the bass still another, but there are undoubtedly marked differences. The tenor's vocal cords are only about one-half as broad as those of the bass, and the cords are in general shorter. It is at times almost impossible to say whether a given singer should be instructed as a tenor or a baritone, since there are many types which shade into each other. It sometimes happens that we find a singer who is a baritone during one season and a rather poor tenor the following season. This screwing up (*hinaufschrauben*), as the Germans call it, is a common cause for voice fatigue and early voice decay. The primal result is hyperemia of the overstrained organ which leads finally to dilatation of the vessels of the vocal cords and predisposes to catarrhal secretion.

Fatigue of the vocal muscles is noticed by the singer much earlier than by the physician. If neglected, relaxation of the vocal cords and loss of clear definition of tone occur. If we follow the singer who has changed from baritone to tenor we find that his productive period is quite short, and after repeated breakdowns, the efficiency of his voice becomes less and less, and its splendor finally goes. There seems, however, to be a very general anxiety to climb the heights attained by the tenor. A like condition holds for mezzo-soprano and soprano. In artistic circles there exists the opinion that alto voices are rare and do not last long. The fact is that composers have written less music for contralto and alto voices than for sopranos, and the female singer must, therefore, study parts which do not lie within her range; for example, Ortrud and Brangane.

Young boys and girls frequently appear on the stage much too early. They have not yet acquired a satisfactory technique, and consequently they do not go far before suffering artistic shipwreck. Those who are by nature and art not fitted for a stage career should be informed by the conscientious specialist and voice teacher in order that they may take up some other profession before it is too late.

Just a word about singers' nodes. These small excrescences may be looked upon as corns upon the vocal bands. They are about the size of a small pinhead, are found usually at the junction of the anterior third of the cords with the posterior two thirds and always situated on the free vibrating margin. As a point in differential diagnosis between nodes and other tumorlike bodies, Imhofer lays stress on the color and smoothness of surface of vocal nodules which are exactly that of the cords themselves.

The pathology of vocal nodules has been studied rather carefully by several investigators, notably by Chiari and by Hajek. Chiari found in 16 cases enlarged mucous glands, hyperplasia of the epithelium and fibrous tissue with many round cells interspersed. Fortunately the epithelial and glandular elements may both retrograde through rest and change of voice method. The condition is found most often in tenors and coloraturas, although it is seen in mezzo-sopranos, baritones and bassos. The singer often complains that the voice cracks or has a film over it. He tires easily and is very insecure, especially in soft voice work. When straining for a high effect the cords turn slightly on their long axis and the nodes may roll out of the way.

All possible sources of cordal irritation must be removed, strict rest must be enjoined for at least four months, and special exercises must be given in soft voice before the singer can gradually be allowed to go back to work. The principal thing is to prevent a recurrence. Surgical removal is nearly useless unless the production is absolutely changed. Astringents, such as salicylic and lactic acids, alum, and weak adrenalin, may be used. The long oval type of node is highly glandular in structure and retrogrades faster than the more fibrous variety.

Great hindrance is found by many singers in so-called "interference." Interference is found at the false vocal cords, at the base of the tongue and at the soft palate. When the larynx musculature is incorrectly used, especially in striving for "big tone", the muscles are set so that the two false cords come close together and hinder free flow of the column of air on its way upward.

Interference at the base of the tongue is a very common fault not only in beginners but in advanced singers who have not been properly trained. The base of the tongue rides upward, crowding against the epiglottis and soft palate, giving the so-called "throaty effect." This is well marked if the lingual and faucial tonsils are hypertrophied.

Soft palate interference is frequently due to nervousness, particularly to self-consciousness. It can be prevented by teaching the pupil how to breathe through the nose with the mouth open, a feat by no means simple as everyone knows who has tried to make a posterior rhinoscopy with the mirror.

In closing, let me say a few words about vocal prophylaxis, hygiene, and therapy. The singing voice is very easily impaired and loss of the same without demonstrable cause occasionally occurs. If the physician has been unfortunate enough to treat such a case just previous to the aphonia he may be summarily haled to court. On this account every method of treatment, especially every operative attack upon singers must be weighed in the balance many times and the intended procedure with possible complications should be fully explained.

Singers are, perhaps, more open to suggestion than any other class of patients. They are sometimes hypochondriacal and constantly worry about their condition. For this reason it is sometimes well that a singer does not know too much about the anatomy of the vocal apparatus, for he will ever after ask "Have I vocal nodules?" or "Is there any paralysis of my throat?" and it will be exceedingly difficult to convince him to the contrary.

Prophylaxis should be the watchword with every singer. Before beginning voice cultivation a careful diagnosis should be made by a rhinolaryngologist who is skilled in vocal analysis, and the entire mechanism should be put in as good condition as possible. Care of the mouth is of great importance. The absence of a front tooth, an ill-

fitting set of false teeth, Rigg's disease, a short frenum, etc., all affect the enunciation. Oral hygiene should be practised after each meal.

As for the nose, prevention of acute rhinitis is the first essential. Exposure to draughts, irritating fumes, and dust are harmful. The feet must always be kept free from dampness. Linen mesh should be worn next the skin. It is preferable to silk, woolen or cotton. If salt solution be used in the nose it should be physiological salt solution (0.6 per cent.). Imhofer reports a case of anosmia from the repeated use of strong salt solution.

The collar should be low and large, the neck free. A cold douche for the neck and chest upon arising protects against the chills of a changeable climate. Massage is of course beneficial both as body massage and localized (vibration). The physical strength should be increased by exercises. Gymnastics may be practised in a small room by means of a mechanical exerciser. Breathing exercises are of great value as are rowing and swimming. Bicycling and automobiling may be harmful from inhalation of dust and violent air currents.

Vacation should mean a complete rest in a quiet place with plenty of good, wholesome food seasoned only mildly.

Total abstinence from alcohol is not absolutely necessary, but very mild wine or good beer should be used only in small quantities. Alcoholic laryngitis may occur in those who refuse to obey this mandate. There is no great harm in a mild cigar after a good meal, but cigarettes ought not to be used as the paper in which they are rolled burns with an irritating vapor.

The steamed-out air of our houses and theaters makes the mucous membrane very dry.

Every singer should learn to save his voice as much as possible. Yelling, loud talking, rasping, and scraping are injurious. Upon the slightest tendency to hoarseness the whisper alone should be used. There is no necessity for using one's full capacity at rehearsals. If any difficulty with the voice is noticed, the teacher and laryngologist should be consulted at once in order that the correct diagnosis may be made and the proper remedy applied.

One should avoid drugs that work too energetically in the larynx of singers. The vocal apparatus in singers is a very fine and fragile mechanism, which requires careful and delicate treatment. To attack it with caustic agencies is comparable to oiling a watch with wagon grease. One should employ operative methods as a last resort. Every square millimeter of mucous membrane in the upper air ways is important and should not be removed unless absolutely necessary. The resultant scar, while unimportant to the average person, may be of great significance to the singer. Réthi reported five cases of neuroses which developed after operations in the nose with adherent scars. Even the smallest obstacle, the slightest uncomfortable sensation may work unfavorably upon the high-strung sensorium of the singer. The upper air passages should be cared for, in which case the larynx may do very well without special treatment. A 5 per cent. solution of protargol for the nose is very useful and is widely recommended. Rosenberg recommends a mixture of boric acid and tannic acid powder equal parts for application to the larynx. This sometimes relieves a laryngeal catarrh after two or three applications, but as a rule the use of powder in singers' throats is unadvisable. Tannin may sometimes be used in 10 per cent. glycerin solution. In the atrophic forms of chronic nasopharyngeal catarrh, massage with or without medication has undeniably good results. It causes a certain turgescence of the mucous membrane and increases secretion. In the hypertrophic forms of catarrh it is useless.

After an application of protargol to the larynx the singer should not use the voice for at least two hours. Protargol is especially indicated in hypertrophy of the turbinates where there is superficial crusting. It brings about diminution of secretion and crusts, and regeneration of the epithelium. There is of course some reaction after protargol, but it is less than after silver nitrate.

Inhalations have been used for a long time in the treatment of voice troubles. Imhofer thinks they are worthless, giving as his reason that when warm steam enters the larynx it increases hyperemia, which we especially do not wish. Inhalation does help remove secretion, but there are other means equally effectual. Inhalation sometimes gives a sense of weakness and fatigue in the larynx. At certain "cure resorts" it seems to be beneficial, but probably the climate, regular modes of life, and discipline are the real causes of this improvement.

Every case must be studied individually, and while no class of patients is more grateful than singers, no other class requires such absolute attention to every detail of life and art. Considering the long years of training the relatively short working period, the constant nervous strain, and the irregular routine life of the singer, he deserves our warmest sympathy and praise.

11 Central Park West.

HUMAN CONSERVATION.

By Mau'de Glasgow, M.D.,

New York.

When we wish to convey a clear and definite idea of the value of an article it is a very common practice to speak of it in terms of dollars and cents. The dollar sign is a wonderful clarifying agent. Material wealth has hitherto taken precedence of every other kind, its interests have been carefully guarded and laws for its protection have been numerous and efficient. On the other hand, there is overwhelming proof that human life in the mass has had but little relative value, and where the two interests have clashed that of humanity went down to overwhelming defeat. But our own age has seen the dawn of a new day, and now the beams of its rising sun are brightening the whole civilized world. We have discovered that human life *has* a definite material value—that the premature demise of a normal individual is a distinct civic and national loss, and the effect of this knowledge has been a change in our mental attitude so great as to be almost revolutionary. Knowledge came, and wisdom with hesitancy and diffidence initiated effort to conserve human life as well as that of cattle, fishes, and other forms of organic and inorganic life which had hitherto monopolized the country's efforts in the conservation field and depleted exchequers. The will to count the cost is a long step in the evolution of human solidarity, and a spur to the interest in public health movements discernible everywhere.

The science of human conservation is necessarily comprehensive as well as of univeral interest. It

comprises, besides the control of contagious and the supervision of other diseases, all other questions bearing on the general human welfare. It includes therefore problems of clean and wholesome food and drink, of housing, of overcrowding, of sunlight and fresh air, of alcoholism, and the control of social disease, of eugenics, segregation and care of the feeble-minded and abnormal, of child nurture, child labor, industrial conditions generally, and many others. The public health movement seeks to remove those obstacles which stand in the way of human progress, to prolong life, and make that life of greater usefulness and value.

Professor Irving Fisher, a member of the Roosevelt Conservation Commission, found that the United States suffered the loss of 600,000 preventable deaths annually, which, excluding the diseases of childhood during the first seven years, were caused by typhoid fever, tuberculosis, accidents in industry, and pneumonia. The same author assumes that at least one-half of those lying on sick beds are suffering unnecessarily, and that the loss every year from these avoidable illnesses and from premature death amounts to a very large sum. One authority believes that the country sustains a loss from typhoid fever alone of $100,000,000 annually. Literature disseminated by the North Carolina State Board of Health in 1912, showed that 40,000 out of 160,000 deaths were preventable, and involved a loss to the State for that year of $45,000,000. The reports of the Minnesota State Board of Health show that Minnesota suffers a financial loss from two diseases—typhoid fever and tuberculosis—of nearly $15,000,000 annually.

The experiences of these States are doubtless being repeated with some variations all over the country, and while the material loss looms large, there is a sadder, a more pitiable waste of sighs and tears, a toll of human misery that could and should have been avoided.

We have about 35,000 fatal industrial accidents every year, many of which occur among the strong and vigorous. Then there are others, perhaps more to be deplored, where a hand is suddenly and painfully amputated, an arm twisted and wrenched off, a leg mangled, torn, and crushed to a pulp, and the young, hitherto strong and self-reliant individual is made a cripple for life. New York has in the short space of three months seen as many as 1,900 of these largely preventable accidents, while there are of course a large number which have never been reported at all.

In many States the laws relating to industrial accidents are inadequate and easily evaded, and when the unforeseen catastrophe occurs, besides the immediate victim, there are frequently dependent relatives who are deprived of all support and cast helpless upon the community.

While the employer and the State are responsible for the conditions under which the employee must labor, so that the health of the citizen is not injured, his earning capacity impaired or his life destroyed in wealth producing industry, it is equally binding upon the employee to utilize all the aids to prevention of disease or of accident which have been provided for him, and not through sloth or indolence to disregard or neglect the health-preserving and life-saving measures furnished for his use.

It is, however, unhappily true that many an industrial and other worker is obliged to acquiesce in the conditions thrust upon him, though in accepting them he is aware that he is risking health, strength, long life, and happiness.

Industrial diseases are varied and under present conditions their effect upon the human organism is often pernicious, impairing the vitality of the worker and shortening his expectation of life. Work in general we know to be a good thing, an essential to health, and it is a pity through unintelligence, indifference, or greed, so to pervert it from its legitimate use, that it becomes an instrument of disease and death rather than an aid to health and long life.

We have occupational exposures to extremes of heat and cold, to damp atmospheres, to air laden with dust and irritating fumes predisposing to pulmonary and kidney affections. Some suffer from varicose veins, flat-foot, and knock-knee from constant standing. Mineral poisoning due to contact with the metal is very common. Lead poisoning meets us everywhere, causing, besides colic, palsy and anemia, affections of heart, kidneys, and circulatory apparatus. Plumbism has been caused by handling silk fringe weighted by means of lead. Dressmakers have been poisoned by biting off the ends of dyed thread. Arsenical poisoning with consequent multiple neuritis and paralysis has resulted from sleeping in a room the walls of which were covered with green paper.

Not only are workers in furs exposed to poisoning by arsenic through their occupations, but the wearers of garments impregnated with this substance may also suffer from poisoning—eleven samples of furs out of forty-two having been found dangerous to the wearer.

Industrial disease frequently approaches insidiously, fastening its grip upon the victim, sapping energy and vitality, until at an early age he is overpowered, losing his efficiency or dying at an early age, leaving behind him a family unprovided for, to starve on the wages of their unskilled labor, and to increase that great army of untrained workers who are just able to exist on what they earn and whose vitality and efficiency are necessarily always at a low ebb.

Occupations which compel women to stand upon their feet all day, while a fruitful cause of suffering to the individual, have a no less pernicious effect upon the offspring. In the absolute disregard of physiology, where the woman breadwinner is concerned, and in defiance of the fact that every young woman is a potential or actual mother, we find the source of much of the lowered vitality and susceptibility to disease of the whole nation. Woman has been deprived of the right to secure for herself the most favorable conditions under which to labor, and this much needed protection she has not received from any source. Carrying a double burden—that of breadwinner and of motherhood—she frequently stands on her feet ten hours a day or longer, while pelvic diseases are indueed by the unnatural strain upon sensitive, highly developed organs. Physical strength is drained away, a susceptibility to abortion is developed, puny infants are born to die of marasmus, or tended by the social welfare worker to linger on to a wretched, weary maturity. The report of the Children's Bureau of the Federal Government with regard to infant mortality, shows the effect upon expectant mothers of laborious work and poor nutrition, in the high death rate of their infants.

In factories where women work, and some are obliged to remain constantly upon their feet, it

should be possible to have a change of occupation—to rotate from one kind of work to another, the worker becoming expert in two kinds of work, so that there would be no financial loss, or adjustable seats might be arranged so that the requisite rest would be obtainable.

The length of the working day is receiving serious consideration, and it is a very interesting fact that under the eight-hour system the cost of production is reduced. American weavers receiving $1.60 per day can successfully compete with Japanese workers who are accustomed to receive eighteen and a half cents per day for the same kind of work. Overfatigue, physical strain, nerve tension prolonged for twelve hours or so dull the senses, destroying the mental alertness, and the keen perceptions demanded by the best quality of work. Another question bearing on human welfare is the minimum wage. It has been found that raising the wages increases the efficiency of the worker, but apart from that fact, women, as mothers of the race, should receive protection and wages sufficient to support them in health. Insufficient and poor food lowers vitality and causes susceptibility to disease, besides conducing to immorality. When a girl needs a pair of shoes or a new shirt-waist it ought not be necessary for her to go without breakfast for some time in order to procure those articles. A strong and vigorous nation was never mothered by overworked or debilitated women. It is equally evident that even a strong and healthy child needs protection from strenuous work during the early years of his mental and physical development. Child labor is an industrial evil which scars the child and marks with a sinister brand the community which permits it, resulting inevitably in a decrease in racial strength and vigor.

"Only the human father,
A man with power to think,
Will take from little children
The price of food and drink.

Only the human mother—
Degraded, helpless thing!—
Will make her little children work
And live on what they bring!

No fledgling feeds the father bird!
No chicken feeds the hen!
No kitten mouses for the cat—
This glory is for men.

We are the wisest, strongest race—
Loud may our praise be sung!
The only animal alive
That lives upon its young."

We discovered long ago that individual health was dependent upon communal health, so Boards of Health were formed and these have grown and developed until in large cities the Health Board is a center of specialized endeavor, generating and controlling currents of activity which beneficently affect the public welfare. New York city can point with pride to its low death rate, 13.40 per thousand for 1914, which in spite of climatic drawbacks places it in the front rank of healthful cities. A century or two ago the annual death rate was, in civilized countries, forty or fifty per thousand, and even higher. The mean expectation of life in London in the seventeenth century was about nineteen years, while at the present time it has more than doubled that figure. In the United States our gain seems to be largely in self-limited diseases and the maladies of childhood and youth. Some other affections show increase rather than diminution. Diseases of the heart, circulatory apparatus, and kidneys, diseases of the nervous system, cancer, and diabetes are said on good authority to have increased about 131 per cent. in the past thirty-five years. And this abnormal death rate is found among the foreign-born population as well as the native American. It exists in suburban as well as in urban localities and is found in every State in the Union. We have some millions of citizens over forty years of age, who have thus reached the time of life when these insidious, chronic, and often fatal diseases manifest themselves, and these individuals are, by reason of acquired skill or wisdom, of great value to the State, so that the death of these persons at an early age, is from the financial point of view alone, most deplorable. The fact that this increase in the diseases of maturity is not paralleled in some of the older European countries where the mode of life is simpler and less strenuous provides food for serious thought; and it is both interesting and encouraging to know that Sweden, successful pioneer in public health activities, has improved the chances of life at all ages. This Scandinavian State has firm control of all social diseases, used here in the broad sense of the term, such an intimate and complete knowledge of cause and effect, such a comprehensive grasp of the whole question, and such skill in dealing with each phase of the problem, that the vitality of the Swede has been so enhanced that his expectation of life is the longest and his mortality rate the lowest in the world. The next few years will doubtless see a great deal of time and thought devoted to the science of keeping people well and increasing their vitality. Panacea, the restorer of health, must give place to her sister Hygiea, the conserver of good health, and though we may not reach the 140-year limit, which Metchnikoff thinks is the normal span of life, we know positively that the normal human being living in harmony with nature's laws can live a long and useful life. It is unfortunately true that either because of our ignorance or neglect of the basic laws of life, we see the vigor and boisterous energy of the Old World emigrant disappear in a generation or two. It is a pity, for the chance to win in the battle of life is poor unless there is a good constitution to lean on. The possession of sound health, of staying quality, often determines the question of success or failure. It is the healthy individual who is the most efficient, the most valuable, and the cheapest worker. Every individual has an inalienable right to be born well, nor has society a right to manufacture invalids or criminals. We must resist the forces which convert the "singing man" into a State's prisoner and place him in a dark, damp, disease-breeding cell, which steals his health and embitters him against the world. And if we win to life the marantic infant, straighten the bowlegged and prop up those who must still totter instead of bounding along the highway of life, we must be careful not to do this at the expense of valuable citizens spending *them* in the service of others less valuable than themselves.

A very close study of all abnormal beings should be made. Men and women possessing the mentality of children should be placed in institutions and protected from exploitation. These grown-up children with fully developed bodies and darkened minds should not be allowed to exercise their awful power for evil.

Human conservation must take cognizance of all

the weak points in society's armor, and either mend them or end them. Mothers should be taught that the undernourished child is prone to disease—that the seeds of incurable maladies are often planted in childhood, and that there is a difference of about 5 inches in the well-nourished and the poorly nurtured child.

Practically every class in the community needs instruction or reminder with regard to the question of individual health. The influence of bad example is very striking. Many who are theoretical guides of others ignore, where they themselves are concerned, the most simple rules of hygiene. Errors of food and drink are common and digestion waits not on appetite but rather on convenience. The relation of fatigue to efficiency is a closed book to many, and the absolute necessity for periods of rest and recreation does not receive sufficient attention. It is no uncommon sight to see those who have already reached the crest of life's hill and are ready to descend the other side eat and drink without physiological demand as they did in their vigorous youth, and at the same time live and work at high pressure without a thought of the inevitable result.

College athletes, spurred on by the vociferous admiration of their fellows, and in spite of their own knowledge and the care of their examiners, subject themselves to such severe physical strain that the hypertrophied cardiac muscle in later life, when the activity is more mental than physical, shows signs of degeneration and weakness which are absent in the classmate whose college life was less strenuous.

And yet the art of play is of the highest importance—but not its abuse. As a nation we probably do not play enough or relax sufficiently often. Our neglect in this respect has no doubt an important bearing on the neuroses, psychoses, and the nervous instability so prevalent in the present age. We drive through life at such a pace that we have no time for repairs until the machine goes to pieces. It is a costly procedure, expensive all the way through, for the tired person is necessarily inefficient for the time being and quite inferior to himself when rested. Probably nowhere in the world do the people live at such high pressure as in the United States. In the older countries one is born to a certain station in life and has no ambitions beyond it, but in this country the newsboy on the street is a potential president of the most progressive nation and the richest country in the world.

Part of our morbidity and mortality comes from disease to which the patient has voluntarily exposed himself and it is idle to overlook this fecund source of crippled minds and bodies. Arthur Hunter of the New York Life Insurance Company shows from the examination of 2,000,000 insured lives that persons suffering from syphilis have an extra mortality of 80 per cent., although the patients in question had all received treatment—some of them two years' treatment without intermission. Syphilis, we know, predisposes to tuberculosis. The immoderate use of alcohol lies at the root of many degenerations and predisposes to many evils. Then, too, the diseased, the decrepit, and the mentally feeble are permitted to propagate so there is always a crop of incapables coming to harvest.

The era of preventive medicine upon which we have entered is no doubt the beginning of a successful scientific effort to reach the source of that secret drain upon our resources which is daily depriving us of many valuable lives and which would be a staggering load for a smaller or weaker nation to carry. Not until all the sources of national weakness are eliminated can we expect to be a sane, sound, rational, and happy people. The problem must be viewed in its entirety and all classes and conditions placed under conditions favorable to their best welfare. As public opinion governs the world a sentiment must be created which shall demand a maximum of good health and of physical development, strength, and efficiency. If necessary, force may be employed for this purpose, just as education, which is perhaps less necessary, is compulsory. We have with great effort and at much expense created a machinery to educate the child; we shall now learn that it is still more necessary to build up and develop his body. We shall know better in the future than to cram with unrelated fact the half-starved anemic youngster in the impossible task to make him learn while his stomach is empty. We might as well expect to run a motor car without gasoline as to educate under such circumstances.

And we must not begin with the child, we must start with his parents, insure a good heredity and then protect and cherish what has been received. The body must be nourished before the mind is fed, even if we have to pass a mother's pension for that purpose. If we now spend billions of dollars in war pensions, though beneficiaries have been sometimes deserters and frauds, we can afford to feed where necessary the future citizen. And as the "common people" are the backbone of the nation's life, and their resources the most limited, they require special attention. But, indeed, even the most favored classes need protection—from themselves, and instruction and assistance in the search for health and longevity.

Popular talks and public lectures on health and hygiene help to enlighten the social conscience on this subject, as well as magazine articles on the same topic. It will certainly be helpful for the layman to know that it is not only the lean, narrow-chested individual who is susceptible to the germ of tuberculosis, but also the apparently hale and hearty human whose environment has been of the most favorable kind, but who unhappily in some, at present obscure manner, is especially vulnerable to the tubercle bacillus; and that tuberculosis often begins in childhood and that it dwells in the sumptuous apartment as well as the dirty underground cellar. No less valuable should be the knowledge that diabetes has trebled itself during the past three decades, that this malady is one which follows in the wake of an habitual generous diet; that the disease is unusual where the diet is scanty and plain.

In view of the insidious onset of many diseases which secure a hold upon the victim long before he is aware of their presence a thorough physical examination every year or so seems a necessity, so that the disease may be discovered and eradicated while there is yet time. Insurance companies and other large bodies have already discovered the value of this plan and are thus pioneers in this phase of public health work.

The periodical examination of supposedly normal persons, many of whom measure well up to the average, will, apart from their value to the examinee, furnish valuable statistics which may affect the opinions gathered from a mass of clinical findings obtained from diseased subjects, and which have been handed on from one generation to another and accepted without question. This opinion

is sustained by the examinations of some hundreds of average women of different classes, but all breadwinners, made by the writer.

Some medical authorities have contended that the physiological reverberations of women were normally attended by discomfort or pain, perhaps both; but statistics gathered as indicated show there is no basis for such a conclusion, that on the contrary, the majority of healthy women living normally and not subjected to undue physical strain experience no pain whatever. One young woman declared that her physical strength, buoyancy, and energy seemed increased rather than lessened during the periodical crisis. The clinical picture changes, however, when the subject is forced to do work which taxes her resources too heavily, such as standing on her feet all day. Any kind of physical or mental fatigue will sooner or later manifest itself in the majority of cases unpleasantly. The writer found in 180 cases selected at random and including professional women, factory workers, and other women in the working class that 100 suffered no pain whatsoever, 70 experienced some pain, and 10 very severe pain. The ages ranged from 17 to 47, and the majority were unmarried women. Of the 70 who suffered slight pain, 9 occasionally suffered no pain at all. One of those examined had never suffered until after she had borne the burden of caring for a sick friend when she was for a prolonged period deprived of rest and sleep while carrying heavy responsibilities. One never suffered pain unless after working unusually hard. Another had never suffered until twelve months ago, but was now having trouble periodically.

In the professional class 59 per cent. did not suffer pain at all; 42.6 of the factory class did not suffer, and 56 per cent. of the domestic class women did not even experience discomfort. In the first class 37.6 per cent., in the second class 46.1 per cent., and in the third class 38.6 per cent. experienced slight pain, while of those suffering severe pain there was in the first class 2.5 per cent., in the second class 11.5, and in the third class 5.3 per cent. The figures just given would indicate that freedom from dysmenorrhea is in the majority of instances dependent very largely upon a favorable environment. Gallons of ink and reams of paper have been used in writing of the physiological disabilities of women, yet the conditions which produce these drawbacks remain practically unaltered. It is probable that periodical examinations will result in placing the menopause at a later period than formerly and influence the accepted view as to its semipathological character. It is interesting to observe in these examinations the influence of the past and present environment on different individuals. In some are noticed normal stature, fairly well developed bodies, and evidences of attention to all the functions of the body. Other groups show shorter stature, indicating in many cases, no doubt, defective nutrition in childhood, or perhaps overwork or mental strain at an age too early to be safely borne. In the latter class obstinate constipation is frequent, in some instances but two or three evacuations a week, and an accompanying indigestion. Teeth are often defective and not so well cared for as they might be. Many of the girls in this class are slim and fragile in appearance, as though possessed of little reserve strength and so susceptible to adverse influences.

The domestic class women were for the most part sturdy and well developed. Not a few of them were of Slavic origin. Most of these had worked in the fields in their youth and many showed a development of the right side, including shoulder and arm, very much superior to the left. The diet to which they had been accustomed in their native land consisted in part of rye bread, potatoes, fresh country products, and good milk. Meat was rarely used. The teeth of these women were, as a rule, excellent and the physique robust. In this group constipation was not usual as in the former class, and the general health was decidedly better.

Blood pressures were found to vary considerably. A few middle-aged women in apparently robust health and without subjective or objective symptoms showed blood pressures between 200 and 225 mm. Some showed a temporary increase in pressure, probably due to excitement.

Periodical examinations will afford an opportunity to note the effect upon heart, lungs, and general condition of different groups of workers detailed to different phases of the same kind of work, thus making it possible to alter plans if signs of overstrain make their appearance.

So long as the object of periodical medical examinations is to benefit the examinee and to put her in a better physical condition, it seems important to have the required medical or surgical attention as early as possible while the psychic effect is still present. The patient will then be more amenable to advice and more likely to carry out instructions. It does not seem advisable to ignore the natural feelings of reserve and modesty which most women possess. These rather deserve encouragement, so that when women, and especially girls, require treatment peculiar to themselves and prefer one of their own sex to afford them such treatment this preference should receive respectful attention just as it would if they belonged to a different sex. These preferences have a natural basis and their brushing aside is often attended with distress of mind to the interested party for which there is no moral justification.

Printed instructions as to the character of foods and their properties, how to care for a weak digestion, and how to avoid constipation would be valuable to many. Hints with regard to the effect of fresh air, exercise, and the importance of securing the requisite amount of rest and sleep after working all day would be of benefit to many young people unable to plan wisely for themselves.

The work of Human Conservation represents a vast sea of social activity composed like the tributaries which unite to make the majestic river, of many channels of effort, all working in unison toward the same great end—to add to the happiness, usefulness, value, and longevity of the human race.

110 East Eighty-first Street.

MODERN PHASES AND TREATMENT OF BASEDOW'S DISEASE.*

By O. HENSEL, Ph.G., M.D.,

NEW YORK.

ADJUNCT VISITING PHYSICIAN, GERMAN HOSPITAL, NEW YORK; INSTRUCTOR IN CLINICAL MEDICINE, COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY.

We all know of the important rôle which ductless glands play in certain diseases of the body and are gradually becoming aware of the fact that it is rather rare to find either clinically or on the post-mortem table disease of the one without some evi-

*Read before the Clinical Society of the German Hospital, New York, Jan. 8, 1915.

dence of lesion in one or more of the others. It is thus quite proper to speak of them all as one system. This is not the place to go into the complicated and as yet imperfectly understood function of this endocrine or ductless system or its individual members; suffice it to say that their duties are manifold in that they exercise an effect upon the growth and metabolism of the body, on the correlation of the visceral nerve functions and probably also on the disintoxication of the system. These glands, among each other, may act either in a compensatory fashion or antagonistically or both. An interesting chapter of these studies is the relationship of the thymus to the thyroid in Basedow's disease and its influence upon treatment.

Basedow's disease is no longer the simple clinical entity described by Karl v. Basedow about 75 years ago. Numerous other symptoms were discovered besides the three cardinal ones; the varying course, from a benign condition hardly to be separated from neurasthenia, and often mistaken for this, to a truly explosive and malignant type was carefully studied. In certain mild types, the symptoms may come on only during menstruation, to disappear during the interval when the diagnosis may be impossible, while in the most severe cases, death may set in in a few days. Finally, the treatment has undergone considerable modification. From a truly medical condition, the disease was soon placed on the border line, and to-day, is almost universally claimed by the surgeons as their own.

For practical purposes, we may include among Basedow's disease (1) Hyper- or dysthyroidism or the formes frustes; (2) Basedow's disease proper, and (3) Basedow's disease with pronounced thymic symptoms. By hyperthyroidism we really mean dysthyroidism inasmuch as Klose[1] has conclusively shown that the expressed juice of the Basedow thyroid, injected intravenously in small amounts into dogs will cause pronounced symptoms with a change in the blood picture, suggesting Basedow's disease and similar to an acute iodide poisoning, while the juice of a normal thyroid, injected in the same way even in much larger amounts, will usually give rise to no symptoms. This difference can be detected only if the juice is absolutely fresh, and this probably accounts for the failures reported previously by so many other experimenters. The test is said to be so delicate that it can be used in doubtful cases to determine the Basedow character of an excised gland.

Clinically, in dysthyroidism usually two of the cardinal symptoms are absent or poorly developed, the only cardinal symptom present being the enlarged and vascular thyroid. But even this may not be very evident if the enlargement is chiefly downwards. The characteristic feature, however, is that usually one or more of the minor symptoms are present and often are so pronounced that they form the main complaint. It is therefore not difficult to see that the correct diagnosis is often not made and the real condition is overlooked. Many of us will recall cases of persistent diarrhea that have been treated for a long time as colitis or other conditions, when a more careful examination would have disclosed the ear-marks of dysthyroidism. In many of the cases the symptoms present are wrongly attributed to neurasthenia or psychasthenia, though it is quite true that in these affections sympathetic irritation may show itself in the form of tremor, tachycardia, rise of temperature, and even slight exophthalmos without however an enlargement of the thyroid. In fact, it is quite possible that neurasthenia proper may have an intimate relationship to the ductless glands and many authors have reported good results from the hormone therapy. A fact not generally known is that the chief sympton which bothers some patients with dysthyroidism is a rise of temperature. In these days, when so many patients fuss with the thermometer of their own accord, you may have a patient present herself to you who for months had 100° to 102° every evening without apparent cause except a slight fullness of the neck, a very moderate tachycardia, and a moderate degree of general nervousness and tremor. Cases of this kind may be suspected of subacute endocarditis or of tuberculosis, though the physical signs and tests are negative. The question of temperature in dysthyroidism and Basedow's disease has been interestingly discussed by German authors who believe that it is almost always due to tuberculosis. That, however, tuberculosis is not so common in dysthyroidism and there are cases where the evening rise of temperature can be explained only by the thyroid affection, due to disturbances in the heat-regulating mechanism, is without doubt. In other cases, the loss of weight is the chief symptom, and here again tuberculosis may be suspected, or diabetes, if there is also alimentary glycosuria. That the diagnosis of all these conditions is at times difficult is clear, and we instinctively turn to the laboratory for confirmatory evidence.

The laboratory evidences of thyroid intoxication as postulated by Kocher are chiefly the presence of a mononucleosis in the blood with a delay in the coagulation time. Less commonly, there is also a leucopenia with a relative increase in the eosinophile cells. It has always seemed to me that Kocher has laid too much stress upon the diagnostic value of a mononucleosis. Through the kindness of Dr. I. Adler, I have recently had the opportunity to investigate the records of between 500 and 600 blood counts made on patients such as ordinarily consult a physician in his office. This list includes chiefly cases of disturbances of metabolism, chronic diseases of the viscera, neurasthenia, and chronic infections, such as syphilis and tuberculosis. All diseases of the blood and the thymolymphatic system were excluded. About 2.5 per cent. suffered from dysthyroidism or Basedow. A mononucleosis of over 35 per cent. was present in 27 per cent. of all the cases; over 40 per cent. in 5.5 per cent. Huhle[2] similarly speaks in a recent publication on the "Diagnistische Ueberwertung der Lymphocytose." Among 110 cases of a similar material he found lymphocytosis in excess of 30 per cent. in 45 and recommends that only figures over 40 per cent. should be regarded as true lymphocytosis. Conversely, in series of 20 cases of dysthyroidism or Basedow that I have had occasion to examine hematologically during the last year I have found an absence of relative lymphocytosis, that is under 35 per cent., in three. Often, the apparently more severe cases will show a less marked lymphocytosis than the more benign ones so that the differential count can by no means be employed to gauge the severity of the disease. Thus, in three sisters whom I had occasion to observe, the one least ill showed the highest percentage of lymphocytes. In one case, where I made four differential counts within eight days, figures varying from 28 to 37 per cent. were obtained, showing that extraneous factors also undoubtedly have an influence. I may add here that according to modern

research the lymphocytosis of Basedow disease is caused not by the thyroid but by the thymus intoxication and that a return of the blood picture to normal occurs only after thymectomy, an argument that is not generally accepted but is used by many authors to prove that the thymus is really the organ at fault. In one case of thymectomy published, the mononuclears rapidly dropped from 40 to 10 per cent. Halsted[3], however, has seen a return to the normal several years after thyroidectomy. Borchardt[4], finally ,found an increase of the mononuclears in almost all the diseases of the ductless system of glands.

The determination of the coagulation time of the blood seems to be a more valuable test which also allows of a differentiation from the opposite condition, hypothyroidism. The great disadvantage here is that we have no really reliable and inexpensive instrument at our disposal. I have obtained the most satisfactory results with capillary tubes in a thermos bottle which are broken off at regular intervals. All my cases showed a delayed coagulation. There are, however, plenty of other conditions where a delayed coagulation occurs.

A test, full of promise but not yet generally employed in America owing to difficulties in technique, is the Abderhalden serum test. In the serum of all cases of exophthalmic goiter examined by Lampe and Fuchs[5] ferments were found which digested Basedow thyroid, thumus, and ovarian tissue and sometimes even the tissue of normal thyroid. The intensity of the reaction and the number of organs digested stood in no relation to the type or severity of the disease. These experiments prove that the extreme views as to thyroid or thymus involvement do not hold, but that in probably every case we have a polyglandular syndrome.

In turning now to Basedow's disease proper, the chief interest to-day relates to the participation of the thymus in the pathogenesis of this disorder. Markham as early as 1858 demonstrated a case of cardiac disease with enlarged thyroid and thymus and exophthalmos, and 20 years later, Moebius found an enlarged thymus at the autopsy of a case of Basedow. Very many similar cases have been reported since then and there are even authors who hold the extreme view that Basedow's disease is always thymic in origin. Though by no means generally accepted, the following, almost unbelievable case, of v. Haberer[6] seems to bear out the statement that the removal of thymic tissue so small as to be unrecognizable with the naked eye may bring about a cure: The patient had undergone a thyroidectomy and even a ligation of the vessels of the remaining lobe. When he presented himself at Innsbruck, he was cyanosed and almost pulseless. There were present exophthalmos, a positive Graefe and Moebius tremor, and dyspnea. The right lobe of the thyroid was slightly enlarged, the left not palpable. The heart and liver were hypertrophied, there was slight icterus, a shadow under the manubrium sterni, no dullness, and no compression of the trachea. A small amount of apparently fatty tissue was removed and v. Haberer, very much disappointed, gave up the case as hopeless. To his great surprise, an almost immediate recovery set in so that the patient could be discharged two weeks later virtually cured of all his symptoms. He presented himself again at the clinic three months later a different person and again able to do a fair amount of work.

The effect of the thymus upon the thyroid has been carefully studied experimentally and seems to be both reciprocal and antagonistic. The reciprocal effect is proven by the following:

1. After thymectomy, the blood picture returns to normal as after thyroidectomy, but more rapidly.

2. Injection of the expressed juice of the thymus as well as of the thyroid intraperitoneally will give rise to Kocher's blood picture.

3. In one case, six months after thymectomy, regressive changes were found in the thyroid.

4. Implantation of normal thymus into thyroidectomized dogs will prevent the appearance of cachexia strumipriva.

5. According to Biedl[7], the only one who succeeded in bringing about a complete symptom complex of Basedow in animals was Bircher, who implanted not the thyroid but the hyperplastic thymus.

6. Embryologically, both glands are closely related, there often is a distinct parallelism in size, and the injection of both thyroid and thymus extract will cause an increase of the adrenalin in the blood.

7. Basch finally has shown that the pupils react to drugs in very much the same way in the dog, no matter whether the thyroid or the thymus has been extirpated. In both instances there is also an increased irritability on the part of the peripheral nervous system toward the electric current.

In discussing now the supposed antagonistic effect of both glands, we must turn to the interesting researches of Eppinger and Hess[8] on vagotony and sympathicotony. Most viscera are innervated by two systems, the sympathetic proper and the autonomic or vagus systems which are more or less antagonistic toward each other. In many pathological states, a series of symptoms will point to an increased tone in either one or other system. Various drugs can also be used in studies of this kind; thus pilocarpine, physostigmine, and muscarine act as vagotonics, and atropine as vagodepressant, while adrenalin is the chief sympathicotonic drug. We have not yet been able to isolate the physiological vagotonic principle analogous to adrenalin whose duty it would be to counteract the latter and thus keep the innervation of the principle viscera nicely balanced to meet all needs. Nevertheless, it has received a name, autonomin, and is supposed to be secreted by the pancreas. It is probable, however, that all ductless glands elaborate both vagotonic and sympathicotonic substances which are not, however, exactly alike in their action and probably do not influence each organ in the same way. Vagotonism is seen especially in neurasthenia, in the neuroses, and in congenital conditions. Whether a ductless gland dyscrasia is always at the bottom of these conditions it is at present difficult to say. In Eppinger and Hess's cases there was frequently evidence of thymic or lymphatic state, but in many other conditions where there is increased vagus tone, such as the cases of congenital microcardia described by I. Adler or the gastric neuroses discussed by S. Neuhof, a careful examination by means of percussion, *x*-ray, and blood count will usually fail to reveal this condition. Since there is often a low blood pressure, it is possible that a hypoplasia of the adrenal system, either congenital or acquired, is responsible. It would be more than likely that this would be accompanied by primary or secondary dysfunction of other members of the endocrine system; at all events, it would be an extremely interesting piece of research for somebody

to test out such cases carefully with the Abderhalden serum reaction.

In Basedow's disease, a careful study of the symptoms will often enable us to tell whether there is an increased vagus or sympathetic tonus, and in a general way two different types of the disease may be distinguished. The sympathetic cases show a greatly increased heart action with comparatively less marked subjective symptoms and the blood pressure is often high. Among eye symptoms there is pronounced exophthalmos with positive Moebius sign, negative Graefe and Stellwag, dry bulbs, and infrequent winking. The thyroid gland is apt to be large and vascular but salvation, sweating, and diarrhea do not occur. Other symptoms are falling out of the hair, inclination to fever, and an increase of the eosinophile cells in the blood. The Löwi phenomenon is generally positive and there may be alimentary and adrenalin glycosuria and a refractory behavior toward pilocarpine. The vagotonic cases show only a moderate tachycardia, sometimes even a bradycardia, but with pronounced subjective symptoms on the part of the heart, which may be intermittent in character. The blood pressure is more apt to be low, the exophthalmos and Moebius sign are absent or poorly marked, but the Graefe and Stellwag symptoms are usually definite, with increased lacrymation and frequent winking. The thyroid is often relatively small and hard, there is apt to be salivation and profuse sweating with diarrhea and a tendency to gastric disturbances. The blood gives no evidence of an eosinophilia, metabolic tests show an increased fat and carbohydrate tolerance. There will be no glycosuria after the injection of adrenalin, but pronounced reaction is seen after 1/10th grain pilocarpine. Aschner's phenomenon (pressure on the eyeball leads to a slowing of the pulse) is present, but not if atropine is first injected. Less common symptoms are pigmentation, marked myasthenia, and cachexia. Kocher also speaks of thickened subcutaneous tissues and a peculiar habitus and gait, suggesting double, congenital luxation of the hips. Where vagotonic symptoms are pronounced, it is important to search for enlarged glands and a hypertrophied thymus, though it must not be forgotten that most likely even microscopic traces of the latter may cause mischief. An hypertrophied thymus is sometimes disclosed by the *x*-rays, sometimes by percussion in the first and second interspace to the right and particularly to the left of the sternum, especially if the patient rests on his stomach (Jacobi).

Simple as this classification may seem, it is more common to find some vagotonic and some sympathicotonic symptoms present at the same time, very often so that it is impossible to tell to which class the patient really belongs. A true antagonistic action between thyroid and thymus is therefore doubtful and it is more likely that both glands, when hyperplastic, elaborate both vagotonic and sympathicotonic poisons. The pure vagotonic or thymic cases are certainly rare; thus Halsted reports only 20 out of a total of 500. He describes them as "those terrible cases where there is a rather hard not very much enlarged or vascular thyroid, great emaciation, dilatation of the heart, sweating, diarrhea, relatively slight exophthalmos not excessive tachycardia, and often a peculiar, greyish-bronzed skin." That they form a far more serious condition than the Basedow that we are accustomed to see is evident from the following figures: Fatal cases from intercurrent disease 44 per cent., from the disease itself 82 per cent., and after operation 95 per cent.

The complicated relationship between thyroid and thymus is well summarized by Matti[8] whose conclusions probably represent the general consensus of opinion on this matter at the present day. He states that "the hyperplastic thymus in Basedow's disease is no accidental finding but the enlarged organ actively participates in the symptom complex. It cannot be regarded as essential to the post-mortem findings, though in all probability the great majority of all Basedow cases show it. In all likelihood, the substances secreted by the thyroid are rendered more potent by the thymus, though the latter alone may elaborate substances which poison the heart or cause damage indirectly by the concomitant hypoplasia of the adrenal system. The frequency with which an enlarged thymus is found does not necessarily speak for a deleterious action of this organ since its pathological function need not be in proportion to its size. There is no doubt, however, that a large percentage of those who have large thymus glands die of the disease or after operation. The exclusive thyroid etiology of Basedow's disease is therefore no longer tenable for the thymus also plays a rôle which may be so pronounced that it actually dominates the clinical picture. This is proven conclusively by recent surgical reports. It is not possible even in the presence of such vagotonic symptoms as pronounced subjective cardiac disturbances, profuse sweats, disturbances of digestion, diarrhea, and marked myasthenia to conclude that a hperplastic thymus is present. Even the pilocarpine and adrenalin tests have only a restricted value. The only really reliable evidence can be obtained by percussion and the *x*-rays. An enlarged thymus is no contraindication to an operation; on the contrary, a primary resection of the thymus is to be considered where a decided hyperplasia can be made out and the thyroid clinically shows only slight change. The 20 per cent. failures reported from some surgical clinics even after extensive thyroid resection certainly would seem to show that the thymus and probably some of the other ductless glands play an important rôle in the pathogenesis of Basedow's disease."

An ingenious attempt has been made to solve many of the mysteries surrounding the relationship of the thyroid and thymus to Basedow's disease in a very recent article by C. Hart.[9] This author believes that a congenital abnormal constitution lies at the bottom of most cases. Hyperplasia of the thymus is but one of the symptoms of this lymphatic constitution; it will induce a functional hyperplasia of the thyroid possibly in order to paralyze the toxic products of the thymus. This compensation exceeds the requirements and finally results in pathological changes in the secretion of the thyroid. In other words, congenital thymo-lymphatism will lead to compensatory hyperthyroidism and this to dysthyroidism with the symptom-complex of Basedow's disease. This theory will easily explain the thymic and the mixed cases. Hart does not deny that there are purely thyroid cases where not the slightest pathological change can be found in the thymus. In these there is no abnormal constitution but the disease is the result of acquired, not congenital, changes in the thyroid alone or of abnormal function of other glands in the system, such as the ovaries. They usually develop later in life (as during the menopause) and run a more benign course.

Conservative as the conclusions of Matti are and

plausible as the theories of Hart seem, they are not entirely shared by the greatest authority on the thyroid, Kocher.[11] This author is rather inclined to minimize the importance of the thymus in Basedow's disease, though in his autopsies there were also frequently lesions in the thymus, lymphatic system, suprarenals ovaries, and occasionally in the pancreas. He lays rather undue stress upon the fact that thymus medication will improve many cases of the disease even where a large thymus is present. He also found that the thymus shadow disappeared in fully 75 to 80 per cent. of the cases after thyroidectomy and even where it persists there may be a perfect cure. The myasthenia upon which so much stress has been laid by those who believe in the vagotonic theory often disappears after strumectomy. Even where pronounced other vagotonic symptoms are present, there need be no changes in the thymus or this organ may be enlarged but the seat of a fibrosis which would preclude the possibility of an elaboration of toxic secretion. The diagnosis of Basedow plus thymus hyperplasia of an active nature is thus extremely difficult, but Kocher finds that periodic cardiac disturbance in the form of dyspnea, oppression and a rapid and irregular pulse together with cachexia, marked fatigue, thickened subcutaneous tissue and a peculiar habitus and walk, suggesting double, congenital luxation of the hip are rather characteristic. But all these symptoms are curable by strumectomy.

In the treatment of dysthyroidism and Basedow's disease we must consider the medical and surgical aspects and the effect of the *x*-rays. All except the advanced cases should be treated medically at first even though we have no drug as yet that always exercises a specific effect. The older drugs, such as quinine and ergot are sometimes of value, but more can usually be expected from the phosphate and glycerophosphate of soda if given in sufficiently large (half dram) doses. Heart stimulants, such as digitalis and strophanthus, which would normally slow a rapid pulse have no effect upon the tachycardia unless there is actual myocardial insufficiency. We rarely can get along without nerve sedatives and for the milder cases, the modern valerian preparations and the bromides will be sufficient, while the severer cases often require opiates. Preference should be given to the less habit-forming ones, as codeine and dionin, but often the same results can be accomplished with veronal and medinal. The most recent veronal derivative, luminal if given in small doses (one grain) often exhibits a specific effect upon the tremor, nervous excitement and abnormal psychic state and can be recommended most highly. Thymus and ovarian extract and even pancreatic extract have been given with doubtful results. Rodagen, the dried milk of thyroidectomized goats, in gram doses is preferred by some, but in my cases it has proved disappointing. The Antithyroidine of Moebius undoubtedly is effectual in alleviating most of the distressing subjective symptoms and also has a decided beneficial action upon many of the objective signs if given in sufficiently large doses. The experimental evidence is, however, against this. Thus, Sonne[12] gave some patients with Basedow's disease the blood of thyroidectomized animals and others the blood of normal animals. After both an equal percentage of improvement could be noted. He also tried to create an artificial hyperthyroidism in animals by feeding them thyroid and found that their symptoms were influenced in the same way by normal serum as by antithyroidine. It must be stated, however, that it is hardly possible to produce hyperthyroidism in animals by feeding them even large amounts of thyroid. The real value of every medication we order is so much obscured by the dietetic and hygienic measures that we feel it our duty to recommend that it is very difficult to come to any conclusion as to the effect of any given drug. Since it is possible to remove the thymus in animals without serious harm, I have requested one of the German firms to prepare for me an antithymus serum and also an antiovarian serum, to be used in conjunction with the antithyroidin, but owing to the war these plans could not be carried out. The preparation of Beebe usually does more harm than good and we can only warn against it. There remain then as reliable therapeutic agents for the internist only dietetic and hygienic measures. Many of the patients will improve spontaneously without medication, others get well on a lactovegetable diet, a rest cure with forced feeding and hydrotherapy with only such drugs as the symptoms may require. In women we often see considerable improvement during pregnancy, probably because the excess of thyroid secretion is better made use of during this time. Sanatorium treatment, as a rule, is not to be recommended since it is better for the patient to stay under the strict control of the family physician who can best determine when the time has come for further treatment.

It cannot be sufficiently emphasized that every case treated medically should be under constant control for the result can never be foretold. A decided Basedow, even in the presence of vagotonic symptoms and a marked mononucleosis and eosinophilia may get well in this way or else so much improvement will set in that the patient is perfectly comfortable and satisfied. On the other hand, a much milder case, under the same regime, may develop into a full-fledged Basedow with fulminant symptoms, sometimes without any apparent cause. By constant medical supervision, is meant particularly a control of the weight and of the heart action, wherever feasible with the most modern methods. Where improvement is not soon evident or where the patient's means do not permit of a lengthy and perhaps expensive treatment, further measures will have to be considered.

The Roentgen rays were first employed in Basedow's disease by two Americans, Mayo and Beck. They may be used after a conservative operation such as ligation of the vessels or in place of an operation, though many surgeons are of the opinion that a subsequent operation will then be more difficult. Among recent writers, Sielman[13] reports 4 complete cures, 7 marked improvements, 8 slight improvements, and 2 failures out of a total of 21. The exophthalmos disappeared completely in 5 cases. Mannaberg and Sielman also recommend that the ovaries be treated, but v. Graff[14] warns against this, for he and Novak have seen Basedow disease develop directly after Roentgen treatment for myoma. The same difference of opinion exists as to the thymus: Halsted has employed the Roentgen rays and radium with good result, while Klose, one of the most thorough students of this gland states that it is extremely sensitive to active rays of any kind so that evidences of degeneration may already be found after one instantaneous exposure.

What then is the effect of the newer research on the surgical treatment of thyroid hyperplasia? Except in the intensely thymotoxic cases, I think, we can advise a ligation of the superior thyroid ves-

sels with a clear conscience in all instances where improvement by other means is not satisfactory. The chief question is what to do in those cases where this operation proves inadequate. Undoubtedly, a hemistrumectomy is indicated, for, according to Halsted, there are 60 per cent. approximate cures after this operation, though in 70 to 80 per cent. there remain some symptoms of thyroid or thymic hyperactivity. In most cases, however, all these symptoms except, perhaps, the mononucleosis will disappear if as much as possible of the second lobe is removed. Thymectomy, as practised first by Garre and Sauerbruch, and in this country by Halsted would thus be limited to a small number of cases were it not for the fact that the post-operative mortality is apparently lower after the combined operation. In the words of Halsted, "the combined operation gives better results than the thyroid operation alone and striking is the relative absence of a reaction." It is said that by means of thymectomy we can avoid those unexplained deaths which have been seen after so slight an operation as ligation of one thyroid vessel under local anesthesia, lasting 10 minutes. In all probability then we are serving our patients better if, after medical treatment, the *x*-rays and ligation have failed, we remove as much of both organs as we can. Some authors are even inclined to practise thymectomy alone, stating that even the purely thyroid symptoms will disappear as readily as after thyroidectomy. Hart however has pointed out that thymectomy alone may not bring the desired relief if the changes in the thyroid, induced by the thymus are already so far advanced as to be permanent. In these cases only the combined operation will bring about a cure. From all descriptions, thymectomy seems to be a simple operation which can, if necessary, be done under local anesthesia and without resection of the sternum. It is best, however, to prepare these patients for a few days by giving them adrenaline and pituitrin, calcium salts, and, if necessary, heart stimulants and letting them rest quietly with an ice-bag to the heart.

We can only conclude that as a result of experimental research, the Abderhalden serum reaction and the truly remarkable successes reported by the surgeons after thymectomy, it is probable that, in all but a small percentage of cases of dysthyroidism and Basedow, whether vagotonic or sympathicotonic in type, the thymus shows dysfunction, the result of a congenital, hypoplastic constitution. Only in this way can we explain the persistence or recurrence of symptoms after even radical operations on the thyroid and the sudden deaths after operation. By taking the thymus into consideration, we can promise more speedy cures and also lower considerably the post-operative mortality. Cases without thymic involvement are in the minority, are usually acquired later in life, and run a more benign course. If not cured by medical means they will usually yield readily to operation on the thyroid alone, though it is possible that other ductless glands play an important rôle which may influence the surgery of the future.

REFERENCES.

1. Klose: *Arch. f. klin. Chir.*, Vol. 95, No. 3.
2. Huhle: *Arch. f. klin. Med.*, Vol. 113, No. 5 and 6.
3. Halsted: Johns Hopkins Hospital *Bulletin*, Aug., 1914.
4. Borchardt: *Arch. f. klin. Med.*, Vol. 106, p. 182.
5. Lampe u. Fuchs: *Muench. med. Woch.*, 1913, No. 38 and 39.
6. v. Haberer: *Verhandl. d. Deutsch. Gesell. f. Chir.*, 1913, I, p. 205.
7. Biedl: "Innere Sekretion," 1913.
8. Eppinger u. Hess: "Die Vagotonie, Berlin, 1910.
9. Matti: *Berl. klin. Woch.*, 1914, No. 28 and 29.
10. Hart: *Arch. f. klin. Chir.*, Vol 104, No. 2.
11. Kocher: Langenbeck's *Archiv.*, 1914.
12. Sonne: *Zeitsch. f. klin. Med.*, Vol. 80, No. 3 and 4.
13. Sielman: *Muench med. Woch.*, 1914, p. 2132.
14. v. Graff: *Wien. klin. Woch.*, 1914, p. 93.

THE TREATMENT OF EPILEPSY FROM METABOLIC DISTURBANCES IN ADOLESCENCE.

By TOM A. WILLIAMS, M.B., C.M., EDIN.,

WASHINGTON, D. C.

CORRES. MEMB. SOCS. OF NEUROL. AND PSYCHOL. OF PARIS; PROFESSOR OF CLINICAL NEUROLOGY AND PSYCHIATRY, HOWARD UNIVERSITY; NEUROLOGIST TO EPIPHANY FREE DISPENSARY, FREEDMEN'S HOSPITAL.

Incorrect Treatment.—As it appears that toxins are responsible for the convulsive attacks in the cases I have described (*Interstate Medical Journal and Review of Neurology and Psychiatry*, April, 1915), two courses are open to the physician.

One of these is to favor elmination of toxins. This has been done by stimulating the emunctories: diuretics are given to increase excretion by the kidneys, purgatives to increase elimination by the bowels, diaphoretics and baths to stimulate the skin; active exercise is prescribed to increase oxidation and favor the elimination of carbon dioxide by the lung; or an attempt is made to promote metabolism in general by various forms of electricity.

None of these procedures, except indirectly, attacks the cause of the disease, and so none of them can be recommended except as an adjuvant. This is particularly the case regarding purgatives; for many of these are tissue poisons, which are absorbed to some extent unless given in drastic doses, which, of course, is not permissible, as it entirely prevents assimilation of food. Magnesium salts, so often given, are when absorbed severe neuromuscular depressants. But even the alkaline aperients are not unobjectionable, because they interfere with the osmosis which is the foundation of normal assimilation. Our efforts, on the contrary, are to be directed towards the establishment of a metabolism as near the norm as possible for the patient, and I believe it irrational to interfere with this at its very inception in the intestine, by any purgative, no matter how mild.

Still more to be condemned in the treatment of convulsive tendencies is the attempt to suppress the effect of the toxins by counteracting drugs, such as aconite, belladona, nitrites, etc., of which the iodides are the most familiar example. This procedure is not only unsuccessful, because it still further disturbs metabolism, but it draws the physician's attention away from the main point. Even more to be condemned is the masking of symptoms by sedatives or anti-spasmodics such as bromides or essential oils, or by hypnotics and narcotics such as chloral, morphine, cannabis indica, alcohol, or preparations of coal-tar. Equally reprehensible is the contrary procedure of stimulating the body reactions by strychnine or by the caffein class of drugs.

Correct Treatment.—(1) As the toxins responsible for the patient's ill health occur in consequence of an incapacity to metabolize an amount of protein which the average individual can take with im-

punity, the most important feature of correct management is the limitation of the protein intake so as not to exceed the patient's maximum. As it has been shown (Chittenden) that the physiological minimum for health is not 100 grams, as Vogt supposed, but only about 50 grams per day, there is no physiological inconvenience in so limiting the protein intake.

(2) At the same time, energizing material must not be insufficient; so that the limitation of protein must be compensated by an increase of the carbohydrate and fatty constituents. These I generally permit the patient to eat without limitation; for experience has shown me that the appetite does not exceed body tolerance for such substances, in the absence of diabetes or pituitary disease.

(3) The third most important feature of the treatment is the giving of the vegetable salts, * * * This should be in the form of fruits and vegetables, so as to furnish inert bulk by fiber and cellulose. * * * in an amount amply sufficient for free activity of the secretions.

These recommendations are embodied in the "model diet" given to each patient with certain modifications which the case may require.

It is very unwise to give to patients, and especially to young persons, a rigid or lengthy dietary; because neither will be followed. The important point is that the patient grasps the principles by which his dietary should be regulated *by himself*. As these are very simple, he can then apply them to any menu placed before him; and thus with very little difficulty, choose what will be beneficial.

The principles are:

1. To take not over 2 ounces of dry protein, which means not over ten ounces of nitrogenous food in the natural state, which includes, eggs, milk, cheese, the flesh of all animals, birds, and fish, nuts, peas and beans, and to a less degree bread and cereals.

2. To eat abundantly the starchy and sugary substances, from which to obtain heat and energy.

3. To eat freely of fiber and cellulose in the form of vegetables and fruits so as to prevent constipation, which would favor the absorption of poisonous substances. They also prevent stagnation of lymph in the tissues on account of their saline character.

4. To favor oxidation by brisk exercise* (the nature of this is gone into in detail with each patient according to circumstances).

The Model Diet.—While dressing, five ounces of hot water containing 5 to 10 grains of sodium bicarbonate. Half an hour later, breakfast of a large plate of fruit and milk or cream, followed by abundant cereal and milk, with bread and butter. No meat, eggs, or fish. Wait five hours. Dinner, not more than four ounces of meat or fish, which must be quite fresh, a *very large* plate of green vegetables, potatoes sparingly, and preferably nothing more than a taste of sweets. The evening meal, five hours later, may be a repetition of the breakfast, but succulent vegetables may replace the fruit, and macaroni or a similar dish may be substituted for the cereal. Thirst and hunger between whiles may be satisfied by water and fruit about one hour before a meal or during the night. The purins are avoided, so that meat juices are abstained from, and soup, which may be taken at dinner or supper, must be made entirely of vegetable food. Alcohol is forbidden, even as beer or wine. Tea, coffee, cocoa, and kola must be abstained from, as besides being closely allied to the xanthin bodies, they are toxic to the nervous and circulatory systems.

Gradually this diet is added to, an occasional egg being given at breakfast or supper, and the patient very soon learns what suits him best. Some culinary ingenuity is needed to give variety to a diet which at first appears monotonous. In this respect the tastiness of well prepared whole wheat bread is a great gain.

1705 N Street, N. W.

*Of course proper baths are not omitted.

THE NAGELSCHMIDT MODIFICATION OF THE KROMAYER QUARTZ LAMP IN THE TREATMENT OF DISEASES OF THE HAIR AND SCALP.*

By RICHARD W. MÜLLER, M.D.,

NEW YORK

Hitherto the treatment of premature or senile baldness has been of very little effect. No matter what remedies, local, internal, or mechanical have been employed, the result has been far from satisfactory, and the number of young and old men partially or totally deprived of their hair has increased from year to year until now it seems as if half the male inhabitants of industrial centers, and even of small towns and villages, show varying degrees of baldness.

Not less has the female sex suffered increasingly from an insufficient supply of hair, it being either too thin or too short, seemingly as if the further development of the hair had been arrested and the life of the papilla were extinct or, at least, its productive activity suspended.

Many of the fair sex anxiously complain of the loss of their hair in large quantities long before middle age has been reached, of increasing patches of baldness, of partings growing wider and wider, making them appear bald; and last, but not least, of having the baneful gray hairs appearing among their black or blond tresses in ever-increasing numbers, giving them the appearance of senescence long before the time when gray hair would naturally be expected and gracefully accepted.

The medicinal methods used from time immemorial up to the present date have been the local employment of various lotions, fats, salves and "tonics," and the internal administration of iron, arsenic, strychnine, and other restorative medicines familiar to medical practitioners and to the public. For mechanical assistance, frictions, massage, and vibratory movements were universally employed. Large glass vessels, cuplike in shape, fitting the upper part of the head and provided with airpumps to render them airtight, came into use some years ago and were widely advertised as a universal remedy for baldness. They were used by many, but the number of bald men was not diminished. By means of these glass vessels, the air was exhausted above the scalp and suction exerted upon the blood-vessels supplying the hair-growing apparatus with nutriment. This action was believed to stimulate the papillæ to renewed action, and it was hoped that the hair would be produced once more, in spite of years of cessation of growth.

For thin and insufficient hair, it is now, and has been for some time, the favorite method to submit to the operation of masseuses, who go from house

*Read before the Medical Association of the Greater City of New York, February 15th, 1915.

to house to give their customers, mostly women, frictions and manipulations of the scalp with more or less vigor, according to the measure of enjoyment these customers derive from the process and their hope of cure.

Even dietary measures have been resorted to in order to improve the growth of hair: Toast, oatmeal, raw milk, raw eggs, carrots, soups made out of the bones of animals, and gelatin, are considered by even so high an authority as Prof Max Joseph of Berlin, as particularly suitable articles of food for those who would grow hair on a recalcitrant and arid scalp, and to have proved of much benefit to many.

For the cure of early "graying" of hair, no remedies have, to my knowledge, ever been seriously considered. The most modern work on "Kosmetics" by Prof. Max Joseph has nothing to advise but artificial coloring, and he gives his approval to dyes which are both effective and innocuous, namely, those containing salts of silver and of pyrogallic acid.

It is an old experience in the history of medicine that whenever a malady has been found that is difficult to improve or overcome, a great number of remedies and remedial measures are suggested, but alas, none has proved very effective in the treatment of the hair. With this need in mind, the dermatologists of to-day have not neglected to apply every remedy that offered any hope of relief. No sooner were the Roentgen or *x*-rays discovered than they were tested for their influence upon the growth of the hair; but aside from enabling us to remove objectionable and superfluous hair from the face, and to destroy the fungus of favus and ringworm, no remarkable effect has been attained thus far, and certainly no stimulation of growth. Neither has the Finsen light been of much use in the treatment of affections of the scalp; or, if it has, nothing has been reported to the profession which might be an incentive to the use of that powerful light.

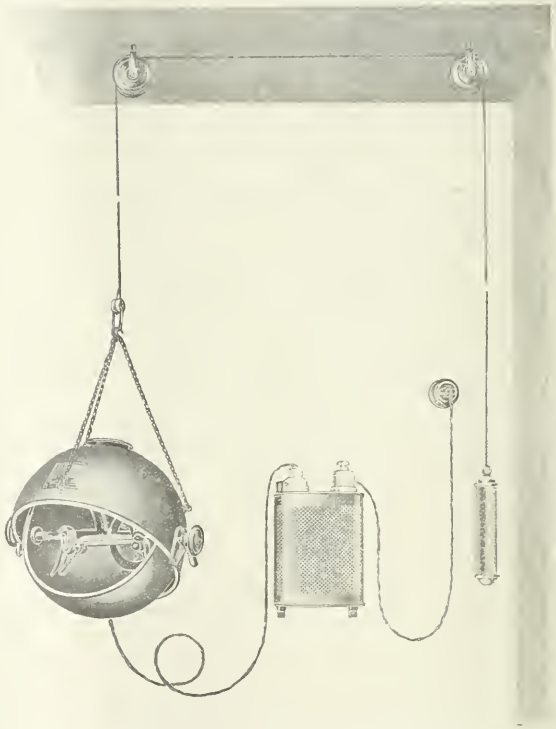
Kromayer's quartz lamp, constructed for the purpose of treating irritating and itching skin affections, was the first successful agent in the field of constructive therapy and effected numerous cures of ringworm and alopecia areata.

The next successful agent in the treatment of these diseases of the hair and scalp was the D'Arsonval-Tesla high frequency current. This received scant attention at first, but was later championed by Chatalain in his "Maladies de la Peau," 1910, Allen, MacKee, Vassilides, Keating-Hart, Fontana, Brocq, Belot, and Paul Gastou. I, myself, used this method of treatment for three years and was well pleased with its efficacy. It has, however, the serious disadvantage of requiring innumerable applications, at frequent intervals. Besides, there were many failures.

In 1913, Nagelschmidt published his modification of the Kromayer lamp and blazed a new trail in the domain of hair and scalp therapy. It may not be amiss at this point to outline briefly the essential features of this lamp.

The Nagelschmidt modification of Professor Kromayer's quartz lamp or "miniature Alpine sun (see the illustration) may be described as an electric arc in mercury vapor, in a quartz burner, enclosed in a spherical lamp body mounted either on a stand with a tripod base or in a hanging device, and provided with a rheostat. The burner consists of a shallow arch-shaped tube of translucent quartz glass three and a half to four inches long and placed with the convexity upward. At each end is a small reservoir of mercury in a cylindrical tube which joins the arch-shaped tube in T-fashion. The electrodes in lead covered wires, respectively red and white for the two poles, lead into the mercury chambers. To provide against overheating, each end of the two mercury chambers carries a fan-shaped series of metal plate or lamellæ, which diminish the heat by radiation. This is more practical than the water cooling device of the Kromayer lamp. Needless to add, the quartz cylinder contains mercury vapor, but no air.

Second, the lamp body, which contains the burner. This is a large hollow sphere, preferably of aluminum, which is either suspended from the ceiling or is fastened to an upright rod on a tripod, facilitating its transportation from and to any part of the office. Two rods fixed horizontally to an arm on the inside of the lamp-body carry the burner, which can be tilted by a wheel outside. A current indicator shows whether the connections are correct. A sliding door on each side enables the aperture to be varied at will. A folding screen of green cloth closes the lamp from underneath. The chimney can be opened vertically or horizontally; the latter facilitates breathing the ozone.



Third, the rheostat. This is attached to the

column of the stand in the tripod type of lamp-holder. The hanging lamp has the rheostat attached to the wall beneath it. Mounted upon the rheostat is a plug of porcelain to which the lamp is connected, and a switch is provided for turning the current on and off.

The size of lamp originally employed requires a four-ampere, 90 to 120-volt, direct current, and gives about 1500 candle-power light. There is another lamp which requires a 200 to 240-volt direct current of 2½ amperes, and gives 2000 candle-power.

Now, as to the application of the treatment. Dr. Nagelschmidt reports a series of 200 cases that have been treated by him in succession for alopecia areata, alopecia seborrhoica, prematura and senilis, and seborrhea capitis. It is to be noted that these cases were not selected for the purpose of showing the efficacy of his modification of the Kromayer lamp, but are consecutive cases from 1907 to 1913, accurately tabulated and controlled, and published in his monograph in 1913. They consist of 132 cases of alopecia areata, 53 cases of alopecia seborrhoica or prematura, and 22 cases of total baldness. The 53 cases of alopecia seborrhoica or prematura were all cured, without exception. Not alone were the itching and pain removed, but all the scales disappeared, their hair was regenerated, and new normal hair appeared in place of the old hair which had fallen out in the course of the disease. Of the 132 cases of alopecia areata, 80 per cent. were cured, 16 improved, and only 8 remained unimproved. Furthermore, 22 cases of total baldness were treated and all of these were cured except six cases—of which some failed to return for treatment, others were somewhat improved, and only a few were not benefited at all.

Some of the astonishing results of the Nagelschmidt method of treatment may be mentioned. In one case of complete baldness due to seborrhea, Dr. Nagelschmidt applied the customary treatment with local remedies, tinctures, and ointments, as well as massage and faradization, to one-half of the scalp and the rays of the quartz lamp to the other half. After a time, an excellent growth of hair had been produced on the half that had been treated with the lamp, whereas the other half remained as bald as before.

Furthermore, in many cases he has succeeded in bringing out new hair of the normal color of the person treated—blond, red, black, or brown—in place of the gray hair, and has thereby given the patient a decidedly rejuvenated appearance, much to his or her delight.

One can well see how Nagelschmidt, filled with enthusiasm for the light therapy for baldness and other diseases of the scalp, should condemn nearly all other methods in use for the cure of these troubles. Since my three years of dermatological study abroad, during the years 1907, 1908, and 1909, it has been my custom to return there for a few months of study every year. I have been enabled, especially in Doctor Sabouraud's clinic in Paris, and Professor Joseph's clinic in Berlin, to observe the progress of the treatment of scalp and hair diseases. For a long period, the progress, so-called, was but the stationary routine of former years, and the patients were but little benefited after they had reached advanced stages. With the introduction of Nagelschmidt's lamp, we have reason to believe that the picture will change and that those hitherto resistant and barren cases will offer a fertile field of cure under the new therapy.

It was my good fortune to observe the application of the treatment, for a period of six weeks last summer, in Nagelschmidt's clinic in Berlin, and I was much impressed by the results achieved.

Since my return at the end of October, I have had the opportunity of applying the treatment in my own practice in about 60 cases. Naturally, the time has been too short to enable me to make any definite statements as to the results obtained, but I feel that it is not amiss for me to say that my experience thus far has borne out my observations while abroad and my hope of its successful use here.

My procedure is as follows: The diagnosis of the scalp condition is made by the usual inspection. In cases of falling hair, the rate of loss is determined by a daily count, for three successive days, of the number of hairs lost during the daily combing, and by noting how many of these hairs are long and how many short. The long hairs are old and the short hair is young. Patients who are losing relatively many short, young hairs present a poor prognosis. The sittings for treatment are so timed that about one furrow or "part" of the scalp is exposed to the rays at one time, the remainder being protected. As much is done at one sitting as is convenient. The interval between treatments must be long enough to allow for the subsidence of whatever reaction follows the application of the rays. The remainder of the patient's skin must be carefully protected—especially the ears, face, and arms—against damage from the rays, and this is done by covering those areas with pieces of black cloth.

I shall not include any statistical data of my own in this paper, but shall do so in a future publication. Generally speaking, however, I will state that in the Nagelschmidt treatment we have found a method for treating the scalp and for the regeneration of hair hitherto considered hopelessly and permanently lost, that will prove little short of revolutionary in this field.

It is wholly in the order of things that a new method of treatment is received with various grades of acceptance, ranging from incredulity (Felix Pincus), through lukewarmness (Blashko), to enthusiasm (Drs. Brieger, Meyer, Schmidt). It is inevitable that some will scoff, and one hopes that some will acclaim.

In my forthcoming translation of Nagelschmidt's monograph, "Loss of Hair and Its Treatment by the Quartz Lamp," many of Nagelschmidt's individual cases are described in detail, with case histories and photographs showing their condition before and after treatment. These are most convincing.

Unfortunately, the method is not one that can be adopted in general practice, because the apparatus is expensive, the technique must be studied, and the treatment—though given in each case but once in three weeks—is time-consuming, usually extending over one or two hours and occasionally much longer. The point I particularly wish to emphasize, however, is that this treatment gives us the most definite and hopeful means yet known of ameliorating a condition which has hitherto proven obstinately refractory, and has been a source of embarrassment and discomfort to its unfortunate possessor.

Gastric Ulcer and Intercostal Pains.—G. Cavina points out that in rare instances gastric ulcer with or without adhesions is associated with zones of cutaneous hyperesthesia or of neuralgia in the intercostal spaces. —*Rivista Critica di Clinica Medica.*

FURTHER OBSERVATIONS ON THE PRODUCTION OF STERILITY BY THE ROENTGEN RAY.

By FRANK B. GRANGER, M.D.,

BOSTON, MASS.

INSTRUCTOR IN ELECTRO-THERAPEUTICS, HARVARD GRADUATE SCHOOL OF MEDICINE; PHYSICIAN TO THE DEPARTMENT OF PHYSICAL THERAPEUTICS, BOSTON CITY HOSPITAL.

In a paper read, September, 1907, before the American Electro-Therapeutical Association, I gave a résumé of the literature on the production of sterility by the Roentgen ray and cited three cases, one of which was treated in May, 1905—only three months after Brown and Osgood had reported that Roentgenologists were liable to be rendered sterile by their occupation. At that time I pointed out that this had been forecast by the work of Albers Schoenberg on guinea-pigs, where sterility had been produced by 370 minutes' exposure to the Roentgen ray. I then considered the experimental work on seeds and eggs and showed that their fertility was influenced by the ray.

Pathologically the seminal epithelium seemed to have been destroyed in the male with no diminution of the internal secretions and no atrophy of penis or seminal vesicles; while in the female the results in the ovary were sterility, and the appearance of all the symptoms, which follow complete ovariotomy. The cases which I reported at that time were:

Case I.—A woman with a large uterine fibroid which showed after hysterectomy, although she had had fifty-nine treatments with *x*-ray exposures, no evidence of destructive action on the ovaries per se.

Case II.—A man, who on account of insanity in his own as well as in his wife's family, desired to become sterile, and who showed numerous actively motile spermatozoa, was rendered sterile after thirty exposures. Up to the twentieth exposure no influence was noted on the spermatozoa, but from that time to the thirtieth rapid changes took place. This case was examined at frequent intervals and the following note was made in my case report: "On May 14, 1913, nearly eight years after the last *x*-ray exposure, there is still complete absence of spermatozoa, and there had been absolutely no diminution of sexual potency or desire." In May, 1915, there was a return of active, motile spermatozoa, and a vasectomy was performed by Dr. John Cunningham.

This case is instructive, as it bears out to the letter the conclusion of my former article, namely, "While it is not safe to draw conclusions from insufficient data, yet from the cases reported, and my own, we may conclude that while the *x*-ray can and does produce sterility, yet the quantity needed to produce such a result is much greater than one would suppose, reasoning from animal experimentation and from the hysterical warnings of certain writers. We may also agree with Laquerrière that while a patient may be rendered sterile by the *x*-ray, either by direct or indirect radiation, that such sterility may not be permanent, and that a condition of complete sterility continuing through a number of years is compatible with perfect virility and genital competence."

Before Case II came to this timely—or untimely—end, I sterilized another case which is now reported for the first time.

Case IV.—Mr. V., 45 years old; history of insanity in the family; married late in life a lady with a badly compensated cardiac lesion. In view of these facts it seemed legitimate to produce sterility. While in former cases I had used an induction coil, with a mercury turbine interrupter, using three ampères in the primary, in this case I employed a large high frequency coil, with a tube giving out No. 4 rays Benoist. In all seventeen exposures were given, averaging fifteen minutes, over a period of three months. The exposures were made alternately, anteriorly, and posteriorly, on the scrotum; some tanning occurred but no dermatitis ensued. After the twelfth exposure the spermatozoa became misshapen and less motile. After the seventeenth there was complete azoospermia. After a period of eighteen months there has been no change in the picture.

In view of Case No. II I should advise either an occasional course of the Roentgen rays until his wife has passed the menopause, or a vasectomy.

In conclusion let me add that such results hold out much encouragement for those Roentgenologists, who, pioneers in our work, unwittingly become sterile and for these newer workers who, dependent upon, I am afraid, inadequate protection from the powerful rays of the Coolidge tube, will suddenly find themselves sterile, and for those, who in their zeal for fluoroscopy will find that the selective action of the Gamma rays will penetrate the protection offered by the modern Roentgenoscopes and effect the seminal epithelium, just as surely as it has done in the past. And finally, when we wish to ensure permanent sterility, vasectomy is surer than the Roentgen ray.

591 Beacon Street.

REPORT OF A CASE OF RUPTURE OF THE PROSTATIC URETHRA.*

By S. WILLIAM SCHAPIRA, M.D.,

NEW YORK.

ADJUNCT PROFESSOR OF GENITO-URINARY SURGERY, FORDHAM UNIVERSITY, SCHOOL OF MEDICINE; VISITING G. U. SURGEON, SEA VIEW HOSPITAL AND SYDENHAM HOSPITAL; ASSISTANT G. U. SURGEON, CITY HOSPITAL AND WORKHOUSE HOSPITAL.

G. B., aged 14, entered Sydenham Hospital May 7, 1912, with a history of having been run over by an automobile on May 6, 1912. He was taken to Harlem Hospital but refused operation and was sent home that day. The patient entered hospital with a diagnosis of rupture of the bladder. Superficial examination showed distention and ecchymosis of the abdomen, infiltration and ecchymosis of the penis, perineum, and scrotum. A metal catheter inserted through the urethra apparently into the bladder brought only a few drops of blood.

Suprapubic incision showed a full bladder; oozing of blood on the outside of the bladder was stopped by hot gauze sponges. The bladder was opened and a large quantity of clear urine escaped followed by some bloody urine and clots; the finger in the bladder could not feel the end of the metal catheter. Pushing the finger into the internal meatus showed the prostatic urethra entirely severed from the bladder, and after some manipulation the tip of the metal catheter was found some distance below; as all of the tissues were greatly distended and infiltrated, a large suprapubic drain was inserted and left in place until May 15, when all the infiltration had disappeared. After removal of the suprapubic drain, the pubic bones were found to be separated and the left was at least one inch below the right. A soft rubber catheter was introduced through the urethra into the bladder (which was easily accomplished, but was impossible at the time of operation) and the catheter drainage was maintained for over two weeks, the catheter being changed and the bladder irrigated daily at first, and every two or three days later. The permanent catheter was removed May 29, when the suprapubic wound was nearly closed. On June 3 the suprapubic incision was closed.

The patient was discharged from the hospital June 4, 1912, in perfect condition, except the pubic bones were not entirely approximated, but were approximating quite rapidly. The patient had a course of sounds for about three months afterwards and was then discharged by his family physician.

The patient called again November 1, 1914, complaining of frequency of urination by day and very narrow

*Read at the Section on G. U. Surgery, N. Y. Academy of Medicine, Feb. 17, 1915.

stream. The urine was perfectly clear and the pubic bones were in perfect apposition. The sound went to the prostatic urethra where it met with a very hard obstruction, and on repeated sittings even a filiform bougie could not be passed into the bladder. A diagnosis was made of stricture of the prostatic urethra.

Operation, November 6, 1914.—Perineal section was performed and a hard fibrous ring was removed from the prostatic urethra. A perineal tube was inserted for drainage and a large catheter passed through the urethra to the neck of the bladder. On November 9 the perineal tube was removed and the urethral catheter pushed further into the bladder and retained by adhesive plaster for drainage and for the purpose of keeping the urethra dilated, the bladder being irrigated daily. The catheter was removed November 19. The patient voided urine the same day and was discharged from hospital November 20, 1914.

From a study of this case one may formulate the following conclusions:

1. Diagnosis of rupture of the bladder or prostatic urethra is at times very difficult or impossible.

2. Traumatic injury to the pubes causing rupture of the urethra and separation of the bones as described, will heal kindly, natural process.

3. There is no necessity of approximating the torn ends of the prostatic urethra, so long as adequate drainage is provided to take care of the infiltration.

4. The efficiency of suprapubic drainage in relieving enormous infiltration of penis, scrotum, and perineum, caused by extravasation of urine, is well shown.

5. Stricture may follow rupture of the prostatic urethra months after injury, although sounds have been used for a reasonable length of time.

1847 Madison Avenue.

Medicolegal Notes.

Compulsory Vaccination of School Children. — The school board of the San Antonio independent school district was sued in the Texas courts by the father of infant children to compel the board to admit the children to attendance in the public schools of the district and to restrain the enforcement of a new regulation of the board requiring vaccination of school children. The case was submitted upon the following issues: "(1) Is the danger of an epidemic of smallpox imminent at this time in the city of San Antonio? (2) Do the existing conditions in reference to smallpox constitute a menace to the public health? (3) Is the regulation of the San Antonio school board requiring vaccination of the children reasonably necessary for the preservation of the public health by preventing the spread of smallpox?" The first question was answered in the negative, and the other two in the affirmative. Judgment was entered denying the relief prayed for, and the plaintiff appealed. The chief part of the rule objected to provided that no pupil or teacher should be admitted at the next term of school without presenting a proper certificate from a practising physician showing successful vaccination within seven years; or unless such certificate was on record. Prior to the adoption of this rule the board had a rule requiring vaccination, but containing an exception permitting children to attend if their parent or guardian filed an affidavit that he conscientiously believed that vaccination would be prejudicial to the health of the child. The plaintiff had filed such an affidavit. The Court of Civil Appeals adopted the findings of the jury in answer to special issues Nos. 1 and 2. It was held that as the Legislature did not expressly empower the school board to adopt the regulation in question it must be determined whether it was a reasonable one.

Conditions may change so that an ordinance when applied thereto may be arbitrary, unjust, and oppressive. The power of local bodies to require the vaccination of school children as a condition to their admission to public schools, in the absence of express authority, is dependent upon the conditions existing in the community with reference to smallpox. When an epidemic exists or is imminent there can be no doubt that the power may be exercised. It has also been held that such regulations may be adopted and enforced when smallpox exists in a community, and by some courts the expression is used that such regulations may be adopted when an epidemic is reasonably apprehended. In this case it was found that no epidemic existed or was imminent, but that the existing conditions with reference to smallpox constituted a menace to public health. The court concluded from its investigation of the authorities that it is not necessary for an epidemic to exist or be imminent in order for the school board to be justified in adopting and enforcing the regulation complained of, because if the conditions are such that they constitute a menace to the public health it cannot be said that the board's action was unreasonable and that the want of necessity for the measures has been shown to be "clear, manifest, and undoubted." If existing conditions constitute a menace to the public health, an epidemic is threatened, and it cannot be said that it did not reasonably appear to the board to be necessary to adopt the regulation. If much must be left to the discretion of the board, certainly the undisputed facts in this case and the finding of the jury in response to the second issue showed that the board had not abused its discretion. The rule was held not to be invalid because it did not provide when it was to expire; it would expire automatically when the conditions changed.

The rule also provided that vaccination should be deferred for sixty days upon a certificate from a physician and concurrence by the school physician that vaccination would imperil the pupil's health, and that it might be further deferred upon order of the board of health of the city and the school physician. It was held that this was not an unreasonable provision as conferring upon the board of health and the school physician arbitrary powers, and so was not invalid under Const., Art. 1, Sec. 19, and Const. U. S., Amend. 14, prohibiting the deprivation of life, liberty, or property without due process. Nor did the rule violate the State Constitution, Art. 7, Secs. 1, 3, 5, which declare that a general diffusion of knowledge being essential, the Legislature shall make suitable provision for the support and maintenance of an efficient public-school system and provide a means by which State revenues may be used for school needs.

The rule was not in violation of Rev. Stat., 1911, Arts. 2899, 2900, declaring that all children of school age shall be entitled to school privileges; the statute not depriving school authorities of the right to pass necessary regulations for protection of the health of pupils. The court took judicial notice of the facts that vaccination is, in the common belief, a preventive of smallpox, and that the danger of contagion from smallpox is equally great in theatres, street cars, and other public places as in the schools. But it was held that the school board of an independent school district authorized by the act creating it to make rules for the protection of health may require vaccination to prevent the spread of smallpox, even though the danger from the disease was equally great in places under the control of the city where no such regulation was imposed. Judgment denying relief was affirmed. Zucht vs. San Antonio School Board, Texas Civil Appeals 170, S. W. 840.

Nuisance—Operating Room in Hospital.—Maintaining an operating room in a hospital in such proximity to a neighboring dwelling that the cries of pain emitted by the patients destroy the peace and comfort of its occupants and injure their health is held in Kestner v. Homeopathic Medical & Surgical Hospital, 52 L.R.A. (N.S.) 1032.

Liability of Private Hospital for Negligence.—Action was brought against a hospital, conducted for private gain, to recover damages for negligence in caring for a delirious patient whose death resulted from his jumping from an unprotected, unfastened, and unguarded window in the absence of an attendant. The evidence tended to show that the patient was knowingly admitted to the hospital under an implied obligation that he should receive such reasonable care and attention for his safety as his mental and physical condition required, and that the nurse in charge, at the time of the accident, had been absent for a period estimated by one witness to be less than five minutes and by another to be about an hour. Under this evidence the issue of negligence was held to be for the jury. Judgment for the plaintiff was affirmed.—Wetzel v. Omaha Maternity & G. Hospital Assn., Nebraska Supreme Court, 148 N. W. 582.

Medical Record.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., Editor

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 8, 1915.

THE EXTENSION OF THE VITAMINE THEORY.

It is several years now since Funk isolated from rice polishings a substance which he called vitamine, and which, when administered to patients suffering with beriberi, brought about a cure of the disease. It is the absence of this substance from the dietary which is now quite generally believed to be the cause of beriberi. The success of the researches along these lines in this instance has led enthusiastic investigators to broaden the field of their labors and to extend the same explanation to cover other more or less similar diseases. The extent to which this enthusiasm has led the followers of the vitamine theory is shown in a summary recently published by Watson-Wemyss (*Edin. Med. Jour.*, 1915, xiv, 186). Diseases of the scurvy group are generally conceded to have a close relationship to diet and it is thought that here, too, the pathological condition is brought about by the absence from the diet of "scurvy vitamine." This "scurvy vitamine" is much less resistant to heat and drying than "beriberi vitamine," so that cooked or dried fruits are not suitable for its treatment. Ship beriberi and infantile scurvy are included as being very closely related. From this point the adherents of the vitamine theory broaden out.

First they include pellagra, claiming that vitamines are removed from maize in the process of preparation of the grain for food and that the disease can be prevented and treated by a diet which contains the proper vitamines. Next they include rickets and tetany since these diseases occur in children who are fed on sterilized milk or similar foods and thus suffer from a deprivation of the vitamines which are present in good raw milk. In tetany it is believed that the ingestion of vitamines is necessary for the proper action of the parathyroid and thymus glands. The beneficial effect of cod-liver oil in these conditions is ascribed largely to the vitamines which it is known to contain. Vitamines are capable of stimulating normal growth, therefore may they not play an important part in the stimulation of abnormal growth, that is, tumor formation? It is said that in severe infectious diseases, a purely starchy diet is dangerous in that it may lead to anorexia, cardiac weakness and sometimes even to nerve degeneration. These are looked upon as symptoms of beriberi and a warning to include vitamines in the diet. The success of the oatmeal treatment of diabetes is ascribed to the presence of certain peculiar vitamines in that grain.

At the present time many of these ideas seem to most practitioners extremely fanciful and it is highly probable that increase in our information will prove at least some of them untenable. Nevertheless they will have served a good purpose if they have drawn attention to the fact that the construction of a diet is not merely a matter of protein, fat and carbohydrate including a desired number of calories. We are beginning to hear about the specific dynamic action of foods and will hear more. The whole matter of diet is in a more or less unsatisfactory state. The accepted methods of infant feeding change so rapidly that none but the active pediatrist is able to keep pace with them. The whole subject of feeding needs a deal of investigation and more than all, calm scientific judgment. Let us hope that it will get it in the not too distant future.

RECENT WORK ON BONE REGENERATION.

It is only three years since Macewen published his epoch-making monograph on the growth of bone, in which he announced the results of his experiments which apparently proved that periosteum is not a bone-producing tissue, but is simply a limiting membrane. This conclusion, which was directly at variance with the teachings of nearly two generations of histologists, has evoked considerable discussion, and there have been published along this line many investigations, some of which have confirmed while the rest have contradicted the observations of Macewen.

The latest report on this subject emanates from the Hunterian Laboratory of Experimental Surgery of Johns Hopkins University, and is contributed by J. S. Davis and J. A. Hunnicutt to the *Bulletin* of the Johns Hopkins Hospital, March, 1915. Many of Macewen's original experiments were repeated, and a number of new ones were performed, the animals experimented upon being dogs and rabbits. It was found that free periosteal transplants do not produce bone in the large majority of experiments, even though osteoblasts are adherent to the transplants; neither do pedunculated flaps of periosteum produce new bone. If, however, bone shavings are attached to these transplants, or flaps, new bone is produced in each experiment. One important fact demonstrated in these researches is that the removal of periosteum has little, if any, effect on the nutrition of a bone; the surface from which the periosteum is removed showing very little overgrowth of bone unless that surface has been greatly irritated.

Of eminent practical importance were the results of the investigations into the use of bone transplants in the repair of bone defects. Thus it was shown that auto- and iso-bone, without periosteum, is effective in repairing skull defects and in stimulating the growth of bone when transplanted into the periosteal tube after subperiosteal resection of

a rib. In the latter case the growth of bone from both the periosteum and the rib ends is stimulated. On the other hand, transplants covered with periosteum, and also foreign bodies, stimulate bone growth only from the rib ends. After subperiosteal resection of a portion of rib the repair of the defect takes place from the bone stumps, the periosteum acting as a limiting membrane. Whereas auto-bone, either with or without periosteum, lives and is successfully transplanted to fill defects in bone, clinically it is desirable to transplant bone covered, in part at least, with periosteum. Iso-bone in a bone defect acts as a scaffold for the growth of new bone from the living bone stumps, but in such cases there is always ultimate absorption of the transplant. When transplanted into soft parts both auto-bone and iso-bone are eventually absorbed.

THE LOCAL INCIDENCE OF CANCER IN RELATION TO FUEL.

THE local incidence of cancer is a very interesting study anywhere and withal of considerable value in tracing its cause. Mr. C. E. Green, writing in the *Edinburgh Medical Journal* for January, 1915, speculates upon the local incidence of cancer in France. He takes as his text statistics given out by the French Ministry of the Interior, and three diagrammatic maps given in an article in *La Presse Médicale*, May 13, 1913, by M. Bertillon, which show the deaths from cancer per 100,000 inhabitants living in different parts of France. The comparative death rate in town and country districts for the year 1908 is striking, the average per hundred thousand being in the towns 103 deaths and in the country 62.

M. Bertillon seeks in vain to find an explanation for this curious distribution. At first sight, the distribution seems to follow the geological map of France, the deadly square lying in the basin of which Paris is the center, but this, he admits, cannot apply to Pas de Calais, Nord, and Somme, which do not form part of the basin and yet suffer much from cancer. The map follows to some extent that of the alcoholic consumption but yet he points out that Brittany, which suffers little from cancer, has a large alcoholic consumption. On the contrary, Indre-et-Loire, Loire-et-Cher, and other districts very cancerous are not very alcoholic. He concludes that for the distribution there is certainly a cause and probably a unique one, but he has not yet discovered it.

Mr. Green thinks that the cause is connected with the nature of the fuel burned in the various departments, coupled with the fact that the further one goes north, the colder the country is in winter and the more fuel must necessarily be burned. From an analysis of the maps it is shown that where the cancer mortality is highest coal is burned, and Green comes to the conclusion, a conclusion strengthened by the result of his investigations in Orkney, that the composition of the coal has much to do with the causation of cancer. In districts of Orkney in which peat containing a very high sulphur percentage is burned, cancer is common. In those parts of France in which cancer is frequent, the coal burned contains a large percentage of sulphur.

Although the author is willing to admit that some other element than the strictly sulphur content may be involved in the relationship of certain fuels to the cancer death rate, yet he is of the opinion that the results of such enquiries as he has made into the fuel conditions of those districts where cancer is rife seem to point conclusively to the fact that the etiology of malignant disease has some subtle connection with fuel and the products of its combustion.

THE NECESSITY OF ANIMAL EXPERIMENTATION TO PROGRESS IN MEDICINE.

AT a stated meeting of the Pathological Society of Philadelphia, on March 11, a symposium was held dealing with "The Rôle of Experimentation in the Development of Modern Medicine." Dr. Joseph McFarland presented a communication entitled "Experimental Investigations of the Protozoa, Especially in Regard to African Lethargy." He pointed out how inadequate and circumscribed had been knowledge of two important diseases due to protozoa, namely malarial fever and sleeping sickness, prior to the application of the experimental method in their study, and the advance that had been made in this respect since the observations of Laveran, Ross, Golgi, and others bearing upon malaria and those of other investigators bearing upon trypanosomiasis. Only by means of animal experimentation had it been possible to demonstrate the respective causes of these two diseases, their modes of dissemination and reproduction, and to devise ways and means for their repression, prevention, and cure. As a measure of safety experimental observations must necessarily first be made on lower animals and their results may subsequently be confirmed by parallel observations on human beings.

Dr. Daniel J. McCarthy read a paper entitled "Experimentation in the Advance of the Study of Nervous and Mental Disease." He showed how our knowledge of the physiology of the nervous system was enhanced by experimental observations upon lower animals, without which much of a practical character as to the behavior of nerves, cerebral localization, cerebellar activity, mental processes, and the like, would be beyond ascertainment.

Dr. Lawrence F. Flick read a paper entitled "Experimentation as Illustrated in the Crusade Against Tuberculosis." He dwelt upon the fact that the transmissibility of tuberculosis as a disease had long been appreciated as an abstract principle, but the knowledge had been lost until it was possible to make a concrete demonstration by means of animal experimentation. It is only since Koch established the fact that the disease is due to the tubercle bacillus, from which it derives its transmissibility, that it has been practicable to employ intelligent measures for its prevention and cure. As a result there has been in the intervening time a noteworthy reduction in the incidence of the disease and in its mortality.

A NEW THEORY OF EPILEPSY.

Sir Arbuthnot Lane and his followers have laid at the door of intestinal stasis a formidable list of diseases and complaints. Although, perhaps, the majority of physicians and surgeons do not go so far as Lane in attributing to chronic constipation the many ills which he attributes to the condition yet all are agreed that chronic constipation, which generally means intestinal stasis, is responsible for many more or less grave affections. In the *Southern California Practitioner* for March, 1915, is a paper by Dr. Charles A. L. Reed of Cincinnati on the nature and care of epilepsy, the paper being an extract from an address on "Constipation in Relation to Various Diseases" delivered before the Los Angeles County Medical Association on Feb. 18, 1915.

Reed states that observation of facts occurring in his practice has taught him that constipation due to strictly mechanical causes exists in exactly one hundred per cent. of epileptics. In other words, every case that has come to him has been shown, first by clinical examination, next by *x*-ray findings, and finally, in all instances that have come to operation, by surgical exploration, to have some mechanical interference with the free activity of the bowels. Furthermore, the result of the experience is the fact that in certain cases the surgical relief of this anatomical condition is followed by corresponding relief of first the constipation and next the epilepsy. The third and probably the most important conclusion that has been forced upon Reed by his clinical observation is to the effect that the rôle of constipation as a causative factor in epilepsy is due to the more than likely fact that the initial cause of the disease is to be found in a specific infection.

The probable nature of this microorganism and its habitat are discussed and the assumed constitutional effects of the "Bacterium epilepticus" are dealt with. Emphasis is laid on the point that the bacterium becomes effective through increased absorption due to mechanical constipation, and that the cure of the constipation must be considered the first step in the logical cure of epilepsy. Consequently operation is recommended to remove the constipation, and this removal invariably affords relief to and sometimes cures the epilepsy.

Cure of Masked Syphilis after Wassermann Diagnosis.

In theory it should constantly occur, and in practice we know that it is not uncommon for people to recover their health rapidly from conditions in no wise resembling syphilis but in which the patients give a positive Wassermann reaction. In literature, however, we do not find many separate articles on the subject, so that each one reported carries with it an important message to the practitioner. In a paper on this subject read last Fall by von Bergmann before the Altona Medical Society (*Muenchener medizinische Wochenschrift*, January 26), a number of such cases were reported in which the treatment was restricted to large doses of potassium iodide. In the Altona Hospital, with large venereal service, the Wassermann test is used as a matter of routine, as are albumin and sugar tests of the urine. With the test positive the iodine tolerance is determined, and when it is normal large doses of potassium iodide are pushed. Two of the more remarkable cases appeared to suffer solely from scrofulous or tuberculous suppurating cervical glands which had been treated in vain by the seemingly indicated methods. These made good recoveries. In other cases syphilis must have been suspected but had not responded to treatment.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—*Contributions* for the week ending May 1, 1915:

Dr. N. D. Murphy, Bangor, Mich.	$25.00
Col. W. H. Arthur, M. C., U. S. A., San Francisco, Cal.	10.00
Dr. Augustus A. Eshner, Philadelphia, Pa.	10.00
Dr. S. W. Goddard, Brocton, Mass.	10.00
Dr. Albert M. Judd, Brooklyn, N. Y.	5.00
Dr. Calvin F. Barber, Brooklyn, N. Y.	10.00
The Mount Vernon Medical Society, Mount Vernon, N. Y.	10.00
Receipts for the week ending May 1st.	$80.00
Previously reported receipts.	6,505.50
Total receipts	$6,585.50
Disbursements for the week ending May 1:	
35 Standard boxes of food at $2.30. $80.50	
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20 . . . $3,575.00	
1,274 Standard boxes of food at $2.30 . . . 2,930.20	
Total disbursements	6,585.70
Deficit	$0.20

F. F. Simpson, M. D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburgh, Pa.

Audit of the Treasurer's Account.—In a letter dated March 26, addressed to the Chairman of the Committee, Messrs. Marwick, Mitchell, Peat & Company state: "We have audited the accounts of the 'Committee of American Physicians for the Aid of the Belgian Profession' for the quarter ended March 20, 1915. We hereby certify that all donations received have been properly accounted for and applied to the purchase of provisions and that the following is a correct summary of the receipts and disbursements for the period:

Receipts	$5,221.50
Disbursements.	
1,625 boxes of food.	3,575.00
Balance on deposit in Union Trust Company, Pittsburgh, Pa.	$1,646.50

"All but nine of the boxes of food had been delivered at the Bush Terminal, South Brooklyn, New York, to 'The Commission for Relief in Belgium' as at the date of our audit, and in addition 715 boxes have been ordered, bringing the total of the boxes up to 2,340. The foregoing bank balance will be used to pay for the 715 boxes on order."

The Situation in Belgium.—Dr. J. Riddle Goffe, of New York writes that in a letter just received from Dr. Jacobs, of Brussels, he summarizes the situation of our Belgian colleagues as follows: (1) Many doctors were killed, consequently the widows and orphans deprived of everything, are without a home, without means, with nothing left. (2) All country doctors or those living in small towns are ruined by loss of every possession they had. (3) Doctors in large cities are ruined by commandeering, war-levies, etc. (4) The largest part of Belgium's population has become the prey of infectious diseases, epidemics, with a large infant mortality, etc. (5) Ruined civilian populations cannot pay for medical advice, consequently many physicians

are compelled to work for nothing, others are obliged to undertake any labor for gain as a means of livelihood. The opportunity is here created for the medical profession of the world to show the brotherly feeling which exists among them, and they can do this by helping us with the necessary funds.

More Red Cross Surgeons and Nurses for Europe.—Five Red Cross surgeons and eighteen nurses sailed from New York last Saturday. One surgeon and eight nurses are going to Austria-Hungary, four nurses to Germany, two surgeons and five nurses to Serbia, and two surgeons and one nurse to England. The two surgeons going to Serbia will take the places of Drs. Donnelly and Magruder, who died recently of typhus. The others in the party will take the places of Red Cross workers whose terms of duty have expired. Drs. Shadworth O. Beasley of San Francisco and W. A. Jolley of Boulder, Col., go to Serbia; Dr. Walpole Brewer of Tuskegee, Ala., goes to Vienna, and Dr. Dunlop P. Penhollow and Herbert H. Howard of Boston go to England.

Red Cross Donations.—Between September 12, 1914 and April 17, 1915, the American Red Cross sent to Europe more than 1,200 bales of an average weight of 500 pounds each of absorbent cotton; surgical gauze that if stretched in a single line would reach from the Battery, in New York, to Niagara Falls; more than 32,600 pounds of chloroform and ether; over 65,000 yards of bandages, and 1,123 cases of surgical instruments. To Germany have been forwarded 85,000 pounds of medicated cotton, 10,300 yards of bandages, 122,000 yards of plain and surgical gauze, 4 automobile ambulances, 66 cases of surgical supplies, 5,500 pounds of chloroform and ether, and large quantities of miscellaneous supplies such as antitoxins, rubber goods, hospital clothing, etc. To Austria-Hungary have been shipped 67,600 pounds of cotton, 113,000 yards of gauze, 4 automobile ambulances, 5,000 pounds of chloroform and ether, in addition to large shipments of surgical crinoline, drugs, surgical instruments, hospital clothing, and other Red Cross supplies. Similar gifts have been sent to relieve the sufferings of English, French, Russian, and Serbian soldiers.

Synthetic Food.—The German chemists are devoting their energies to the production of food materials to take the place of those the enemy will not let them have. We noted recently the statement that they proposed to make bread from straw and now it is announced that a process has been invented at the Institute for Fermentation Industry at Berlin whereby albumin can be made from sugar and ammonium sulphate.

Colonel L. Mervin Maus, Medical Corps, U.S.A., retires today, having reached the age limit of 64 years. He was the senior of the Medical Corps in respect to length of service, having been commissioned over forty years ago.

Dr. G. B. Young, the very efficient Health Commissioner of Chicago, retired on May 1, his term of appointment having expired, and has resumed his duties as surgeon in the U. S. Public Health Service.

Professor C.-E. A. Winslow, formerly assistant professor of biology at the College of the City of New York and curator of public health at the American Museum of Natural History in this city, has been appointed to the Anna M. L. Lauder professorship of public health in the Medical Department of Yale University.

Dr. Leo J. Dretzka of Milwaukee has been appointed superintendent of the new Detroit City Hospital.

Dr. A. Szwajkart has been appointed director of the Cook County Psychopathic Hospital to succeed Dr. H. L. Davis who retires after ten years of service.

Dr. J. Chalmers Da Costa was the guest of honor at the annual banquet of the Northern Medical Association of Philadelphia on April 27. Addresses were made by Drs. James Tyson and Wm. M. Walsh, and Dr. Thomas R. Shriner acted as toastmaster.

Dr. Hardman N. Kinnear of the American Board's Hospital at Foochow, China, has received the decoration of the Sixth Order of Chia Ho from President Yuan in recognition of valuable services in connection with relief work during the revolution. He has also been made a life member of the Red Cross Society of China.

New York City Death Rate.—During the week ending April 24 there were in this city 1,748 deaths, giving a death rate of 15.71 per thousand of the population, as compared with 1,637 deaths and a rate of 15.30 for the corresponding week of 1914, a decrease in the absolute figures of 11 deaths and in the relative figures of 63 deaths.

Coming Society Meetings. — THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION will meet at the Hotel Chamberlain, Old Point Comfort, on May 11-14, under the presidency of Dr. Samuel E. Smith of Richmond, Ind. The secretary is Dr. Charles G. Wagner of Binghamton, N. Y.

THE ASSOCIATION OF AMERICAN PHYSICIANS will hold its thirtieth annual meeting in the Raleigh Hotel, Washington, on May 11-13, 1915, under the presidency of Dr. S. J. Meltzer of New York. The program contains the titles of seventy-three papers.

THE AMERICAN ASSOCIATION OF IMMUNOLOGISTS will hold its second annual meeting at the New Willard Hotel, Washington, on May 10, 1915, under the presidency of Dr. Gerald B. Webb of Colorado Springs. The secretary is Dr. Martin J. Synnott of Montclair, N. J.

THE AMERICAN PEDIATRIC SOCIETY will meet at the Laurel House, Lakewood, N. J., on May 24-26, under the presidency of Dr. George N. Acker of Washington, D. C. The secretary is Dr. Samuel S. Adams, 1801 Connecticut Avenue, Washington, D. C.

The Mayo Foundation Rejected.—The Minnesota Senate on April 30 passed a resolution providing that "the University of Minnesota shall not affiliate with or delegate its teaching functions to any person, firm, or corporation not under the exclusive supervision and control of the board of regents." This was aimed at the Mayo foundation which it was planned to affiliate with the medical department of the Minnesota State University. The plan had already met with considerable opposition by the physicians of the State, especially in St. Paul and Minneapolis.

Pay for Birth and Death Certificates.—Governor Whitman has signed the Seely bill, which provides that municipalities shall pay physicians 25 cents for each birth certificate or death certificate properly made out and filed. It is estimated that the new law will cost New York City about $50,000 a year. An example of the inconvenience, to use no stronger word, which may be caused by the all too common neglect to file death certificates is given in the Weekly Bulletin of the Department of Health. "Three or four months ago a young man, Francis W., born in the borough of Brooklyn on September 23, 1898, after constant attendance at the movies,

worked his way to England and enlisted in the English Army. A month's stay in a training camp so robbed war of its glamour that he wrote to his mother to send him over his certificate of birth. A careful search of the Health Department's records showed that no certificate had been filed at the time of Francis' birth, an omission which will compel the young man to go to war and make himself a target for German bullets."

Tuberculosis Hospital Admission Bureau.—The New York City Health Department calls attention of physicians to the fact that tuberculous patients should not be referred to any special hospital directly but should first be sent to the Tuberculosis Hospital Admission Bureau, 426 First Avenue, for examination and admission in due form. The Bureau receives applications for and admits to the following tuberculosis institutions: Hospitals—Bellevue; Brooklyn Home; Metropolitan; Montefiore Home; New York Throat, Nose and Lung; Riverside; St. Anthony's; St. Joseph's; St. Vincent's; Sea View, and Seton. Sanatoria—Municipal Sanatorium, Otisville, N. Y.; New York State Hospital for Incipient Tuberculosis, Ray Brook, N. Y.; Montefiore Home Country Sanatorium, Bedford Hills, N. Y. Preventoria—Tuberculosis Preventorium, Farmingdale, N. J.; Tuberculosis Preventorium, Nanuet, N. Y.

Resident Physician Wanted.—The Philadelphia Civil Service Commission will hold a competitive examination on June 2 for the position of resident physician in the Department of Public Health and Charities. Salary $600—$900. Contestants must be American citizens and residents of Philadelphia. Detailed information may be obtained from the office of the Commissioner, Room 875 City Hall, Philadelphia.

The Late Dr. Charles E. Lack.—The following minute has been sent for publication: "We, the members of the Norwegian Hospital Alumni Association, wish to record our deep sorrow in the death of our beloved friend and fellow worker, Charles Eugene Lack, M.D. Those who have been associated with him in the medical calling for many years can best appraise those fine qualities of mind and heart which marked him above men. As a physician he was gifted and industrious, conscientious and self-sacrificing. As a friend he was of sterling character and lovable disposition. The loss of his activity and comradeship will continue to be felt by all the members of this society. To his sorrowing relatives we venture to offer this expression of our deep-felt sympathy in the great bereavement that has come to them, asking them to find comfort in the circumstance that their loss is shared by an innumerable company to whom Dr. Lack was most dear, alike as physician and friend. Therefore, be it resolved that this notice be entered upon a separate page of the minutes of this society and that a suitable copy of this memorial be forwarded to the family of the deceased and to the medical press of this city.

"Reflect that life, like every blessing,
Derives its value from its use alone."

W. Carl Schoenijahn, M.D., Robert Emmet Coughlin, M.D., *Committee on Resolution.*

The Late Dr. John Patrick McGowan.—The Medical Board of the N. Y. Foundling Hospital at its regular monthly meeting held April 1, 1915, passed the following resolutions: *Whereas*, death has called from us our colleague and fellow member, Dr. John Patrick McGowan, and *Whereas*, by his demise the Sisters of this Institution have lost a devoted friend, the Medical Board a loyal member, and the little children to whose relief and comfort he administered for so many years, a resourceful and skillful physician,

Then be it resolved, that the Medical Board, through its secretary, offer its condolence and express its sense of loss to the bereaved widow and family, and further

Be it resolved, that these resolutions be spread upon the minutes of this board, and a copy be sent to the widow of the deceased and to the medical journals for publication.

(Signed) JOHN J. REID, M.D.,
JOSEPH KENEFICK, M.D.,
Committee.

Obituary Notes.—Dr. JAMES W. BROWN of Grass Valley, Cal., a graduate of the Northwestern University Medical School, Chicago, in 1877, died at his home, after a short illness, on April 5.

Dr. GEORGE VEITCH of Port Elgin, Ont., a graduate of Trinity Medical College, Toronto, in 1885, died at his home, after a long illness, on March 18, aged 55 years.

Dr. WILLIAM BRITTON of Toronto, Ont., a graduate of the University of Toronto, Faculty of Medicine, in 1875, died on March 11, after a long illness.

Dr. EDWIN CROCKER of Narrowsburg, N. Y., a graduate of the Albany, N. Y., Medical College, in 1868, and a member of the New York State and Sullivan County Medical Societies, died at his home on March 26, aged 75 years.

Dr. JOHN ALSDORF of New York, a graduate of the College of Physicians and Surgeons, New York, in 1880, died at his home on March 25, aged 72 years.

Dr. T. T. TATE died at Gettysburg, Pa., on March 20, at the age of 84 years. He was graduated from the Pennsylvania Medical College of Gettysburg in 1855. He served as Lieutenant and Surgeon of the Third and Seventeenth Pennsylvania Cavalry during the Civil War.

Dr. MICHAEL C. DRENNAN died at Easton, Pa., on March 23, at the age of 77 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1863. For meritorious services as surgeon in the United States Navy during the Civil War he was retired in 1899 with the title of Rear Admiral.

Dr. DANIEL JOSEPH O'SHEA of Boston, Mass., died at his home from pneumonia, after a short illness, on March 22, aged 39 years.

Dr. JAMES E. MCGOURTY of New York, formerly of Worcester, Mass., a graduate of the Harvard University Medical School, Boston, in 1896, and for some years surgeon in the Ninth Massachusetts regiment, died at the Flower Hospital, New York, from pneumonia, after a short illness, on March 28.

Dr. AUSTIN W. ALVORD of Battle Creek, Mich., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1868, a veteran of the Civil War, and a member of the Michigan State and Calhoun County Medical Societies, died at his winter home in St. Petersburg, Fla., on March 23, aged 78 years.

Dr. WILLIAM JULIUS PASMORE of Deseronto, Ont., a graduate of the Toronto School of Medicine in 1866, died at the Wellesley Hospital, Toronto, from angina pectoris, on March 18, aged 73 years.

Dr. WILLIAM R. STAVELY died at Lahaska, Pa., on March 31 at the age of 83 years. He was graduated from Jefferson Medical College in the class of 1855.

Correspondence.

MEDICAL EXPERT TESTIMONY.

To the Editor of the Medical Record:

Sir:—I enclose a letter from Judge A. T. Clearwater of Kingston, president of the New York State Bar Association, which I submit to you for publication together with an amendment to the Judiciary Law, which is a long step in the direction of doing away with some of the objectionable features of medical expert testimony. Having for years worked with this distinguished jurist as a member of the committee on Expert Medical Testimony I am deeply mindful of the obligation the profession is under for his faithful and disinterested labors.

John A. Wyeth, M.D.

April 24, 1915.

My Dear Dr. Wyeth:

I enclose for your information a bill relative to medical experts, which, as you doubtless know, was strongly advocated by me as president of the New York State Bar Association, and chairman of its committee upon medical expert testimony which passed the Legislature and has just been approved by the Governor.

The bill is not all that I would like it, but it accomplishes much that we have been struggling for for many years in that it provides for the appointment by the court of three disinterested competent physicians, whose compensation does not to the slightest extent depend upon the party calling them, and provides that they shall be paid from the public funds such sum as the judge appointing them may determine to be just and equitable. Will you kindly advise your associates of the passage of the bill which in the multifarious legislation of the session has escaped public attention.

I trust that to some extent at least it will serve to eliminate some of the so-called experts whose appearance has been a disgrace alike to the administration of justice and to the profession which they misrepresent. Permit me to extend to you my congratulations upon this becoming a law.

With many kind regards, I am, as ever,

Very sincerely yours,

A. T. Clearwater.

An Act to amend the judiciary law in relation to the appointment of examining physicians in criminal or special proceedings.

The people of the State of New York, represented in Senate and Assembly, do enact as follows: Section 1. Chapter 35 of the laws of 1909, entitled "An act in relation to the administration of justice, constituting chapter 30 of the consolidated laws," is hereby amended by inserting therein a new section after section 30 thereof, to be section 31, to read as follows:

Section 31. Examining physicians.—In a criminal action or proceeding or in a special proceeding instituted by the State writ of habeas corpus or certiorari to inquire into the cause of detention, in which the soundness of mind of a person is in issue, the court in which or the judge or justice before whom the action or special proceeding is pending may appoint not more than three disinterested competent physicians to examine such person as to his soundness of mind at the time of the examination. Any such examining physician may be sworn as a witness at the instance of any party to the action or proceeding. The compensation of such examining physician for making such examination and testifying, when certified by the presiding judge or justice of the court or judge or justice making the appointment, shall be paid out of any funds available for the payment of and in the same manner as other court expenses.

This act shall take effect immediately.

Blood Findings in Rubella. — H. Saito states that there is a slight diminution in the hemoglobin content as the eruption fades. There is an increase in the neutrophiles and a leucopema at the height of the eruption. Eosinophilia is frequent, especially when the eruption is fading.—*Zeitschrift für Kinderheilkunde.*

OUR LONDON LETTER

(From Our Regular Correspondent.)

METRIC SYSTEM—PATENTS IN REFERENCE TO REMEDIES—WOUND INFECTIONS IN WAR—OBITUARY.

London, April 25, 1915.

The advocates of the metric system do not seem to make much progress with prescribers. Not for want of energy, for some of them push it in season and out. We have to get familiar with it in relation to chemistry, but we seem to hold out against it in pharmacy. Perhaps because its use involves so much revision of our ideas of dosage. There is something in halves, quarters, eighths, and so on which we do not want to miss or exchange for divisions to which we are less accustomed. When an enthusiast assures me the system is certainly coming, I am content to admit the fact, adding that its pace is rather slow—like that of many other reforms. I have heard the same prophecy for so many years that I feel I may safely go on in the old way, for its arrival will hardly be celebrated in this generation though its adoption by the pharmacopœia may have quickened its pace.

Applications have been made to the Comptroller-General of Patents to void or suspend various German patents under the legislation passed since the war began. Among these applications are some relating to so-called patent medicines, and they illustrate once more the way in which certain products are imposed on the public by advertisements without authority beyond the assertion of the person who makes himself a proprietor by labeling a drug with a fancy name. Thus a definite chemical compound was sent over here under its trade name, well advertised under that name, and even prescribed under it by some either ignorant of its nature or thoughtless enough to accept it as a new remedy on the authority of the exporter's say-so. Now application is made for permission to sell the drug, which is made here, under the name of the product which has been extensively imported from Germany. So you see English firms instead of competing in scientific manufactures are content to become mere vendors of the advertised goods they might be expected to produce. This case was adjourned as were some others of the kind. In another the comptroller ruled that without strong evidence that the interests of the public demanded it the court could not recommend the Board of Trade to transfer trade names, as it would be appropriating the good will of firms which had registered trademarks, and though we might wish to supplant the Germans no civilized country has yet gone so far as to take bank balances, and a good will was something of the kind. There then you have the way to get a good bank-balance—take a common, cheap drug, costing, say a penny, fix on it a fancy name, divide it into a thousand packets, and advertise them as a new cure-all at a shilling each, on which the government stamp promotes the sale as looking like a guarantee to the ignorant purchaser.

The war has naturally increased interest in wounds and everything relating to them. Sir A. E. Wright, who has been appointed consulting physician to the expeditionary force, gave an address on various factors and problems concerning wound infections at the Royal Society of Medicine's meeting of the 30th inst. Remarking that in this war every soldier's clothes and skin becomes contaminated with all sorts of filth containing pathogenic

organisms he said the projectile takes them with it and implants them far beyond the reach of prophylactic or any measures, making a track infected with streptococcus and fecal microbes. Two are of special import: gas-phlegmon bacillus and tetanus bacillus. The former, known also as the *Bacillus aerogenes capsulatus* of Welch, is a large gram-staining anaerobic, gas-forming microbe, found both in infiltrated superficial wounds and in deep ones. It freely discharges the frothy matter common in such wounds. The tetanus bacillus and its discharges are less abundant. The period during which these organisms are imprisoned is a critical one and makes the first stage of wound infection, during which the streptococcus or the *Bacillus tetani* may increase and produce its evil effects. As soon as there is a free outlet and the aerobic condition reestablished in the wound the bacterial flora changes. Instead of an infection of imprisoned discharges or of the tissues, there is infection of the granulating surface of the wound and the flowing discharges. This may subside and healing occur; or of the mixed organisms the streptococcus may continue with open chronic wound and discharging sinus; or again obstructed outflow may lead to suppuration and septicemia. Passing on to treatment Sir A. E. Wright said our ideal is healing by first intention—no interference by bacteria; but we are far from attaining it. Yet three therapeutic measures are at our disposal: (1) antiseptics, (2) physiological methods such as opening and draining the wound, which will bring the antibacterial powers of the blood to bear on the microbes, (3) reinforcement of these powers by vaccine therapy, etc. Of these the second he declared beyond all question the most important, notwithstanding loud talk about antiseptic treatment, which is only ancillary as is also that by vaccine and similar methods.

Another fundamental consideration is that we cannot apply physiological treatment to the greatest advantage without full understanding of the processes going on in the wounds, and we do not yet understand them even in outline. Our task then is to discover what goes on in the wound and follow out its biological evolution. Towards the accomplishment of this Sir A. E. Wright formulated and commented upon the following questions:

I. Can the microbes which are found in wound infections live and multiply in the unaltered blood fluids?

II. Does the lymph which pours into the wound provide a favorable nutrient medium for the microbes which have been growing in that wound?

III. What is the cause of that "corruption of the lymph" which converts it into a favorable nutrient medium for sero-saprophytic microbes?

Surgeon-General Sir Gerald Bomford, late Director-General, Indian Medical Service, has died at the age of 63. He entered the army in 1874, was in the Perak expedition 1875-6, for which he was awarded medal and clasp in the military department. He was appointed professor at the medical college, Calcutta, where he had been surgeon, and became acting principal in 1893. He had been secretary to the Calcutta Sanitary Commission from 1888-90. He qualified at the Royal College of Surgeons in 1873 and took the medical degree in London the next year. He was created K. C. I. C. in 1909.

Dr. William Arthur Brailey, consulting surgeon to Guy's Hospital, has died at the age of 69. He was Hunterian professor at the Royal College of Surgeons in 1885-6 and has made many contributions to ophthalmology.

Dr. W. T. Edwards of Cardiff, who was the senior medical man in Wales, has died at the age of 93. He was J. P. for the county, and served many years in the various honorary local positions, among them president of Cardiff Infirmary and consulting physician to Glamorgan and Monmouth Infirmary and a seamen's hospital ship. He graduated at the London University in 1850, having been a member of the Royal College of Surgeons from 1842 to the fellowship of which he was elected in 1879. At the Cardiff meeting of the British Medical Society he was president.

Bernard Roth, F.R.C.S., whose position as a leader in orthopedy is well known on your side as well as here, has died. His father was an orthopedic surgeon and he leaves a son who follows in the same line, but who is just now serving at the front. He had retired for some years and spent much of his time at Brighton, where he was made a J. P. He had also magisterial duties in Middlesex and was a visiting justice to prisons.

A RED CROSS SURGEON IN SERBIA.

[Extracts from the diary of Dr. James F. Donnelly, of New York, who died of typhus fever in Serbia last February.]

GHEVGHELI, SERBIA, December 18: Arrived here at noon and visited a silk factory that has been turned into a hospital, with 2000 patients. Such a sight of suffering that it makes one's heart bleed. I hope to be able to make the best of things and do something to help.

December 19: I have done my first operation here, and extracted a bullet from the neck of a Serbian soldier, and to-day have dressed the wounds of about 100 patients. The conditions are terrible.

December 20: This little town in the southern part of Serbia has a beautiful climate and we are not exposed to any danger, as the fighting goes on about 500 miles north, and the wounded are sent here by rail. The suffering of these poor people is piteous and their endurance marvelous; they let one operate and not an outcry!

December 21: We had five operations to-day and took off the legs of three soldiers with gangrene of the feet. To make a round of the hospital, with its sounds, its odors, and its suffering is a terrible experience. I have just been ordered by Dr. Butler to make the rounds of all patients and have them ready in the morning for operation, so expect to-morrow will be a busy day. I have a small room with two other doctors, with no comforts whatever and many rats, and I feel some vermin on me. Sherman spoke the truth when he said war was hell. I never want my little son to be a soldier.

December 23: We are very busy here with 2000 patients, and the horror of it makes my heart sick and cures me of wanting to talk about the war. We get little news here, only the French papers from Greece.

Christmas Eve: Another big day. It is 8 P.M. and I have just come back to my room and am writing this by candlelight. I will get to bed by 8:30, as I am dog tired and need the rest. The bed is hard and has not been made up since we got here.

Christmas Morning: My first thoughts this morning flew to my wife and little son. I hope from the bottom of my heart they will have a Merry Christmas. I wish I were nearer to them. It is half-past

seven, and after a cup of tea and a slice of black bread we are to make the rounds and operate on twenty patients, and that will be our Christmas Day.

Christmas Evening: Was in the hospital all day until 6 P.M. For dinner we had a roast pig three weeks old, fruit, candy, and some red wine sent us from Salonica.

December 31: The last day of the year, and what a year! Spent the whole day in the hospital, trying to relieve the suffering,—that is the best way I know to wind it up.

January 4: We are at last getting things into some shape. At the start, with all the suffering, we could get little food or milk; now things are looking better, and in another month we hope to have them in good shape.

January 5: Received orders to-day to move to our new quarters, opposite the hospital. If we can get a few necessaries together I believe we shall be more comfortable. We have not had many comforts as yet. I am writing this by the light of a lamp, which is better than the candle.

January 6: This is the day before Christmas for the Serbians and this morning four little children came to our floor and sang Serbian national songs. We gave them each ten cents and they went away happy. The view from our window here is beautiful, we can see the snow mountains about 5 miles away. To-day I worked on the grounds with Austrian prisoners, digging holes for waste. It is like a spring day, much too warm for an overcoat, and with little wild flowers growing everywhere. The hospital has just received 100 pigs, so patients and soldiers will have pig for their Christmas dinner. They need a good meal, poor things.

January 12: This afternoon I went about 5 miles from town for a few barrels of water. Five miles in a heavy rain, on a poor road, in a cart with two Austrian prisoners who could speak neither English nor German. I took a hot sulphur bath at an old Turkish bath, very primitive, and have just come back in a broken down carriage, leaving the two soldiers and the driver to get back the way they came. I am writing this in a little Turkish café and have ordered hot tea with lemon and sugar, to ward off a chill. A Turkish boy has sold me two hard-boiled eggs for 5 cents, so this is my supper.

January 13: I am writing on the second floor of a barn, which we have turned into a surgical ward. To-day I have gone back to my usual work of dressing patients. Yesterday was a bad day and I must be pretty tough to stand it, in the wet all day long. But I don't grumble, for I brought in a ton of pure water from the mountains, and had a new experience. To-morrow is the Serbian New Year. Everything is very quiet; no one comes through except the soldiers on the way to the front. It is sad to see them—young men for the most part; no overcoats, carrying only a gun, cartridges, and a big loaf of bread.

January 18: Have been working in the operating room all day. We are getting some typhus and typhoid cases, but cannot do much for them. Our death rate is about six a day, which is fair considering that we have 2000 patients.

January 19: A relative of the King's came to the hospital. She was very charming, and questioned us about ourselves. Only two of the six doctors were married. When I told her I had a little boy she said, "If your wife and boy come to Serbia be sure to let me know and you must be presented to the King." Have just seen an English paper of January 12, and it looks as if Italy and Roumania would come into the fight. They might as well come in and get it over with. It is now nearly 9 P.M. and we are about ready to get to bed. We get up at 6 o'clock, breakfast on bread and tea at 7, and by 7.30 are in the hospital making the rounds and operating. It has been raining hard for twenty-four hours; we can't complain of the weather; at Nish and Belgrade they have had some heavy snows, but we have had none here yet and it looks like a mild winter. They seem to be gathering their forces to strike a heavy blow by springtime. I am not anxious to see any more suffering.

January 24: Am to be on duty in the pest house for a few days, in charge of a doctor who has typhus fever.

January 25: I am writing in the pest house about two miles from town. It was built for cholera patients, but so far we have not had any, so smallpox, diphtheria, typhus, and all the infectious cases are sent here. Dr. Gouthes who went with me three weeks ago to the sulphur baths, is here with typhus. He was married last August and sent here by the Bohemia Red Cross. His wife is a nurse and has joined him.

January 26: Dr. Gouthes is much better, and has a good chance to get well and go North in a few weeks. A year or two ago there were about three hundred Serbian doctors; now there are only about seventy they say, and of this number half are ill and will never practise again. This is the result of war and hardships in the past four years.

January 27: I am alone in the building which has been turned into a laboratory, and am now assigned to examine all well water and look after the sanitary conditions generally, and it certainly is some job. Dr. Butler has gone to Nish.

January 29: To-day we had a visit from the Crown Prince George. He has been shot twice and is on his way to Italy to regain his health. He is single, about thirty years of age, and seems a good fellow. He gave some gold pieces to the patients in the wards.

January 30: It was an awful sight to see two hundred sick and wounded soldiers come into town to-day. Many fell by the roadside while trying to reach the hospital; some were without shoes. We did all we could for them and they are wonders and never complain. Human life here does not amount to much. The chap who makes the coffins takes great pride in keeping the boxes out in front of his shop, and the soldiers count them as they pass. An over-sympathetic individual in this part of the world could not last long.

February 7: To-day is Sunday and I am on duty all day looking after five hundred patients.

February 9: Rumors to-day that Bulgaria may enter the war and would strike this town first; we have all arranged to gather in our hospital and hoist the stars and stripes. Some prominent English surgeons passed through town to-day and I gather there will be plenty of work for all the doctors and nurses inside of a month.

February 13: I am at the station awaiting the arrival of Sir Thomas Lipton. His yacht *Erin* brought him to Salonica, with six doctors, twelve nurses, six orderlies, and three motor cars. He is on his way now to Nish.

February 14: It certainly was a great pleasure to have Sir Thomas Lipton as a guest for one hour yesterday. He remembered that we had met at the Lotus Club; he presented me to all his party—

about thirty in all—and we walked to the hospital together. It was a great sight to see how every one looked up to him, and how good and kind he was to all our doctors and nurses. He gave me a gold four-leaf shamrock which I shall keep for my wife. He also gave me his picture and is going to send me an American flag and an Irish flag. In about seven days he expects to pass through again on his way back to Salonica, and will write me when to expect him, so that I can be at the station to receive some tea and supplies which he wishes to present to our party.

February 17: When I see the suffering here my heart cries out. It is terrible to see young men dying like flies. There is no more wood to make the boxes and in the shed where the bodies are kept there are about forty awaiting burial. Dr. Gouthes is up and round again, but his wife is down with typhus.

February 18: I am at the station awaiting the arrival of Sir Thomas Lipton from Nish. I wish to thank him for the large American flag and the Red Cross flag he sent me. Later: He did not come, but is expected in a few days.

[Two days later Dr. Donnelly came down with typhus, and four days later he was dead, and was buried in the American flag that had been given him by Sir Thomas Lipton.]

"The first hospital I visited on my way to Nish," wrote Sir Thomas, "was at Ghevgheli. It was an American hospital and I was taken through every ward by Dr. Donnelly. There were some 1,400 patients, principally typhus. Many patients were lying without blankets or mattresses, just in their ordinary clothes. The condition of those patients was something terrible. I also saw some of the American nurses, out of twelve, seven of them lying sick of typhus and three of their doctors out of six down with the same thing. Dr. Donnelly came to the station to see me off, as fine a type of healthy man as you could see and of a happy, cheerful disposition. On my way back, when I got to the station at Ghevgheli, I looked for Donnelly, but to my great sorrow I learned that he had died the day before."

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 22, 1915.

1. John Halle: Anatomiste, Chirurgien, Modernist. K. Drinker.
2. A Study of Leprosy: With Especial Reference to the Pulse and Temperature. J. A. Honeij.
3. Skeletal Cancer. E. H. Risley.
4. Corsets, Ptosis and Sacroiliac Strain. R. M. Green.
5. A Case of Osteomyelitis with Necrosis of the Entire Femur with Spontaneous Fracture Treated by a High Amputation, Leaving a Boneless Yet Practical Stump for the Attachment and Working of an Artificial Limb. A. H. Tuttle.

2. Pulse and Temperature in Leprosy.—J. A. Honeij has already called attention to the possible prognostic value of the morning increase in pulse rate. The present detailed clinical study covers a period of twelve months from July 14, 1913, to July 14, 1914. In all, seventeen patients have been under observation for various periods during two years, and fourteen patients have been under constant observation for eighteen months. The study of the temperature and pulse has given definite results and the following points are now presented: There occurs a definite clinical temperature and pulse curve diagnostic and prognostic of leprosy. There is a frequent and persistent occurrence of a high morning pulse rate—"morning pulse"—in all cases. A constant high pulse rate is most marked in progressive and advanced cases. A persistent high pulse rate without a corresponding elevation of temperature of prolonged duration is found after "toxic-febrile" attacks. There is a correlation of temperature and pulse in early cases, in contrast to a gradual increase of pulse rate without similar temperature reactions in progressive and advanced cases. Not uncommonly a low evening temperature is present. A marked irregularity in temperature and pulse exists during complications not associated with leprosy. There are typical "toxic-febrile" temperature and pulse curve reactions. Marked temperature and pulse reactions occur from otherwise insignificant causes, both physical and mental.

3. Skeletal Cancer.—E. H. Risley points out the following facts of importance in regard to metastatic bone cancer: Metastasis takes place probably by centrifugal spread along the lymphatic plexus of the deep fascia in most cases. Bone metastases occur almost entirely in the areas of the body subject also to skin nodule metastases, *i.e.*, everywhere proximal to the elbow and knee joints. Bones distal to these joints are very rarely involved. Metastases are more common after cancer of the breast than any other organ. The prostate and thyroid being the next most common. (Hypernephroma of the kidney is not considered in this series.) The liability of a bone to cancerous invasion increases with its proximity to the site of the primary focus. Thus the sternum and ribs are affected about equally and more frequently than any other bones. The spine, femur, humerus, pelvic and cranial bones come next. The character of the secondary lesion always corresponds to that of the primary growth. The frequency after cancer of the prostate may be as high as 25 per cent. The vertebrae are the favorite seats of attack in scirrhus of the breast. The percentage of vertebral metastases is nearly 25 per cent. Spontaneous fracture is present in about 24 per cent. Pain is the only characteristic symptom. Visible or palpable tumor is rare, while spontaneous fracture is quite common. One may set down the following points as diagnostic aids: Any fracture of a long bone occurring as a result of trivial injury should immediately suggest the possibility of bone metastases and lead to careful search for the primary new growth. In all cases of painful paraplegia a neoplasm should be suspected. A diagnosis of primary bone tumors should never be made without very careful examination of the abdomen, mammary glands, prostate, and thyroid for malignancy. It is rare that careful search will fail to reveal the primary focus.

New York Medical Journal.

April 24, 1915.

1. The Contrast between the Surgery of the Civil War and That of the Present War. W. W. Keen.
2. Circumscribed Serous Meningitis. T. A. Williams.
3. Types of Malignant Endocarditis. J. M. Patton.
4. An Apparatus for Ambulatory Treatment of Fracture of the Tibia. C. Salvini.
5. The Tobacco Heart. Harlow Brooks.
6. The Psychopathology of Neurosis. Boris Sidis.
7. The Treatment of Acute Surgical Infections. E. R. Secord.
8. Superdiagnosis. A. G. Huegli.
9. The Complement Fixation for Syphilis with Cholestrin Antigens. L. H. Cornwall.
10. Syphilitic Aortitis. J. Epstein.

5. The Tobacco Heart.—Harlow Brooks states that tobacco produces symptoms referable to the heart, of a very definite and characteristic type. These are first manifested by an increase in rate, with a rise of blood pressure, later by a slowing with a fall in pressure. These symptoms are apparently due to vagus effects, and quickly disappear when the drug action passes. These symptoms all diminish in degree with habituation to the drug, though they may be probably aroused in

almost any instance by increasing the dose and in many cases by changing the form of administration. Prolonged excessive administration of tobacco induces arrhythmia and intermission. These symptoms are more or less persistently accompanied by a sense of weight or of pain of a dull persistent character in the heart region. Pain may be entirely independent of alterations in rhythm, though most likely to occur with a slowing of the usual rate. So far as can be surmised from experimental evidence and from clinical observation, these symptoms are not due to vagus disturbance, but to claudication of the coronary vessels. They are more likely to appear in chronic smokers than in beginners, and in long standing rather than in recent tobacco habituation. Tobacco angina pectoris is in all symptomatic respects similar to the true angina pectoris caused by coronary disease. It occurs with considerable frequency in chronic tobacco poisoning. It is unusual if not unknown in acute tobacco poisoning, and long habituation to the drug predisposes to this symptom. It is relieved by the usual vasodilators and also by morphine. It is commonly succeeded or preceded by a sense of pain in the precordium. The angina of tobacco poisoning is entirely relieved and commonly does not recur if tobacco is given up. In many instances one attack appears to sensitize to others. This sensitization seems to disappear very slowly. So far as can be determined, this symptom is due to a coronary claudication, and it is entirely or almost free from vagus effect. There is no clinical nor experimental evidence that disease of the heart muscle is caused by tobacco, save for possible changes in the papillary muscles, probably explainable on a mechanical basis. The fact that all symptoms disappear when tobacco is discontinued seems to confirm this statement. There is neither clinical nor anatomical evidence sufficient to indicate that true coronary sclerosis may be caused by tobacco, though it is highly probable that when this condition exists, the symptoms are accentuated by it. Tobacco angina is promptly relieved by discontinuation of tobacco; no such result can be obtained in true angina pectoris. It is probably unwise to permit the use of tobacco in circulatory diseases when symptoms of cardiac embarrassment occur. The persistent use of tobacco immunizes against vagus effects and sensitizes to coronary claudication. Death may result from acute tobacco poisoning, in which case its mechanism is chiefly from vagus effects. Death may result from tobacco angina, but is probably very rare and most likely occurs only when anatomically diseased coronary vessels preexist. The essential treatment of tobacco poisoning is suspension of the use of the weed.

6. **Psychopathology of Neurosis.**—Boris Sidis presents the hypothesis that psychopathic maladies do not depend on the abnormal action of some one organ or function, but on a general condition common to all bodily and mental functions, viz., the fundamental primitive fear instinct which relates to life in general. The deranged functions, cardiac, respiratory, or sexual, fatigue, conflict, shock, are only the occasions. To regard any of these occasions as the source of psychopathic maladies is like regarding the weathercock as the source of the wind. The fear instinct alone is the source of all psychopathic maladies.

10. **Syphilitic Aortitis.**—J. Epstein details as follows the symptomatology of this condition: (1) Palpitation of the heart or an irregular unpleasant throbbing along the sternum, worse on exertion or excitement. On examination of the heart there is usually no enlargement, no changes in the cardiac sounds, no tachycardia, and no murmurs. (2) Attacks of angina pectoris. These may have their starting point in the sternum or in the precordial region. They radiate thence backward or upward and along the arms. The anginal pain may also begin in the left hypochondriac region and radiate upward. (3) Persistent pain in the left scapular region. This pain is usually attributed to rheumatism by those physicians who call all kinds of obscure aches and pains rheumatic. (4) A peculiar almost characteristic hoarseness of the voice, when once heard, is sufficient to attract the attention of the physician. (5) A persistent cough which has a certain croupy, dry, and harsh quality, and occasional attacks of dyspnea. On physical examination of the lungs one finds stridulous respiration, but nothing else to account for the cough. A patient of mine was treated for some time by his family physician for chronic bronchitis and asthma, when on examination I found an aortitis to be the cause of the cough. The cardinal signs or evidences of syphilitic aortitis are: (1) Increased episternal dullness. (2) Increased radiographic shadow of the aortic arch. (3) Positive Wassermann test of the blood or cerebrospinal fluid. Careful percussion along the manubrium sterni will elicit an increased area of dullness to the right or left of the sternum or on both sides. An *x*-ray is indispensable in these cases; it shows an enlargement of some part of the thoracic aorta. A positive Wassermann test of the blood or if necessary of the cerebrospinal fluid completes the diagnosis.

Journal of the American Medical Association.

April 24, 1915.

1. Studies in Aseptic Technique, with a Report of Some Recent Observations at the Roosevelt Hospital. G. E. Brewer.
2. Medical Instruction in the Seventeenth Century. M. Frank.
3. The Contour of the Normal Arterial Pulse. C. J. Wiggers.
4. Syphilis in China. Report of Some Unusual Syphilitic Lesions. A. C. Reed.
5. The Presence of Arsenic in the Spinal Fluid. G. W. Hall.
6. An Example of Cooperation with the Chinese in Medical Education. F. C. Yen.
7. The Prognosis and Treatment of Tuberculosis of the Knee in Childhood. J. W. Sever and E. W. Fiske.
8. Dangers and Inconsistencies in Some Notable Short-Time Treatments for Drug Addictions. C. C. Wholey.
9. Roentgenization of the Thymus Gland in Graves' Disease. C. A. Waters.
10. Roentgen-Ray Keratoses on Hand of Roentgenologist Cured by Radium. S. Tousey.
11. Tissue Extract as a Hemostatic. A Preliminary Report. A. F. Hess.

1. **Aseptic Technique.**—G. E. Brewer reviews his studies of this subject beginning with 1895, when 39 per cent. of all clean operative wounds occurring in his service in the City Hospital became infected, and continued to the present time, when the percentage of infection is less than 0.2 per cent. in the author's service in the Roosevelt Hospital. The poor results in the early days were explained by the absence of a suitable modern sterilizing autoclave, the inefficient preparation of ligature and suture material, and the lack of training on the part of the house staff and operating room nurse in modern aseptic methods. Among the factors in the recent improvements are mentioned the following: Whenever possible a tub bath was given to the patient the night before operation, followed by shaving the wound area, and the application of a soap poultice. After from four to eight hours this was removed, the part scrubbed with soap and hot water for five minutes, and a wet mercuric chloride dressing applied. On the operating-table this dressong was removed by a sterile assistant, the parts rescrubbed for one minute, douched with ether, alcohol, and a 1:5,000 solution of mercuric chloride. The wound area was surrounded by sterile towels, and the entire body covered by sterile sheets. Sterile caps, gowns, and gloves were worn by all participating in the operation. The towels around the wound area were changed as often as soiled, and always before the insertion of the cutaneous sutures. The

technique was changed slightly in two classes of cases, operative treatment of fractures, and open operations on the knee joint. In these cases face masks or helmets were worn, and nothing entered the wound which had been touched even with the gloved hand, all manipulations being carried out by instruments. More recently the long-sleeved operating gown has been introduced.

3. **Contour of the Normal Arterial Pulse.**—C. J. Wiggers concludes that the pulse, as palpated or recorded from any artery, is the variation in the arterial volume producted by the intra-arterial pressure changes at that point. The details of the arterial pulse correspond exactly to the details of the pressure curve. To record these variations requires an apparatus of higher efficiency than is supplied by any form of apparatus in current clinical use; hence, the details of these changes were not recognized until the introduction of the segment capsule of Frank. The contour of the central pulse differs materially from that of the peripheral pulse. The former allows an exact study of the pressure changes in the large central arteries; the latter records these changes as modified by friction and waves reflected from the periphery. The central pulse offers exceptional opportunities for studying the condition of the circulation. A study of its contour during systole permits conclusions as to the relations between cardiac output and peripheral flow offered by no other method. The precise onset of systole and diastole can be accurately determined.

9. **Roentgenization of Thymus in Graves' Disease.**—C. A. Waters finds that roentgenization will cure, temporarily at least, some cases of Graves' disease. It will effect an apparent cure in some cases of hyperthyroidism when other measures have failed. Intensive irradiation under strict and rigid technique has no bad or ill effect on patients with Graves' disease. Evidence enough is at hand to warrant a more liberal employment of this treatment.

11. **Tissue Extract as a Hemostatic.**—A. F. Hess has employed as an efficient hemostatic tissue obtained fresh from the slaughter-house, washed thoroughly free from blood, ground up in a machine, extracted in salt solution in the refrigerator and then filtered. In its preparation, aseptic precautions are observed as far as possible. The extract, which contains some fine suspension of tissue in addition to tissue juice, is made up with 0.3 per cent. of trikresol and preserved in this way. Aerobic and anaerobic cultures of this fluid have been found sterile. In addition to this liquid preparation, a powder has been prepared—the tissue has been desiccated and then finely ground up in a mortar. Thromboplastic preparations treated with this small percentage of trikresol have been found to maintain their potency for at least a month. The author has employed the tissue extract in two cases of persistent bleeding in hemophilia. In each instance the bleeding ceased at once and did not recur.

The Lancet.

April 17, 1915.

1 Wound Infections and on Some New Methods for the Study of the Various Factors which Come into Consideration in their Treatment. Sir A. E. Wright.
2. On the Penetrating Power of the X-Rays from the Coolidge Tube. S. Russ.
3. New Theories and Investigations Concerning Pellagra. A. Cencelli.
4. Differential Diagnosis Between Acute Abdominal and Certain Acute Intrathoracic Diseases. C. Mackenzie.
5. Some Observations on 376 Cases of "Frostbite." C. Miller.
6. A Note on "Frostbite." F. McG. Loughnane.

1. **Wound Infections.**—Sir A. E. Wright in the second installment of his article on this subject discusses the emigration of leucocytes into the wound. He has evolved a laboratory method for the study of the phenomena of emigration. The most important part of this method consists in the use of flat capillary tubes containing centrifugalized blood. It was found that white blood corpuscles will move out in any direction towards a chemotactic substance. They will, however, emigrate more freely downwards, than horizontally; and more freely horizontally then upwards. Anaerobic conditions are more favorable to emigration than aerobic conditions. Leucocytes will travel out further in the direction of a chemotactic substance when we absorb the oxygen in the tube with caustic alkali and pyrogallic acid and seal, than when we leave the end of the tube open to the air. Leucocytes emigrate more abundantly in tubes standing at a temperature of 40 deg. C. than in tubes standing at 37 deg. They do not emigrate at temperatures of 10 deg. to 15 deg.—the temperatures which prevailed on our laboratory bench. After exposure to temperatures of 0 deg. C. for periods of half to one hour they emigrate apparently as freely as before. Emigration apparently goes on unaffected in the presence of ether. It is abolished or suspended in an atmosphere of chloroform. Physiological salt solution, brought into application either by traversing or by superimposing it upon the clotted or unclotted blood, induces a very vigorous emigration of polynuclear white blood corpuscles. Weaker salt solutions induce a less vigorous emigration, and water again a less vigorous. Strong salt solutions—for example 5 per cent. salt solutions—suppress emigration. Bacterial suspensions which have been sterilized by heating evoke, according to the dilution in which they come into application, quite different effects. The general rule applying to bacterial suspensions would seem to be as follows. Concentrated suspensions usually completely suppress emigration. Ten or hundredfold diluted, these same suspensions evoke vigorous emigration. When we employ progressively higher dilutions we arrive in time at a point when the effect of the bacterial suspensions is exactly the same as those of the articular fluid which we are employing as a diluent.

3. **New Theories of Pellagra.**—A Cencelli, President of the Pellagra Commission of Rome, points out that numerous investigations have shown that maize can no longer be regarded as the sole and specific cause of this disease. The English commission, with L. W. Sambon at its head, has put forward the hypothesis that the disease must be attributed to a parasitic protozoon, which is probably transmitted and propagated by a species of mosquito (simulium) existing in the drinking water. The latest investigations are those of Alessandrini and Scala, according to which pellagra appears to be a chronic poisoning brought about by the silica in colloidal solution in waters of determined composition; in other words, pellagra seems attributable to mineral colloids. According to the authors the clay is the first cause of the evil, for the rain water present, either in the superficial or the deep strata of the ground, reacts upon the clay which is a silicate of alumina, producing a hydrolysis that brings about the formation of silicic acid and hydrate of alumina. Both these compounds, from the condition under which the hydrolysis takes place, can pass into the water in the colloidal form. Since, as is well known, there exists an incompatibility between colloidal silica and colloidal alumina, there only remains in the water the amount of silica in excess of that required for the precipitation of the alumina. The colloidal silica-alumina compound, which must on no account be confused with silicate of alumina, goes to form the deposit. Part of it, however, remains in suspension as a very finely divided colloid, and is the cause of the persistent opalescence often observed in the water drunk by sufferers from pellagra. The poisoning by silica would thus resolve itself into a

mineral acidosis upon which would depend all the anatomical, pathological, and metabolic alterations which are met with in pellagra patients. Hence arose the other conclusion regarding pellagra—viz., that it is a disease due to the enforced retention of mineral salts followed by a liberation of acids which is excessive in comparison with the amount regarded as normal in the case of any given organism. It having been proved that the question is one of mineral acidosis, Scala and Alessandrini believed that the toxic effects could be modified by the injection of an alkaline substance such as trisodium citrate. The author also offered the suggestion that the pellagra inducing water could be corrected and freed from the supposed injurious substances by placing small pieces of lime in the pipes and reservoirs.

4. **Acute Abdominal and Acute Intrathoracic Diseases.**—C. Mackenzie states that severe abdominal pain, often accompanied by vomiting, rigidity of the muscles, and even localized tenderness, may exist without any lesion of an abdominal viscus. When possible it is advisable, therefore, to examine the thoracic viscera before submitting a patient to laparotomy. A thorough examination is frequently impossible owing to the condition of the patient, but in all cases the pulse-respiratory quotient can be analyzed and considered with the temperature. The author considers this quotient to be of the utmost value, and if attention be paid to it he does not think many cases of pneumonia will be treated by abdominal section. With regard to pleurisy and pericarditis, reliance cannot be placed on either the quotient or the temperature, and as in the past so in the future will mistakes occasionally occur. In all very acute abdominal cases, where the general peritoneal cavity is involved, tenderness is usually elicited on rectal examination and actual swelling is often found; a rectal examination should therefore be made in all suspected acute abdominal conditions. In doubtful cases the history of the onset should be considered, as pericarditis is usually preceded by tonsillitis or pains in one or more joints. When the abdominal signs are so serious that one concludes that if the disease is abdominal the condition is so severe that surgical procedure offers the only hope, then laparotomy should be performed. Against this view is the fact that if the case is due to pneumonia then harm must be done to the patient by the operation, for apart from shock, the inhalation of ether must have a prejudicial effect on the already congested lungs, and chloroform must still further embarrass a heart enfeebled by toxemia. In a case which presented such a dilemma, Mackenzie said, the safest procedure would undoubtedly be to perform the operation under some form of local anesthesia.

5. **Frostbite.**—C. Miller believes that there is no difference between the forms of so-called "frostbite" as regards causation. The differences are in the effects on different individuals, and they are merely different manifestations of the same condition. The definite physical characteristics of these "pale" feet which have been diagnosed as functional by certain observers are not such as are found in functional disorders. It can be admitted that these patients are in a condition of nervous exhaustion, but their previous hardships, to which are added pain and loss of sleep from pain, are sufficient causes for their appearance. Further, the various and sometimes very diverse effects of frostbite may not infrequently be seen in the same individual and occasionally even in the same foot. Whatever else may be discovered about this condition the author is satisfied that it is primarily physical and only secondarily psychical.

British Medical Journal.

April 17, 1915

1. On Wound Infections, and on Some New Methods for the Study of the Various Factors which come into Consideration in their Treatment. Sir A. E. Wright.
2. Blood Pressure Estimation in Children. G. S. Melvin and J. R. Murray.
3. On Idioglossia: with an Account of a Case. W. B. Drummond.
4. Two Cases of Lupus in Children. H. W. Barber.
5. The Effects of Military Training upon Lead Workers. F. Shufflebotham.
6. Typhus Fever. E. C. Hort.
7. Epidemic Cerebrospinal Fever. A Note on Pleomorphism of the Responsible Microorganism. E. A. Shaw.
8. Acute Inversion of the Uterus Following Labor on Two Occasions. N. S. Carruthers.

2. **Blood Pressure Estimation in Children.** — G. S. Melvin and J. R. Murray employed the auditory method in forty children, varying in ages between 4 and 14 years. The average systolic pressure was found to be 108.1; the average diastolic pressure, 72.4, and the average pulse pressure, 35.7 mm. Hg. By the tactile method the average systolic pressure was 105.7 in children as compared with 108.7 in adults, while the range was 125-84 in the former and 132-92 in the latter. By the auditory method the range of systolic pressure was 130-90 in children and 135-92 in adults, while the range of diastolic pressure was 90-50 in the former as compared with 82-50 in the latter. In children the relation of pulse pressure to systolic pressure was 1:3 and to diastolic pressure 1:2, while in adults this relation was 1:2.7 and 1:1.6 respectively.

3. **Idioglossia.**—W. B. Drummond defines this as a defective condition of speech of such a nature that the affected person is unintelligible except, perhaps, to his own relatives; yet, what he speaks is really English very grossly mispronounced. The author reports a case of this condition in a boy 13 years old. The symptoms supported the view that in idioglossia the peculiar speech is neither a persistence of baby language nor a new tongue invented by the patient. The child's speech really represents a very defective attempt to speak his own mother tongue. The defect does not arise from any impediment in the articulatory mechanism; nor to want of intelligence; nor to lack of visual memory; nor to inattention, though these may be noticed in some cases; nor to deafness in the ordinary sense. But the symptoms are explicable on the theory that there is defective audition in the sense of some affection or imperfect development of the auditory word center. Idioglossia would thus come under the same class of cases as congenital word-blindness.

5. **Effects of Military Training upon Lead Workers.**—F. Shufflebotham has observed fourteen cases of lead poisoning among lead workers, chiefly pottery workers, who had enlisted in the English Territorial Forces. He suggests that the altered conditions of life, especially the muscular exercises associated with route marches and physical drill, cause increased metabolism, with the result that lead compounds previously locked up in the muscles and organs of the body become released and reach the blood stream, thus setting up the symptoms of which the men complained.

6. **Typhus Fever.**—E. C. Hort states that the most important points on which, when taken together, a positive diagnosis of typhus can be based, are: (1) The characteristic rash. (2) The smell of the skin. (3) A history of previous cases of the disease in the same house, especially if associated with lice. (4) The stuporous condition of severe cases presenting the rash. (5) The precritical fall of temperature. (6) The enormous relative and absolute increase in the large mononuclear cells in the blood. (7) The presence in blood films of the large diplobaciliary and diplococcal organisms described by numerous observers. (8) Their presence also in fresh urine. (9) The presence in

the centrifugal deposits of fresh urine of the minute Gram-positive, Gram-negative, pleomorphic organism described by Hort and Ingram. (10) The isolation and cultivation of the same organism from the blood and cerebrospinal fluid. (11) The results of injection of cultures of these organisms, or of fresh typhus blood, into bonnet monkeys.

Münchener medizinische Wochenschrift.

March 16, 1915.

Unilateral Renal Hematuria Cured by Decapsulation.—Els reports a case from Professor Garré's clinic of renal hematuria as a part of a general poisoning by cresol sulphuric acid. The author believes that so-called essential renal hematuria is always due to some preceding lesion of the organ in question—an inflammation, if nothing else. The unilateral incidences in certain cases have always been construed as evidence against a hematogenic theory. Recent reports appear to show that a true "medical nephritis" may occur in one kidney, which as a result simulates a surgical lesion, characterized by hematuria and colic. The literature of the past decade or more makes us familiar with the bilateral hematurias of hematogenous origin, and the unilateral hematurias of local origin; but not with the cases under consideration. One of these the author cites: A man, aged 33, always healthy, occupation live stock car cleaner, was seized with frequent desire to micturate and vesical tenesmus. The urine soon became of blackish red color, and pains appeared over the left kidney. The urine was that of "essential" hematuria—no renal or bladder lesions, save a mottled redress in the floor of the latter. The attacks of hematuria returned from time to time. Ureteral cystoscopy showed that the right kidney was secreting a perfectly normal urine. The author now determined to expose the left kidney. This appeared perfectly normal after removal of the fat capsule. The capsule proper was now incised and turned back, and nothing abnormal encountered. The tissues were all restored to their positions, and the wounds closed. The post-operative course was smooth and rapid, and no more hematuria resulted. The sole lesion to be found at any time was the cystitis, which was of the type seen in aniline poisoning. Now, the patient had recently been disinfecting suspicious cars with a mixture of cresol, sulphuric acid, and water. One kilogram of disinfectant (cresol 2, acid 1) was added to 60 liters of water. After having sprayed the cars with this fluid, the patient noted that his urine and breath had acquired the smell of the disinfectant.

The War as Studied by a German Surgeon through Hostile and Neutral Medical Journals.—We have already given excerpts from the articles of Professor Madelung which are based on a survey of prominent medical periodicals in France, England, the United States, etc. The testimony is very conclusive that in war times aseptic surgery falls short, and that we may have to return to the antisepticism of Lister. Nevertheless, adherents of the latter view are in the minority thus far, although they comprise men like Watson Cheyne in England, and Doyen in France. A middle ground will probably be reached which will insist upon antiseptics for certain classes of wounds, at least. Of 2,000 British wounded in one hospital nearly all became infected. Would early antiseptics have prevented such ravages? The Paris correspondent of the MEDICAL RECORD states that every French soldier is provided with iodine for his kit, so that he may apply immediate disinfection when he is not too badly wounded. Contrary to an early impression that the German soldier was more commonly attacked by tetanus than his foes, the testimony of the journals of the allies implies that the converse may be true. In some French batches of wounded tetanus appears to have been the most common cause of death. The author seems skeptical concerning a statement to the effect that French soldiers now receive an immunizing injection against tetanus before entering the trenches. It is admitted, however, that immense quantities of serum are manufactured at the Pasteur Institute. The French and English appear to have been fortunate in escaping pestilences, and typhoid seems to have been almost abolished by immunization. The wonderful endurance of the Sikhs is quoted. These Hindu soldiers can far outmarch any Europeans. In closing the author quotes from a MEDICAL RECORD editorial which expresses the hope that the medical lessons learned from the war hospitals may even be of such magnitude that in time to come they may offset the vast losses of men. In expressing the same hope, the author states that thus far such benefits have not come into evidence.

Münchener medizinische Wochenschrift.

March 23, 1915.

The Diphtheria Bacillus.—Several authors contribute articles on various aspects of the Klebs-Löffler bacillus in the present number. Plange and Schmitz discuss its occurence and distribution in the human body. On this subject authors differ widely, finds being based on autopsies. The present writers have made numerous autopsies quite recently, and a distinction was made between tracheotomized and non-tracheotomized subjects. In the latter bacilli were formed in the throat, nose and lungs in varying percentages, none higher than 40 and 14.3 per cent had the bacilli in the suprarenal glands. In tracheotomized cases bacilli were found in the adrenal in 100 per cent, in the throat and trachea in 85.7, nose 66.7 and lungs 60 per cent. In the spleen, liver and kidneys they were found in 28.6 per cent each; in the bile in 25 per cent and finally in the heart blood in 16.7 per cent. It is evident therefore either that tracheotomy mobilizes the bacilli, or that the operation is performed most frequently in cases of general bacillosis. The authors appear to accept the last view. Dr. Rall writes briefly about bacillary finds in the herpes febrilis which occurs in about 7 per cent of all cases of diphtheria. The author has tested these vesicles extensively for bacilli and their characteristics. He has found them to contain bacilli in a large proportion of cases, irrespective of the degree of severity. Therefore there is no prognostic significance to be attributed to them, nor is it likely that they assist much if at all in the propagation of the disease. The bacillus does not cause the eruption of vesicles but finds its way into them, along with other more familiar bacteria. They probably enter the vesicles in ordinary herpes of the nostrils by direct contamination with nasal secretions. In more remote localities the transmission must be effected by the lymph or blood stream. Engelmann writes briefly on bacillus carriers, whom he believes to carry the virus in the nasal fossi under varying conditions. Recently a child died of the disease and the author examined four other children of the family who were of the school age. In three the nostrils showed hardly any soreness. The other had no soreness whatever at the nostrils but one tonsil was slightly reddened, and at one crypt there was a barely visible point. This child in fact had a minimal case of faucial diphtheria. The nasal secretions were now examined and in all 4 children contained an abundance of diphtheria bacilli, which, however, were nonpathogenic. The children were in excellent general condition and doubtless will soon cease to be carriers.

Insurance Medicine.

What Significance Has the Wassermann Reaction for Life Insurance?—Blumenthal states that this subject has been discussed in the *Blätter* from every angle. All authorities are agreed that it is in the highest degree desirable to possess a trustworthy reaction for syphilis, for the latter is widely diffused among all strata of society, to an extent even greater than pessimists themselves have believed. An objective blood reaction for syphilis is specially desirable for the applicant for insurance does not always intentionally deceive when he denies syphilis. But the sufficiency of the test in life insurance has been widely debated. To clear up the controversy we need statistics, and the author herewith contributes the results of thousands of tests made at the dermatological clinic at Charity Hospital, Berlin.

The reaction is important in two directions, one of which concerns the diagnosis of former syphilis, while the other has to do with prognosis.

What is the relative value of positive and negative tests? The great value of the former is undisputed. The author has never seen a positive reaction in a healthy subject, although it may be encountered in victims of various diseases which are hardly to be thought of in connection with life insurance, since they render the subject even less insurable than a syphilitic (malignancy, leprosy, gland tuberculosis, leucemia, malaria). Hence this component of Wassermann positives can be left quite out of consideration.

The negative reaction is much less trustworthy, for it is seen at times not only in suspicious but also in undoubted cases. In latent cases in which there is no clinical evidence of syphilis the positive Wassermann is present in only 60-70 per cent. of cases. It could, of course, be assumed that the remainder were permanently cured, but experience teaches that many of these will certainly relapse. Many of those who deny syphilis falsely may be apparently corroborated by the negative Wassermann. It is also possible for a syphilitic to undergo an intensive cure for syphilis until he reacts negatively, and then apply for life insurance. This is one of the weightiest reasons advanced against the introduction of the reaction.

There is, however, the second phase of the problem, the prognostic. Some of the worst consequences of syphilis, such as paresis, aortitis, etc., can never be so influenced as to give a negative reaction, and deaths from these causes can be eliminated by the Wassermann.

Various other problems confront us in regard to the general adoption of the reaction. If an applicant who is ignorant of his syphilis is enlightened by the result of the serological test, he is able to seek a cure, and is really under obligation to the company. He may not, however, feel that way about it. Again, many applicants might be deterred from undergoing this simple test, on account of ignorance of its nature and the fear of ill consequences.

Finally of great significance is the possibility of rendering positive Wassermann cases insurable by frequent tests, the applicant in the meantime undergoing treatment. Those finally rejected are rejected on ample grounds. Not only actual but suspected syphilis would be dealt with in this manner (habitual abortion, leucoplakia, etc.—*Blätter für Vertrauensärzte der Lebensversicherung*, 1914. Nov.-Dec., No. 6.

The "Copenhagen Heart."—Dr. I. A. Hielscher of Mankato, Minn., writes concerning an effection to which he applies this term, brought about by the habit of taking Copenhagen snuff. This habit prevails in the Northwestern States, he says, and by reason of the great influx of Scandinavians, Danes and Finlanders into the States of Michigan, Wisconsin, Minnesota, and North Dakota, it has received a marked impetus until at the present time it has become a menace to the younger generation of native-born Americans.

For many years the above-named nationalities have been heavy users of snuff as a sternutatory, but of late many have resorted to a form of use similar to "dipping," which consists in placing a pinch of snuff in the mouth. The habit has spread rapidly until at the present time it is almost general among the younger working men and factory hands in the cities, and is also gradually finding its way into the rural communities.

The method of using Copenhagen snuff is somewhat unique: A small portion of the moist article is taken up by the fingers, rounded into a pellet, and placed under the upper or lower lip; here it is retained until the effects wear off, then another pellet is moulded in the same manner and placed in position. In this way some of the habitués consume as much as a box per day. Snuff used after this fashion does not require mastication, nor does it stimulate the salivary glands, hence there is complete absence of expectoration. Whatever action it has on the system must be produced by absorption through the mucous membrane of the buccal cavity.

Heilscher in his capacity as examiner for various fraternal life insurance companies, frequently found peculiar symptoms for which he could ascribe no definite cause. For example, a young robust looking laboring man makes application for membership and reports for examination. In filling out the blanks everything is satisfactory, the physical examination progresses nicely until the heart is reached. Here is found the stumbling block. The pulse is rapid, 80 to 90 beats a minute, hard in quality, and high in tension; the cardiac area is normal but the sounds are rough and harsh. Upon the slightest exertion a blowing mitral regurgitant murmur develops, there is marked shortness of breath, and if questioned more closely, the applicant will complain of palpitation at night, while lying quietly in bed. The blood pressure in these cases is, as a rule, high.

There are also frequently other symptoms to be observed in young laboring men whose age and outdoor occupation should have insured them good health. These symptoms are headache, vertigo, shortness of breath, nervousness, loss of memory, loss of appetite, trembling of the hands, and in some cases a "dopy" appearance, with a general downward tendency, mentally, morally, and physically, leading in some cases even to the verge of dementia.

The conclusions of the writer are as follows: The symptoms of a snuff fiend are these: A mitral regurgitant murmur upon the slightest exertion, high blood pressure, shortness of breath, headache, sleepnessness, dizziness, trembling of the hands, a "fishy" stare, indigestion, loss of weight, and in many cases, if they are very heavy users, a "dopy" look with sluggish mental condition.—*St. Paul Medical Journal*, March, 1915.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

109th Annual Meeting, Held in Buffalo, April 26-29, 1915.

(Special Report to the MEDICAL RECORD.)

SECTION ON SURGERY.

(*Continued from page 754.*)

Cancer of the Breast.—Dr. PARKER SYMS of New York gave an account of the breast operation for cancer. He said Charles More in 1867 first described carcinoma as a localized process. It was possible then to eradicate it. Harold Stiles of Edinburgh further studied the lymphatics, the morbid and surgical anatomy of the breast. Twenty-one years ago the real operative work began with Halsted of Hopkins and Willy Meyer of New York. At first Halsted's work predominated. To-day most operations were done according to Meyer. Meyer cut vessels across at axilla and worked downward and outward. It was pointed out that carcinoma spread by permeation from the periphery of the growth and in one direction as far as another. Therefore it was necessary to carry incision down through the rectus sheath. It was pointed out that the skin area was not as important as the depth undermined. Slides were shown to illustrate the technique. Jackson's operation was not recommended because turned down skin flap often overlay the tumor itself. The flap should be removed. Rodman's operation began with an incision from the midpoint of the clavicle. Its advantages were the early knowledge of the degree of glandular metastasis and the freedom of the axilla from cicatrix following the operation. He worked toward tumor, not toward the axilla. Operations were said to be accompanied by little shock, slight blood loss, and speedy recovery. Diagnosis should be made at time of operation largely on appearance of gross specimen. The findings from a frozen section were said to be misleading.

A New Operation for Cancer of the Rectum.—Dr. EDGAR R. MCGUIRE of Buffalo said progress in rectal surgery for carcinoma was hampered by pessimism. This should be dispelled. The evidence ascertained by the gloved finger in the rectum and bloody mucus from the rectum were important for diagnosis of cancer. Believed an effort should be made to preserve the anal sphincter. This was especially disregarded in cases of cancer of the mid-rectum. Charles Mayo recommended saving the distal one inch of the rectum. The sphincter should be freed of its mucosa. The intestine should be cut across and the cephalad end sutured to the rectal stump, coapting mucosa with skin. Stretching of the sphincter at times caused a four weeks' postoperative incompetence.

Dr. HARVEY R. GAYLORD of Buffalo pointed out the fact that it took many years for laboratory facts to become the property of the general practitioner. The manipulation of cancer he said, caused a change in its character. There was an immunity to cancer that caused animals to act differently toward cancers and cancers to behave differently in different animals. Certain malignant tumors when transplanted become benign but when transplanted again become malignant. Clinical history should accompany section sent to research laboratory for an accurate prognosis. Classifications of tumors, such as Dr. Barber's, should give way to studies of the life histories of carcinomata. Actively growing cancers provoke marked immunity in animals. They have to be reinoculated or the growth became lost. It was shown at the Rockefeller Institute that sarcoma in fowl was caused by virus of three different kinds.

Dr. JAMES A. GARDNER of Buffalo held Squier's resection gave marked improvement over simple incision for cancer of the bladder. Resection recurred in 43.7 per cent. and excision in 88 per cent. after three years. Mortality of Squier's or Mayo's operation was 10 per cent. Cauterization should be confined to pappilomata.

Dr. JAMES F. PERCY of Gainesville said there was no question of the efficacy of radical surgery. The knife could not be used in a great many cases however. He said you might treat a cancer patient with the knife in one hour but not with radium or the *x*-ray. In these prolonged treatments, the patient absorbed the broken-down cells. He recommended the use of heat to convert inoperable into operable cancer. He pointed out that intense heat penetrated ⅛ to ¼ of an inch while heat to 180° F. penetrated 3 inches.

Dr. PARKER SYMS reported a case treated similarly to Dr. McGuire's. He operated by the continued method removing 14 inches of intestine. Sloughing followed operation. Rectal incontinence had continued. He removed fat and lymphatics as high as possible. He advised Meyer's radical breast operation for all suspiciously malignant tumors of the breast.

Wednesday, April 28—Second Day.

Subacromial Concretions.—Dr. WILLIAM W. PLUMMER of Buffalo included in his discourse the subject of bursitis. Pain, stiffness, and limitation of abduction and rotation were explained by the anatomical connections of the bursa to the humeral head and its relations to the acromion. For there was an infolding of the bursa between the greater tuberosity of the humerus and the acromion process. This was impinged upon in extended abduction. The causes of bursitis were given as trauma, induced in any way, tuberculosis, and infection. Under pathology Dr. Plummer mentioned effusion of serum into the joint, adhesions within the joint, and lacerations of capsule and tendons, especially the supraspinatus tendon. Since salts were deposited within the joint cavity as thickenings of the capsular membrane or as deposits within muscular fibers. He held two distinguishing characteristics of bursitis to be (1) a radiogram showing absence of fracture, and (2) joint tenderness elicited by longitudinal pressure through hand and arm, with arm in extended position. He did not believe a thickened bursa without lime deposits was visible by *x*-ray. He treated his cases by rest, forcible abduction under gas which was sufficient in some cases, or operation for removal of concretions and repair of lacerations. He exposed the joint by splitting and retracting fibers of the deltoid. Lime was often found in tendon of supraspinatus, often about tendon or lining capsule. In the author's experience the abduction method was the most valuable postoperative treatment. He showed a number of slides, showing (1) Concretion in bursa. (2) Joint of man of 20 years injured in wrestling, with limited abduction and local tenderness, and fluid and adhesions. This case had lacerated tendon repaired and was well after three months of abduction. (3) Concretion in bursa resulting from a fall from a carriage. This case, refusing operation, continued to suffer pain for six months. (4) Case with productively inflamed supraspinatus tendon and adherent thickened capsule with extensive villous formation. He was treated as a fracture case without having had an *x*-ray for six weeks, but promptly got well after removal of inflamed capsule. (5) Concretion in shoulder bursa which could be palpated and of seven years' duration without recognition. (6) Concretion, which was later removed. (7) Lime deposit in bursal floor. This case was free from pain after three months of postoperative treatment. (8) Concretion in bursa. In conclusion believed stiff, painful shoulders were relieved by operation.

Dr. MEISENBACH of Buffalo said he believed all stiff shoulders should be carefully studied because their etiology was often obscure. They might be due to infection or to a disarranged metabolism or to a ruptured supraspinatus. Supraspinatus worked in harmony with the deltoid and besides had the function of withdrawing the bursa from the joint. He recommended operation, especially in ruptures of the supraspinatus. He differed from the reader by holding that thickened bursæ were impervious to the rays and could be demonstrated occasionally by *x*-raying the shoulder with the arm at rest and in the extended abducted positions.

Dr. F. H. ALBEE of New York believed in hanging to a strap on a street car was a possible cause of bursitis.

Dr. SAYRE of New York declared that he had seen concretions in the shoulder joint in *x*-ray pictures of the shoulder with the arm in different positions. He believed the bursa was pinched oftentimes by simply raising the arm. He had experienced such a result himself.

Reinforcing Paralytic Flail-Joints by Intraarticular Silk Strands to Limit Motion and Increase Stability.—Dr. BERNARD BARTOW of Buffalo emphasized the importance of holding the articular surfaces of joints closely together by silk strands. This applied to the shoulder, knee, hip, ankle, and pelvis. He demonstrated a drill which he used to pass his silk supports. In the knee they were placed two anteriorly and two posterior-

ly. In the hip strands were directed from acromion rim down on to head of femur. It was often difficult in the ankle to adequately immobilize it. Although some surgical reaction followed the use of these measures a protecting soft bandage over the affected joint and rest in plaster were all that were necessary for relief. He usually put them up in the right angled position and encouraged early use of muscles. He said his method should be considered as an attempt to produce a better functionating joint than the flail joint. It was simple, incisions being small and much of the work being subcutaneous. The joints were not mutilated nor were muscles jeopardized. Ankylosis did not result. In the 150 cases so treated at the Children's Hospital no mortality or infection resulted.

The Phenomena of Acidosis and Its Dominating Influence in Surgery.—Dr. GEORGE W. CRILE of Cleveland discussed the significance of acidosis. Acidosis existed whenever the acidity of the urine was higher than normal. There were many such cases, but the physician saw them only in the breakdown stage. Lawrence Henderson of Boston deserved mention among the workers in this field. The liberation of energy was attended by the production of acid. Similarly in the vegetable kingdom the freeing of energy was attended by acid production. This was washed away by the rain. Hence the fertilization of the soil was largely a problem of alkalinization of the soil. Man depended upon the removal of acid by the liver and the kidneys. When this was not properly performed, or when the acid content of the blood appeared greater than "neutral" death ensued automatically. It was difficult experimentally to force an acid reaction to blood or spinal fluid. Whatever produced exhaustion as exertion, emotion, or toxemia, diminished the alkalinity or raised the H-ion content of the blood. Whatever activated the kinetic system increased aciduria. These changes went on within the body organs, including the liver, brain, and kidneys, and threw increased acid into the urine. Dr. Crozier had originated a method of determining this urine acidity and determining its excess of normal. Hence the extensive uses of water and sodium bicarbonate were important. The symptoms of acidosis were increased respiration, thirst which follows running fever, and emotion, and rapid pulse. The phenomena of acidosis were the efforts of the body to neutralize the acidity of the blood. They were seen in psychic vomiting, a straight acidosis, Bright's disease, Graves' disease, surgical shock, as well as in the fatigue of the athlete. All the anesthetics, especially ether, less chloroform, least nitrous oxide, produced increased blood acidity. Starvation produced acidosis. He showed numerous slides depicting changes in the cerebellum, liver, and adrenal gland, supposed to result from acidity following fatigue, emotional excitement, shock, anesthetic, and toxemias. Indol and skatol were included among the toxins, thus establishing the communication between intestinal stasis and brain changes.

Dr. H. L. TAYLOR of New York declared Crile's work to be full of meat for the clinical surgeon and physician as well as the technician in the laboratory. He reported three cases that died of acidosis in his hospital service. These included a postoperative, an etherized case, and one for whom nothing had been done. He held intestinal purging was not as important a prerequisite to orthopedic as in abdominal surgery.

Dr. M. TINKER of Ithaca said he had long appreciated the acetone odor to the breath and the increased urine acidity in goiter cases, and given bicarbonate of soda. He reported a duodenal ulcer case with complete gastric intolerance. He managed to improve patient enough to operate. After operation he improved enough to take food by mouth before succumbing. This was a case of acidosis.

Dr. O'NEIL asked whether acidosis should be considered a contraindication to operation or neutralized and disregarded.

Dr. J. D. BONNAR of Buffalo asked whether acidosis had a direct effect upon the centers or whether it was transmitted, and how much exercise should be advised.

Dr. SORESI of New York brought out the toxic effect of bicarbonate of soda upon the red blood cells, and wondered whether Dr. Tinker's patient might not have died as a result of such a toxic effect.

Dr. CRILE again mentioned the urine acid test as a means of determining acidosis cases. He advised anoci-association and plenty of water. He contended exercise should be undertaken in moderation.

Mechanical Respiration Prior and Subsequent to July 23, 1887.—Dr. GEORGE E. FELL of Buffalo said there was no thought of vivisection to save life before 1887. All physicians at that time were opposed to innovations. He showed the bellows which was the apparatus ordinarily used to save life in the vivisection laboratory. He then showed his original apparatus by which he saved his first human life. He declared he had labored ten years gratuitously. His first patient had cyanosis, rigidity, and dilated pupils before connecting up his apparatus to save him. A second case was reported in Austria saved by an improvised apparatus. His third case had had the Sylvester method tried to no avail before his attempt. It then required twenty-one hours of continuous forced respiration. He reported a fourth case in which the man had cut his throat and arm, and swallowed two ounces of laudanum before he eventually saved him. During the past six months, he said, he had saved four adult lives. His last attempt, upon an eighteen months baby who had previously received a grain of morphine, was unsuccessful.

Dr. CRILE assured Dr. Fell his principles had been received by the physicians long ago, if not by the laity. Fell as an historian and a philosopher must have derived considerable satisfaction in seeing his efforts appreciated by others all over the world. He was said to be to artificial respiration what Fulton and McCormack were to their lines. They, like Fell, would have thought their work to have been in vain had it not been improved upon by others.

Dr. BATES of Buffalo knew Dr. Fell for many years. He knew him when a United States engineer and when a professor of physiology. He read an editorial written by George Matthews for the Buffalo *Morning Journal*, January 27, 1888, entitled "He Shall Not Labor in Vain." This was written in appreciation of the saving of a life.

Letters were read from Drs. WILLY MEYER of New York and A. J. OCHSNER of Chicago. Dr. Ochsner claimed he had used Fell's apparatus with and without the facial mask, and that all credit belonged to Fell.

Dr. DUNNING of New York declared he had labored with Fell and hoped some monetary appreciation might be forthcoming as a provision for him in his remaining years.

Dr. FELL in conclusion said that he felt amply repaid for all he had done. He demonstrated some of his apparatus.

Military Gunshot Wounds. — Col. CHARLES RICHARD defined gunshot wounds so as to include wounds caused by rifles, hand grenades, bombs, and the aeroplane shaft. He pointed out that the resistance offered these missiles determined the amount of injury. Diaphyseal wounds were therefore more severe than epiphyseal. The rifle bullet caused a penetrating wound which usually healed by first intention. The opening of departure was larger than that of entrance to the body. Dum-dum bullets from the town of Dum Dum in India were bullets with cylindrical cavities bored in pointed ends. They flattened on contact and created jagged wounds. Shrapnel caused contusions and carried particles of clothing into the body. These wounds usually suppurated. Emergency treatment was fixation only. No examination or operation was considered justifiable.

Election of Officers.—This resulted in the choice of *Chairman*, Dr. Harry R. Trick of Buffalo, and *Secretary*, Dr. Towns.

Dr. RICHARD supplemented his previous paper by showing lantern slides. These included pictures of the aeroplane arrow, the hand grenade, shrapnel, and the different types of wounds caused by them.

Dr. CRILE recalled his experiences abroad in the war zone of Paris and Belgium. He praised Dr. J. A. Blake's work at the American Ambulance in Paris. Patients with gunshot wounds of the head usually died or developed paralysis or Jacksonian epilepsy. He declared with the support of Professor Tufier and Dr. Carrel that no progress in the treatment of infections had been developed since 1870. Of the penetrating wounds below the base most die. The American dentists were doing good work in repairing buccal injuries. Those with chest wounds spat up blood for a time and got well. Abdominal penetrating wounds nearly always resulted fatally. He believed anoci association, water, opium, rectal injections of sodium bicarbonate and glucose, the Fowler position, and the hot pack included the means of most effectual treatment of abdominal wounds. Several complications followed gunshot wounds of the genitourinary system. Those of the extremities were essentially fractures. Dr. Carrel was studying intensively the possibilities of treatment of infections.

Fractures in the Vicinity of Joints.—Dr. CHARLES E. CALDWELL of Cincinnati said the *x*-ray laboratory bore the same relation as the dissecting room to the clinician. It differentiated dislocation from fracture. One case had the axillary artery pulled so tightly over dislocated humeral head that an aneurysm followed its replacement. Plating of these fractures was impossible and pegging split the bone. He favored fixation by manipulation. Fractures in children usually gave good results. He operated necessarily in only one case in a child. The scaphoid was best treated by extension. Whitman's abduction method was best for fractures at the neck of the femur. For the knee acute flexion was preferable, although doubly inclined plane gave good results. Tibial tuberosity might be nailed. He noticed the coincidence of myositis ossificans in several of the cases of malunion. In one such case three weeks of electric heat met with good results.

The Inlay and Peg Graft Versus the Lane Plate in the Treatment of Fractures.—Dr. FRED H. ALBEE of New York demonstrated instruments and slides. For fractures he advised palliation always and operation when not satisfied with results. The Lane plate was a breeder of nonunion, wire less so. Bone grafts by their friction stimulated osteogenesis. Wolf's law that a graft will hypertrophy and become strong enough to bear weight of the body was said to hold the tibia, after removal of bonegraft, hypertrophied for a similar reason. He said he based his conclusions upon a study of 400 cases. Of these, of which 385,390 had had autogenous grafts from tibiæ taken, no trouble followed removal of single tibial graft. Had also removed grafts from cadavers and other individuals. In the latter event he recommended preserving in sterile vaseline at 4°-5° C. All metal used should be recovered, for infection developed ultimately if not immediately. The plate should never be used for an ununited fracture for the ends were probably held too firmly to allow friction stimulation.

Dr. METZENBACK of Buffalo who said he had experimented on 200 rabbits asked if infection did not stimulate proliferation of periosteal and endosteal cells and whether a bone graft did not flourish in infection.

Dr. PLUMMER reported forty bone graft operations by the Albee method with but one technical error.

Dr. HERMAN asked if the plate did not require less time than the graft for bony union.

Dr. ALBEE replied that in one case staphylococcus infection undoubtedly caused a marked hypertrophy of a bone graft. Union with the graft, he said, was more rapid than with the plate.

The Standardization of Conditions Affecting Posture.—Dr. H. L. TAYLOR of New York spoke of the organization of the American Posture League. It arose out of the realization of the correlation of good postures and health. Its objects were to study conditions affecting good posture and to apply the results of these researches. The causes of bad posture were lack of vigor, habitual fatigue, lack of interest in good posture, and the adverse influence of fashion, clothing, furniture, seating arrangements, and occupational conditions. It was discovered that the coat was made to fit a round shouldered boy and attempted to coerce the boy into a bad posture. This was called to the attention of a clothing firm and coats were thereafter made to fit the straight-backed boy. Clothes should be supported from the shoulders and above the hips. Shoes were studied and found made without regard for the shapes or types of feet. Several types of feet were found among the thousand studied. One-third showed the foot to be on equal sides of a line from the center of the ball. In respect to this line some were inswung while others were outswung feet. The furniture committee had approved only one chair of all submitted, Dr. Mosher's kindergarten chair. It designed in cooperation with the engineers the seats of the new subway car for the Brooklyn Rapid Transit Company. In addition to these activities the league has published postural charts for use in schools, gymnasiums, and doctors' offices.

Dr. TOWNSEND of New York regretted that more were not present to have heard Dr. Taylor. He said such work as Dr. Taylor's was highly important.

Dr. ELIZA MOSHER of New York described the method of developing an improved subway seat and criticised the chairs in general use.

Certain Points in the Treatment of Club-Foot.—Dr. P. LE BRETON of Buffalo read this paper. He favored removals of "V" shaped sections from astragalus and os calcis, allowing the foot to come to a right angle. Tendons were cut and their courses changed when necessary. The feet so treated were put up in plaster. He performed astragalectomy and tendon fixation if necessary.

Dr. SAYRE transplanted muscles for paralysis only. He could not see the advantage of the anterior flap excision mentioned by Dr. Le Breton for he felt that hemorrhaphies should be sufficient.

Dr. TAYLOR declared he did not operate upon babies. In cases of four years or over he removed a "V" flap from the side of the foot, including the os calcis, astragloid, and scaphoid and performed whatever plastics upon the tendons and fascia as were indicated.

Dr. LE BRETON said he favored the removal of individual wedges from individual bones in order to conserve the articular surfaces.

The Treatment of Rigid Rotary Lateral Curvature of the Spine by a New Brace.—Dr. SAMUEL KLEINBERG of New York mentioned the advantages of the new brace. He said they allowed the wearers to walk about with less discomfort, to eat, drink, and to attend school. The chests might be inspected and jackets readjusted. The cases favorable for treatment with jacket were (1) single curve, (2) long dorsal and compensatory curves, (3) S-shaped curve and (4) curve in dorsal region. The results depended upon (1) nature of deformity, (2) length of deformity, (3) location, (4) severity, and (5) type of deformity. He had treated congenital malformations in 9 boys and 20 girls and got slight improvement in 8, marked in 11, no change in 3, and suspension of treatment in 6.

Dr. SAYRE considered Dr. Kleinberg's brace more applicable than the plaster jacket.

Dr. PRINCE of Rochester stated that in scoliosis 90 per cent. showed foundational defect in the lumbosacral region. No one could tell at the present time whether these patients should be held in plaster or braces; he did not attempt treatment in cases with foundational defects. He had forced at least one patient to endure a treatment for two years without success.

Dr. FRAUENTHAL of New York believed the jacket better for mid-dorsal curvature.

Dr. TAYLOR of New York thought congenital deformity was not serious in the majority of cases, and said a slight degree of lateral curvature was not a serious handicap to treatment.

Dr. KLEINBERG concluded by reporting four cases of six in which he had noted improvement after one month's treatment. All wore plaster corsets and exercised conscientiously. He had examined by *x*-ray many dorsal curvatures and found no defect in the lumbosacral joint.

Thursday, April 29—Third Day.

Intestinal Stasis.—Dr. ALLEN A. JONES of Buffalo read this paper. He considered stasis from the general aspect and as an introduction to those who were to follow. Stasis, he said, might be acute or chronic and confined to the small or large bowel. Intussusception, hernia, valvulus, foreign bodies, ulcer, cicatrix, and peritonitis were some of the causes of acute stasis, while chronic peritonitis, bands and kinks, and intussusception comprised a few of the causes of the chronic form. The symptoms of acute stasis were abdominal pain, vomiting, and palpable tumor or peritonitis. Pain was often severe. Three or four days elapsed before fecal vomiting. Constipation, he said, was the rule, though the colon was free to empty itself. There was indicanuria. The leucocyte count offered no important information. There was exhaustion and pronounced odor to the breath. He held it useless to attempt reduction of a jejunal intussusception. The illogical intussusception was most readily palpable. He believed the toxic agent to have come from the duodenum, but whether from the duodenal cells themselves or bacteria he did not care to state. Appendicitis was considered easy of diagnosis and the tuberculous form should be eliminated if possible. Under chronic stasis carcinoma should be thought of. He pointed out that it was the rectum and not the high annular carcinoma that gave consistence and form to the feces. The coincident pain was generally variable though often severe at first and absent terminally with the stretching of the walls of the intestines. There might be vomiting. The symptom complex of chronic stasis arose from complete obstruction of the duodenum, jejunum, or ileum. This was due to duodenal ulcer, appendicitis and peritonitis. The postoperative form was due to paralysis of the bowel, cauterization, and peritonitis. In event of ileac stasis there were nausea, vomiting, and constipation, which

might have existed for a long time. There were also headache, insomnia, and bad dreams, due to toxic absorption. There might or might not be an associated caloric ptosis. As a factor in toxic absorption, an incompetent iliocecal valve should be mentioned. He said the stomach and small bowel, including the terminal ileum, was normally completely empty after a bismuth meal in six hours. Stasis most commonly occurred in the colon and was due most often to caloric ptosis. In his cases the colon freed itself of bismuth in thirty-six to forty-eight hours when normal, and from that time to seventy-two hours or over when static redundancies and dilatations occurred in the ceca and sigmoids with toxic effects. In colonic stasis there were interference with the splanchnic circulation, impairment of the colonic musculature, associated appendicitis, and disturbances in the other abdominal viscera, with the unhappy reflex effect upon the mind. Backache, too, was common. Old age, invalidism, and neurasthenia were sequelæ. Not until after rest, mechanotherapy, and other medical means had failed was surgical intervention deemed desirable.

Intestinal Prolapse and Adhesions. — Dr. HENRY W. BETTMANN of Cincinnati said that before 1900, the subject of prolapse and adhesions was studied by the internists only. Glenard had invented the term to describe a descent of the transverse colon stomach and right kidney. There were six points of possible acute angulation, including the gastroduodenal, the duodenojejunal, the heptic and splenic flexures, the midtransverse colon, and the sigmoid. The hepatic flexure was the first to prolapse and dragged with it the liver, kidney, and spleen. Fullness, eructations, constipation, drowsiness, and insomnia followed. They were most common in women with relaxed walls due to pregnancy or wearing the corset. It was also said to be common in adolescent chlorotic girls. In 1896 Stiller gave his view of visceroptosis. He described the habitus enteropticus as a nervous type of an individual with small bones, a narrow thorax, and a thin fat layer. In such a case the subcostal angle was 60 deg. instead of 120 deg. in the normal individual. He mentioned the lines from zyphoid to umbilicus and from umbilicus to anterior axillary line, and held that the former was the greater in the enteroptotic but less than the latter in the normal individual. The symptoms were present or absent. Early there might be atonic dyspepsia. Later the motor symptoms of headache, backache, appeared. Neurasthenia came late. The treatment included gymnastics, bandage, and massage. Since 1900, which might be called the second period, information was increased by the *x*-ray, which drew attention to the incompetency of ileocecal valve and colonic statis, and by the orthopedists, who have pointed out the postural effects upon intestinal function. The position, size, and function of the stomach were more easily ascertainable than those of the cecum, the position of which was changeable in health. Colonic statis was said to allow toxins to pass through its walls. He cited authority for conceiving stasis to be normal when due to the ileocecal valve which retards the terminal ileac current for one hour before passing into the colon. Goldwaithe emphasized the importance of correcting the poise of the body to relieve stasis. Bettmann declared surgery accomplished little for stasis. He quoted Mayo for believing gastroptosis one stage of general visceroptosis, and believed our relation to the affection to-day was the same as it was fifteen years ago. Neurasthenia had been caused by inefficient anchoring of stomach, kidney, and colon. On the other hand, he advised a regulated diet, proper hygiene, abdominal support, and cessation of fussy, meddlesome medicine and surgery. Under the topic adhesions, he said constipation must not be confused with stasis, stasis with ptosis, nor a photographic kink with a pathologic kink. Adhesions were found frequently about the duodenum and gall-bladder, after operations, and especially following drainage of appendical abscess. The symptoms, gas and pain, were aggravated by purgations. Most constipation, he concluded, was curable medically.

Organic Obstruction of the Ileum as a Cause of Gastric Disorder.—Dr. GRAHAM CHAMBERS of Toronto, Canada, said stasis, formerly called constipation, was due to organic disease of every organ in the body (according to Hane), but particularly the ileum. Here it was due to nodular tuberculosis, valveolus, intussusception, also atony, cecal stasis, insufficiency and spasm of the ileocecal valve. He held that the stomach and ileum, both supplied by the vagus and Auerbach's plexus were much alike in motility. Retardation of ileum was of central origin. Excitement caused increased peristalsis. Worry and anxiety caused atony of the stomach and small bowel. Hence ileac stasis was often cured by avacation. Brain work and sedentary habits favored ileac stasis. He compared the ileocecal to the mitral valve, declaring intracecal pressure closed the ileocecal valve during health. He admitted pressure within the ileum was a factor in preventing cecal regurgitation into the ileum. Gastric hypermotility stopped short at the pylorus. Ileac hypermotility stimulated increased cecal activity. The ileum served the purposes of digestion and absorption, the colon that of storage. Autointoxication took place in the ileum affecting the stomach locally as well as reflexly through the resulting mental depression. Cecal stasis might exist without ileac statis. It was due to spasm of the ileocecal valve which, too, affected the stomach. The symptoms, fullness, pain, nausea, and vomiting of appendicitis are those of pylorospasm. He reported a case of organic ileac obstruction associated with increased proximal ileac tonus and gastric residue. Stomach symptoms, he added, were also produced by gastric peptic and duodenal ulcers.

Dr. L. T. LE WALD of New York announced the two views of stasis as he saw them, the one depicted humorously by Dr. G. D. Stewart and the other as the serious regard of Dr. Moynihan. He said he hoped our present attitude would not be changed to disregard kinked ureters and bowels. *X*-ray study should necessarily be complete.

Dr. R. T. MORRIS of New York said that postoperative obstruction was relievable by pituitrin administered intravenously, that hypothyroidism as a cause of intestinal stasis had been omitted, and that too much and too little surgery was done for stasis. He sharply criticised Bettmann's contentions, calling his conclusions dark after bright premises. He added a number of cases of stasis were cured by pretenders by flushing of the bowels. He concluded by asking Dr. Bettmann what Reed said about epilepsy.

Dr. J. T. CASE of Battle Creek continued the discussion by maintaining the condition of the colon with carcinoma to be one of spasticity, not collapse. Dilatation of the right colon was due to retroperistalsis. Instead of speaking of insufficiency of the ileocecal valve in normal persons he advised substituting the words "in symptomless patients."

Dr. T. M. LYNCH of New York remarked that men like Bettmann drove stasis cases to Europe. In Switzerland, where he had studied during the past summer, he had met hosts of Americans, particularly in Switzerland, who said there was no one in America to cure them. He contributed the fact that the ileum is more important than the ileocecal valve in preventing regurgitation from the cecum into the ileum. This, he said, had been indicated by the work of one of the staff. He recommended the reconstruction of the colon to the third position for selected cases. In the cases in which he had performed this operation Auerbach's plexus had been found absent in the part removed. He believed many of the Jackson's membranes and adventitious bands really had no harmful effect upon the bowel. For, he said, there was no such thing as perfect fusion. With increased vascularization bands were formed. When these were cut serious adhesions followed.

Dr. A. L. SORESI of New York spoke of adhesions following operations in dogs. He reported no omental adhesions following instrumental handling in twenty-eight and gauze handling in twenty. The injection of irritating substances, including infectious material, caused marked adhesions. Hands retraction and rough manners were equally potent in producing adhesions.

Dr. BETTMANN thought it quibbling to substitute "symptomless" for "normal" in referring to patients with incompetent ileocecal valves. He added that the results of short circuiting in Cincinnati for epilepsy and other kindred disorders had not been encouraging.

Further Observations upon the Developmental Reconstruction of the Colon, Based upon Surgical Physiology. —Dr. JOHN W. DRAPER of New York read this paper. Bouchard, Metchnikoff, and Coombe had added to our knowledge of autointoxication and intestinal toxemia. The toxins were supposed to arise from hydrolysis of proteids. This change was probably brought about through the action of the anaerobic bacteria of the cecum. The acid reaction of the ileum was supposed to effectually prevent their thriving there. The surgeon could only prevent these toxins once elaborated from entering different segments of the bowel. This amounts to the surgical therapeusis of the colon. Marked acute

and chronic purulent inflammations of the colon were surgical from the beginning. Anatomical variations were greatest in the cecum and the sigmoid. The lymphatics of the colon were scarce and the villi absent except at the apex of the cecum. Both these characteristics suggested that the digestive function of the colon was nil. Given an ill-adopted cecum it might conform to the herbivorous type with stagnation, gas formation, dilatation, attenuation, infection, and destruction of Auerbach's plexus. Barber had shown the important dynamic changes in the duodenum following incomplete and complete obstruction of the extreme caudal ileum and obstruction and inflammation of the cecum. In brief, partial obstruction of the caudal ileum caused dilatation of the duodenum, whereas complete obstruction (effectually interrupting Auerbach's plexus) caused contraction. As analogies, the processes destroying gallbladders and appendices might be mentioned. The difference was we had come to recognize the one, but not the other. Bloodgood had shown that colonic restoration after excision of cancer was more rapid than after removal for other causes. Colitis might vary from the mild catarrhal form to the involvement of the whole wall and properitoneal fat. Dr. McFarland had suggested the hematogenous path of infection for the origin of colitis. The streptococcus was recognized to cause the severest colitis encountered, although the colon organism had been obtained from a lymph gland of one of their cases. Adhesions were found exaggerated in mild infections and absent in severe infections. To illustrate these observations many cases were reported. One indication for surgery was hemorrhaghic colitis embracing acute streptococcic embolic colitis, chronic torpid ulcerous colitis, and acute diphtheroid colitis. Lynch and Draper believed the function of ileocecal valve possibly overestimated and the relative neuromuscular power of the ileum unappreciated. In the ureter it had been shown that normal peristalsis was far more protective than the ureterovesical valve. Ileostomy was indicated in multiple polyposis and hemorrhagic colitis. In the severest cases developmental reconstruction had been performed with 23.1 per cent. mortality in thirteen cases of whom 46.2 per cent. were cured and 7.7 not improved. His conclusions were that the extent of the infection should be determined, that ileostomy should be done for one case and colostomy for another. Many segmental infections relapsed and gave rise to strictures. Infection originally simple always became a mixed infection as in the lungs. Heredity and the upright posture played important parts in pathology of the colon.

Diagnosis of Colon Cancer.—Dr. Joseph Burke of Buffalo said in loss of weight carcinoma should be suspected. There might be abdominal mass with or without marked peristaltic pain. Pain about the lesion frequently radiated into the back and might or might not be due to local peritonitis. Blood appeared in flakes or in large amount. One never got gray stools in carcinoma of the colon. Diagnosis of cancer of the colon was difficult. Appendical and ileocecal tuberculosis should be excluded. Had seen three cases of cecal cancer with constant elevation of the temperature. In cancer temperature was considered frequent. One got a positive diazo reaction and tubercle bacilli in the stools in cecal tuberculosis. He reported a case of hepatic flexure carcinoma with diarrhea, loss in weight and strength, and tumor in the right hypochondrium which could be held fixed during respiration. In cancer of the greater curvature of the stomach he got coffee-ground vomitus, Boas-Oppler bacilli and absence HCl. Some cases of colon cancer had ruptured into the stomach. Cancer of the sigmoid gave a negative roentgenogram. Sigmoidal growth gave construction and was not palpable. Diverticulitis occurred in well-nourished individuals of sounds musculature and was accompanied by high temperature and leucocytosis. The treatment comprised an early diagnosis of the colonic growth and proper x-ray study.

Dr. Martin B. Tinker of Ithaca, in discussion, said that surgeons and internists were at odds in the treatment of intestinal stasis. He had observed the work of different progressive clinics; had seen one colectomy and several ileosigmoidostomies performed. Most surgeons would desire medical treatment as long as feasible. Those patients who were not relieved should be given an opportunity for surgical relief if there were hope. He believed the trend was away from complete colectomy. Ileosigmoidostomy was discarded by most of the surgeons of the country. He recalled the A. M. A. report of W. T. Mayo's partial colectomy. Draper deserved considerable credit for showing us why these cases should be so treated. All knew how many cases of polyposis degenerated malignantly and terminated fatally. Lynch and Draper had proposed a simple procedure, ileostomy, which some of us would be disposed to adopt.

Dr. T. M. Lynch pleaded for early diagnosis of cancer. He declared he had seen 400-500 cases. Amebic dysentery and colitis should be differentiated. The x-ray he did not consider of great value. One might have a carcinoma with but few symptoms. It might occur at about the thirtieth year. The palpation of a mass and the discharge of bloody mucus, especially if without apparent cause, were very important. Differential diagnosis between diverticulitis and carcinoma was often impossible. Indigestion was an early symptom and constipation a constant sign. The difficulty of emptying the bowel in cancer by enemas was suspicious. He finished his discussion by showing lantern slides of the colon, two of which, depicting the vascular and sympathetic relations of the colon, were particularly noteworthy.

Dr. A. L. Soresi of New York advocated an oblique anastomosis in contradistinction to a side-to-side or end-to-end, chiefly because of the conservation of the blood supply. This he demonstrated by slides and specimens.

Early Recognition of Cancer of the Stomach. — Dr. Julius Friedenwald of Buffalo declared early recognition important, for without this only relief was possible. Of 1,000 cases of gastric cancer indigestion appeared in 23.2 per cent., ulcer symptoms in 7.2 per cent., or 73 cases. The onset was sudden frequently. Important symptoms or signs were anorexia, vomiting, hematemesis, pain, dysphagia, tumor, dilatation of stomach, ascites, and edema, x-ray and serodiagnosis by the Abderhalden method. Anorexia occurred in 89 per cent., slight in 23 cases early; vomiting in 89 per cent., in 67 per cent. unassociated with eating; pain in 93.1 per cent., in 56 per cent. over entire abdomen, in 22 per cent. at the umbilicus, in 1 per cent. in the chest, in 84 per cent. as an early sign, hemorrhage in 22 per cent., in 88 per cent. multiple, in 10 per cent. single, in 21 per cent. early, in 79 per cent. late; melena in 18 per cent., in 14 per cent. early and 86 late; occult blood in 92 per cent., constant and early; dysphagia in 78 per cent., an early sign; loss of flesh in 98 per cent., from 5 to 78 pounds; palpable tumor, usually late, 30 per cent. in 6 months; dilatation of the stomach in 47 per cent.; ascites in 4 per cent.; edema in 10 per cent., combined in 21 per cent.; x-ray showed early contraction of stomach, bulging behind the pylorus, filling defect—a useful and important aid, but doubtful in early cases; gastric secretion in 89 per cent., free HCl absent, but it is often absent in other than cancer cases; in 82 per cent. lactic acid; in 79 per cent. Boas-Oppler bacilli, early in 74 per cent.; Wolff-Yunghaus test + in 44 per cent., Abderhalden reaction + in 60 per cent., Kelling's serum test + in 90 per cent. Simon found it in no way specific for cancer. The treatment was surgical, in doubtful cases medical, and if not cleared up medically surgical, especially with loss of weight, no HCl, and occult blood in the stool.

What Stomach Symptoms Justify Surgical Intervention.—Dr. Martin B. Tinker of Ithaca said nonsurgical conditions as eye-strain, heart lesions, gastric crises, cirrhosis, abdominal aneurysms, and chronic nervous disorders should be eliminated. As symptoms of cancer or of ulcer he considered pain which when frequent and persistent was an indication of serious trouble; hunger pain, gas, and distress, vomiting, especially of blood; periodicity, which occurred in gallbladder as well as in ulcer; downward course in health, tenderness localized over lesion, visible peristalsis, and gastric analysis, although neither positive nor negative evidence of carcinoma. Blood was found in 49 per cent. by Mayo, 43 per cent. by Peck, 50 per cent. by Tinker, and 40 per cent. by Brewer and Cole. Increased acidity, he said, denoted ulcer. Blood in vomitus or feces, he thought, was most indicative of carcinoma. The value of x-ray he held to have been pertinently represented in Brewer and Cole's 23 cases, 20 of which had been correctly interpreted by the rays. Osler and McCrea advised studying every case from the standpoint of a possible ulcer or cancer.

Dr. A. L. Soresi of New York discussed the comparative advantages of gastroenterostomy, pylorectomy, and gastroectomy.

Dr. L. T. Le Wald of New York reported eight cases of syphilis of the stomach from St. Luke's Hospital during the past two years. Dr. Meyer had also reported a case, in which he had performed a pylorectomy. The histories were doubtful and Wassermann positive. He illustrated by slides the dumbbelled shaped stomach, which must be differentiated from tuberculosis.

Dr. R. T. Morris of New York emphasized the importance of differentiating eye-strain.

Dr. H. L. Elsner of Syracuse pleaded for education of the public similar to the campaign against tuberculosis. He emphasized resistance in epigastrium as a sign of cancer.

Dr. S. T. Pilcher of Brooklyn pointed out that the arteriosclerosis of senility retarded metastasis.

Dr. C. G. Stockton of Buffalo said adenocarcinoma started in submucosa and developed before it could be found.

Dr. Parker Syms of New York recalled from Mayo's reports 70 per cent. of cancers having had a previous ulcer history and favored removal of ulcer-bearing area in operating for ulcer.

Dr. Levy of Syracuse believed cases should get proper medical treatment before being turned over to the surgeon.

Dr. A. Jones of Buffalo advised the use of the Einhorn bucket to determine potency or stenosis of pylorus.

Dr. Tinker concluded the discussion by recalling that Osler had mentioned eye-strain as a cause of stomach symptoms fifteen years ago.

The Rôle of the Superior Mesenteric Vessels in Abdominal Disease.—Dr. Josiah N. Hall read this paper. He outlined the anomalies of the mesenteric vessels. Arteriosclerosis of the superior mesenteric was a cause of angina abdominis and should be considered as well as the gross stomach lesions. Veins, also, might be sclerosed. He said arterial embolism was three times as frequent as thrombosis. Thrombophlebitis occurred in hepatic cirrhosis, syphilis, and food poisoning. He spoke briefly of dilatation of the stomach and its association with the supposed pressure over the duodenum by the mesenteric vessels.

SECTION ON MEDICINE.

Tuesday, April 27—First Day.

Dr. G. Reese Satterlee of New York, Chairman.

Mouth Infection as a Source of Systemic Disease.—Dr. S. Marx of Minneapolis, Minn., read this paper. The systematic work of the Medical Clinic of the University of Minnesota in this field began two years ago. All patients had a preliminary examination of the mouth to determine gross evidences of alveolar or dental infection. All patients giving such evidence were referred for study and relief of the mouth conditions to the dental service. In recent years renewed interest had been aroused by the discovery of methods which revealed the presence of alveolar abscesses with an ease and directness previously impossible. The study of focal infections in the mouth was only a part of that of focal infections in general. Experience had shown that the principal sites in which chronic foci might be found were as follows: (1) the secondary nasal cavities, *e.g.* ethmoid, sphenoid, frontal, and maxillary; (2) the middle ear and mastoid antrum; (3) the tonsils; (4) the alveolar processes, including all forms of dental and paradental infections; (5) the genitourinary tract, chiefly the prostate and seminal vesicles in the male, and uterine adnexa in the female; (6) gastrointestinal tract, including the gall-bladder, and the appendix. The relation of the tonsils to the dissemination of septic infection had been increasingly recognized during the past decade and the work of Poynton and Payne, as well as others, was well known. It was, however, to the fourth group given above that they were paying particular attention at the present moment. Infection of this region might be roughly divided into two groups: (1) infections about the teeth, giving the so-called pyorrhea pocket, and (2) abscesses and necrosis in the jaw, usually at the tips of the roots, with or without sinus formation. The importance of these two groups appeared to be almost equal. The recent finding of endamebas by Smith and Barrett in pyorrhea, confirmed by other writers, gave a new aspect to the study. The discovery in emetine of a specific remedy against these parasites gave an opportunity to determine promptly whether or not the endameba was pathogenic and whether distant effects could be produced by it. The studies in their clinics and elsewhere did not appear to him to be conclusive as yet, and much time would be required before definite conclusions could be reached. Dr. White said that he had reviewed the experience in their Medical Clinic from October 1, 1913, to January 1, 1915, with the purpose of showing the class of cases in which dental and paradental infections were found with evident relationship to systemic disease. The admissions to the medical service for the period covered were 565. Of these 55, or 9.7 per cent. of the entire admissions had pyorrhea, alveolar abscesses, or both, and had been included as instances of mouth sepsis, with evident or probable relationship to systemic disease. These cases were tabulated and charts were shown. Table IV. was a summary of Tables I., II., and III. as follows:

	Tonsillitis	Pyorrhea	Alveolar Abscess	Chronic Arthritis	Acute Rheumatism	Endocarditis	Nephritis	Arteriosclerosis	Septic Ulcer	Anemia, Secondary Type	Anemia, Pernicious Type	Vaccine
Total, 55 cases	15	35	40	16	7	25	13	10	4	22	5	12
Tonsillitis	..	3	7	6	3	8	2	2	1	6	0	.
Pyorrhea	..	12	14	10	4	15	11	7	3	18	3	..
Alveolar abscess.....	..	15	14	12	6	20	7	6	2	14	3	..
Tonsillitis, pyorrhea, and alveolar abscess.	..	5	5	3	1	2	1	1	..	3	..	.

As shown in the 55 cases included in this study, tonsillitis occurred in 15, or 27.3 per cent. In 3 it occurred with pyorrhea, in 7 with alveolar abscess, and in 5 with both. It showed that from this tabulation of 55 cases, as many more cases with mouth infection in their wards had been excluded because of a lack of any definite relationship to the clincal condition. Two conditions demanded that all foci should not be eradicated at once. The first was that in cases vaccines or bacterins were needed, if all foci had been eradicated and attempts at cultivation of bacteria had failed or gone awry, material for culture could not longer be secured. Secondly, the measures necessary for elimination of the infection frequently stirred up and increased the infection at the time and there was considerable danger, particularly in heavily infected individuals, of opening up many channels of infection, of severe local reactions, sometimes with necrosis, and frequently of aggravating a multiple joint infection, or even an endocardial or myocardial involvement. These dangers were real.

The Relation of Focal Infection to Ulcer of the Stomach, Cholecystitis, and Appendicitis.—Dr. Edward C. Rosenow of Chicago, presented this communication. He said that he wished to show by means of the lantern slides that appendicitis, ulcer of the stomach, and cholecystitis, as well as rheumatic arthritis, were due in many instances to streptococci because they were so commonly found in the lesions and because they produced the respective diseases in animals when injected intravenously. Similar results had been obtained with streptococci isolated from various foci of infection at the time of the acute attack as during exacerbations, but usually not later. This fact suggested strongly that the tonsils, pyorrheal pockets, and other foci of infection, not only afforded the entrance way for the bacteria, but the very conditions which he had shown in his transmutation work to be favorable for the acquirement of new properties of streptococci. Thus streptococci from appendicitis, on isolation, produced infection in the appendix in 41 out of 59, and after cultivation in only 3 out of 22 rabbits; streptococci from ulcer of the stomach, on isolation, produced ulcer in 50 out of 79, and after cultivation in no instance in 17 animals; from cholecystitis, on isolation, in 22 out of 27, and after cultivation in only one out of 12 animals; and from rheumatic arthritis, on isolation, arthritis developed in 47, endocarditis in 33, myocarditis in 31 and pericarditis in 19, out of a total of 71 animals, and after cultivation this affinity had largely disappeared as shown in 14 animals injected. The strains from erythema nodosum produced similar results. The lesions in other organs were either entirely

absent or slight in a large percentage of the animals. Among other things he emphasized the fact that when streptococci attained a certain grade of virulence, irrespective of their original source, they were prone to localize in the mucous membrane of the stomach of animals, producing ulcers which resembled those in man in that they tended to persist and perforate. Again in focus infection in cases of rheumatism, there were present conditions favorable to the development and growth of streptococci of that particular type. As a result there was a marked transmutation within the streptococcus or staphylococcus group. There were varying degrees of virulence. Dr. Rosenow looked upon the focus of infection not only as an *infection atrium*, but as a breeding spot.

Pyorrhea Alveolaris, and Some Modern Discoveries Regarding Its Causes and Treatment.—Dr. FRANCIS E. STEWART of Philadelphia read this paper. He said that pyorrhea alveolaris or Riggs' disease was for many years a perennial subject of discussion in dental societies before it attracted the attention of the medical profession to any extent. Its importance as an etiological factor of many systemic diseases had not been appreciated until recent years. It was well known to-day that a septic mouth might be the cause of affections of the eye, ear, throat, bronchial tubes, heart, liver, kidneys and other organs of the body. According to Osler, pyorrhea alveolaris was almost constantly present after middle life. Head states his experience indicated that it started between the ages of eight and ten years, and became perceptible between the ages of forty and fifty. Haskin said that cases were found in countless number, in the rich as well as in the poor. The recent discoveries in regard to the etiology and treatment of so-called Riggs' disease were therefore of sufficient importance to warrant their earnest consideration by the medical as well as the dental profession. Pyorrhea alveolaris was not a modern disease, for Galen (131 A.D.) was supposed to have referred to this condition when he said, "the lack of nutrition makes the teeth weak and brittle, and excess of nutrition excites a kind of inflammation similar to that of the softer parts." It was said that a study of the skulls in the Hunterian Museum, which included 5,000 specimens, showed that it was a disease of the early Egyptians. It seemed to have prevailed during the decadence of the Roman Empire and to have been universal among civilized nations from very early times. Ambroise Paré (1550) also described this condition. Many authorities laid stress upon the danger of systemic infection from septic conditions of the oral cavity, and considered the disease sufficiently widespread and injurious to warn the profession in regard to it as a serious menace to public health. Pyorrhea alveolaris was a mixed infection, protozoa and bacteria both being present. The use of ipecac or emetine hydrochloride would destroy the protozoa, as demonstrated by Barrett and Smith, and confirmed by Bass and Johns. The bacterial action must then be combatted. Five or six principal types of bacteria took part in the infection. The infection might be limited to the tissues of the mouth, or there might be one or more foci elsewhere, resulting from the extension of the infection. The object of treating pyorrhea alveolaris with bacterial vaccines was to stimulate the body cells to form substances antagonistic to the invading bacteria. For that purpose, either an autogenous vaccine might be employed containing the various germs found in the pockets of infection, or a mixed polyvalent stock vaccine might be used.

Finally, Dr. Stewart called attention to the fact that pyorrhea alveolaris was a name of a condition rather than a disease, a condition in which local and systemic factors cooperated in reducing the vitality of the patient, and that this reduced vitality enabled the organisms taking part in the condition to grow and reproduce at the expense of the patient's tissues. Also the tissues infected were not limited to the tissues of the mouth. Focal infections might exist in any organ of the body as a result of pyorrhea alveolaris, and the existence of such focal infection might be sufficient in its influence to greatly retard the cure of the patient's condition. Therefore, in treating pyorrhea alveolaris it was necessary not only to use amebicides, bactericides, and operative methods for the purpose of destroying the infecting organisms in the mouth, but also to employ systemic treatment to meet systemic conditions. The systemic treatment should include not only the use of ipecac or emetine hydrochloride and bacterial vaccines, but also accessory and concomitant measures, as indicated to meet the conditions existing in each individual patient.

Lantern Slides Showing the Proper Method of Brushing the Gums.—Dr. JOSEPH HEAD of Philadelphia gave this demonstration. He said that hardly a man knew how to clean the back teeth, and therefore the back teeth were seldom if ever cleaned. Bacterial masses were allowed to thrive there. They talked about eliminating mouth infection, but they did not give it the unwearying study they did to their beautiful course in physical diagnosis. About five years ago Dr. Head said that he woke up to the fact that there should be a more scientific method of cleaning the teeth. Therefore, he got a skull and made some careful studies, and evolved a method which he showed by means of moving pictures. Really the only instrument in the world for properly cleansing the teeth was floss silk. If the dental floss silk was used twice a day, and the teeth properly brushed, as he himself showed how to do, such a condition as pyorrhea alveolaris could always be cured. They should have, too, a properly constructed brush with bristles only one-quarter of an inch long.

Dr. JOHN OPPIE MCCALL of Buffalo said that the papers on pyorrhea alveolaris seemed to show that the disease was of parasitic origin, with excessive numbers of bacteria present. But there were in his opinion other factors to be considered. In Buffalo they had not succeeded with these injections of emetine and other substances—they had not gotten the results that people away from Buffalo had claimed for them. Such results as were claimed could not be obtained here. But they did obtain decided improvement in this disease by the employment of various agents. There was present in many instances calculi, or calcium deposits on the teeth which produced a mechanical irritation. Such calculi or deposits must be removed by one of the various forms of steel instruments or solvents. Again in bridge-work and crown work the condition of the teeth favored the inception of a local infection about the roots.

(*To be continued.*)

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

STUDIES FROM THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Reprints Volume XX.

HOSPITALS AND CHARITIES. By SIR HENRY BURDETT. Published by The Scientific Press, Ltd., London, England. Price, 10/6.

PYELOGRAPHY. By WILLIAM F. BRAASCH, M.D. Containing 323 pages; price, $5.00. Published by W. B. Saunders Company.

PAINLESS CHILDBIRTH. By MARGUERITE TRACY AND MARY BOYD. 316 pages; price, $1.50. Published by Frederick A. Stokes Company.

WHAT THE MOTHER OF A DEAF CHILD OUGHT TO KNOW. By JOHN DUTTON WRIGHT. 107 pages; price, $0.75. Published by Frederick A. Stokes Company.

THE LOCALIZATION OF BULLETS AND SHELL FRAGMENTS. By F. H. JOHNSON, M.D. Paper; illustrated. Published by H. K. Lewis; price, $1.00 net; 23 pages.

THE NURSES' TEXT BOOK SERIES. By LINETTE A. PARKER, B.Sc. (Columbia Univ.) R.N. Illustrated with 29 engravings and 3 plates. Published by Lea & Febiger, Philadelphia and New York. 300 pages.

SURGERY OF THE BLOOD VESSELS. By J. SHELTON HORSLEY, M.D., F.A.C.S. Published by C. V. Mosby Company, St. Louis. Illustrated; price, $4.00; 296 pages.

MEDICAL ETHNOLOGY. By CHARLES E. WOODRUFF. Published by Rebman Co., New York. Price, $2.00; 307 pages.

JOHN SHAW BILLINGS. By FIELDING H. GARRISON. Published by J. P. Putnam's Sons, New York. Price, $2.50; 422 pages.

REPORT ON FIFTY-TWO BORDER-LINE CASES IN THE ROME STATE CUSTODIAL ASYLUM. Eugenics and Social Welfare Bulletin, No. IV. Published at The Capitol, Albany, N. Y.; 99 pages.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 20.
Whole No. 2323.

New York, May 15, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

MEDICAL ASPECTS OF CANCER.*

By L. Duncan Bulkley, A.M., M.D.,

New York.

Senior Physician to the New York Skin and Cancer Hospital, etc.

In his recent president's address before the American Surgical Association, Dr. William J. Mayo spoke in regard to the internal causation of cancer in a manner which should attract serious attention. Few have had a wider acquaintance with the surgical aspects of the disease than he, and few others know better than he how relatively impotent surgical procedures are to stay the steadily increasing mortality from cancer, which now claims about 90 per cent. of those whom it once attacks.

As a text for what I have to say, I want to quote a few of his words, as they confirm so strongly the views I have held and by which I have practised for thirty years and more, with results which I have seldom, if ever, had cause to regret.

Speaking of the prophylaxis of cancer, mainly from its surgical aspects in regard to early operation, Dr. Mayo says: "Cancer of the stomach forms nearly one-third of all cancers of the human body. So far as I know this is not true of the lower animals, nor of uncivilized man. . . . Is it not possible, therefore, that there is something in the habits of civilized man, in the cooking or other preparation of his food, which acts to produce the precancerous condition? . . . Within the last 100 years four times as much meat is taken as before that time. If flesh foods are not fully broken up, decomposition results and active poisons are thrown into an organ not intended for their reception and which has not had time to adapt itself to the new function." In conclusion he says: "Where cancer in the human is frequent, a close study of the habits of civilized man as contrasted with primitive races and lower animals, where similar lesions are conspicuously rare, may be of value, and finally the prophylaxis of cancer depends, first, on a change in those cancer-producing habits, and second, on the early removal of all precancerous lesions and sources of chronic irritation."

I shall hope to show you that cancer is indeed a disease of modern civilization, like tuberculosis, although of quite a different nature, and that the increase in its prevalence and mortality has closely followed the habits of man, in regard to diet and mode of life, as influenced by so-called civilization. We shall see that as the death rate of tuberculosis has diminished, that of cancer has steadily increased, the one under improved nutrition, the other under excessive or erroneous nutrition.

*Address before the Rhode Island Medical Society, March 4, 1915.

It is strange that the medical profession has been so slow in accepting, or unwilling to accept and act upon the suggestions along this line which have been thrown out from time to time, for very many years, by surgeons of prominence who were well acquainted with cancer, and who felt their inability to cope with this distressing and fatal disease. And yet innumerable, earnest, faithful, and intelligent research workers have expended any amount of time and labor, countless animal lives have been sacrificed, and vast sums of money have been spent in searching for the cause of malignant disease, with little if any but negative results; from the standpoint of laboratory investigations thus far a satisfactory answer as to the problem of cancer seems as distant as ever, with no practical suggestions in regard to the prevention and cure of the malady, except by local means, including surgery, *x*-ray, radium, etc.

From the surgical aspect the problem does not seem much brighter, as we shall see later. All honor to the surgeons who have so earnestly and valiantly striven to cure the disease by these means, but alas, their efforts have proved unavailing to check to any degree the constant rise in the general death rate from cancer, as shown by the mortality tables from many lands; and this is because the effort has not been along the right lines, as I shall hope to show.

I am well aware of the improvement in surgical statistics which has been reported in regard to cancer in certain localities during the last few years, and of the importance of very early operations, if good results are to be obtained; but I hope also to show that the same pertains to the dietetic and medical treatment of the disease. While operative procedures may remove the tumor, and with it the source of toxic material generated in the same, they do not in any way affect the primeval or basic cause of the trouble; whereas, if exactly the right measures are employed to reach the fundamental source of the difficulty, not only will the original new formation disappear but there will be little or no tendency to its recurrence. What these lines of causation are will appear later.

Dietetic and medical treatment of cancer, in the fullest sense, have never been given a fair and completely intelligent trial, on a scale large enough to produce general conviction in regard to their value and to lead to their general adoption. With a rather extended experience during the last forty years, I have rarely if ever found a patient with cancer who has received adequate and continuous medical care and treatment before operation, with a view of discovering and rectifying the cause of the morbid growth. Too often when a cancer is suspected or discovered it is taken as a foregone conclusion that the malady is hopeless, except as the *results of the disease*, that is the new growth, may

be removed by the knife, *x*-ray, radium, caustics, etc.

Also after a surgical operation, as far as my observation goes, the patients are invariably left entirely to their own resources, with the hope, alas, too often futile, that the tumor will not regrow, but with no attempt to so guide the life that there shall no be the same tendency to a recurrent malignant new formation as before. Against this latter course I also raise my earnest protest.

That you may know that Dr. Mayo is not alone in his impressions that there is "something in the habits of civilized man . . . which acts to produce the precancerous condition," I must very briefly refer to some of the leading surgeons of the past who, from time to time, with more or less force, have claimed that the disease is constitutional, and that it depends largely on diet and mode of life: later I shall hope to present sound grounds for such belief.

One hundred years ago Lambe wrote clearly in regard to the causation of cancer from luxurious living, and adduced strong proof to show the effect of diet in curing certain cases of undoubted cancer of the breast and uterus.

Abernethy, shortly after, wrote pointedly regarding the constitutional origin of tumors, endorsing Lambe's dietetic treatment of cancer and presenting several reasons why it should be fairly tried.

Walshe in his classical work on cancer, says, "It would in theory appear that the removal of a tumor cannot in itself cure the disease, as the local formation is but a symptom of the general vice of the economy," and he alludes more or less to the effect of diet on the disease.

The late Willard Parker, one of New York's great surgeons, in a study of 397 cases of cancer of the breast, observed from 1830 to 1880, wrote very strongly in regard to the constitutional relations of cancer. In considering its etiology he places first "luxurious living and particularly excess in animal food." He says, "Cancer is to a great degree one of the final results of a long-continued course of error in diet, and a strict dietetic regimen is, therefore, the chief factor in the treatment, preventative and curative." He further says, "In regard to the effect of abstemiousness on cancer I can speak with great positiveness, that vegetable, or at least a very bland diet, does check the progress of the disease, and in some cases now under treatment has been attended by an alleviation of symptoms; and in a few instances even by a recession of the growth."

Sir Astley Cooper is quoted by Dr. Parker in some strong language, as follows: "The cause of this disease is supposed to be some accidental blow or the pressure of a part of the dress; but although the blow may produce a swelling on the bosom, yet that swelling will not be of a schirrous nature unless some defective state of the constitution disposes to malignant action. If the constitution be good the effects of the blow are speedily dissipated: but if the constitution be faulty, the swelling grows into a formidable disease." Later we shall see what some of these constitutional conditions are which induce certain cells of the body to take on malignant action.

Sir James Paget, that prince of surgeons and pathologists, comes out very strongly for the constitutional origin of cancer when he says twice in his Lectures on Surgical Pathology that cancers are "local manifestations of certain specific morbid states of the blood"; and again, he says, "I believe it to be constitutional, in the sense of having its origin and chief support in the blood . . . "the existence of the morbid material in the blood, whether in the rudimental or effective state, constitutes the general predisposition to cancer."

Benecke, in 1875, elaborated a diet highly beneficial in cancer, which was endorsed by Esmarch and Oldehop.

If time permitted I could give any amount of further corroborative evidence, in the way of scattered remarks and allusions, like those of Dr. Mayo, expressing the conviction of many others, that cancer is not a purely local affection, but is only the result of some previous systemic disturbance, which we now recognize as metabolic.

But these many fugitive observations have never attracted the attention they deserve, and it would sometimes seem as if they were deliberately ignored, and that scientists and practitioners had combined to recognize only the local nature and treatment of cancer. The truth is that very little serious effort has ever been made to assemble all the evidence of the constitutional nature of the disease, and by synthesis and deduction to establish a basis for the recognition and treatment of the constitutional elements of cancer. While it has been quite impossible to gather all the proof that could be desired, I shall hope to give enough to establish the correctness of the basis of the thesis which I have long held.

Cancer is more or less widely diffused over the whole globe, but in singularly different degrees in various sections, and time will permit of only the briefest statement of the same, which can be verified and expanded from the remarkable recent works of Williams and Wolff.

Thus, in England cancer mortality is very high, and during the past 40 or 50 years it has increased four or five fold, while the population has only a little more than doubled. Switzerland is credited with having the highest death rate from cancer of any country, it having augmented from 114 per 100,000 living in 1889 to 132 in 1898. Denmark stands next with 130 per 100,000 living in 1900, and France has a high cancer mortality, with a constantly increasing death rate. In Paris it has increased from 84 per 100,000 living in 1865 to 120 in 1900. In Holland, the death rate from 1867-1879 was 49 per 100,000, and 101 in 1905.

The United States shows a lower death rate from cancer than the countries mentioned, namely 78.9 per 100,000 living in the registration area in 1913; but it had increased from 63 in 1900, over 25 per cent, while deaths from tuberculosis had fallen a little over 25 per cent: in 1913 there were over 50,000 deaths from cancer in the United States. In a recent study regarding New York, Boston, Pittsburgh, Baltimore, Chicago, Philadelphia, and St. Louis, it was found that there had been an increase of almost 8 per cent of deaths from cancer in their combined population in 1913, as compared with the average of the five years preceding.

I am quite aware that some have claimed that the increase of deaths from cancer is only apparent, and not real, and is accounted for by a greater longevity into the cancer age, by more accurate diagnosis, and by greater exactness in recording deaths. But these points have been carefully and satisfactorily refuted by Williams, and surely the increase of 8 per cent in these seven cities could not be thus accounted for. In New York City, ac-

cording to the Weekly Bulletins of the Board of Health, there were 2173 deaths from cancer in the six months from May to November, 1914, or almost twelve deaths daily from malignant disease.

While cancer is steadily increasing everywhere, under the influence of modern civilization, there are certain sections where the mortality is much lower than has been mentioned.

Thus Italy has a low but increasing mortality, it having risen from 20 per 100,000 living in 1880 to 58 in 1905. Hungary had a cancer death rate of 26 in 1897 and 39 in 1903; in the county of Kerry, Ireland, the cancer death rate was 26 and in the province of Dalmatia 16 per 100,000 living population.

In some regions, however, cancer is very rare and in others almost unknown. In Africa all observers agree that the disease is exceedingly rare, as also among those in the interior of China and India; in Brazil it is seldom seen, while several testify that in many of the islands of the sea it is practically unknown.

During a rather extensive trip through the Far East I was unable to see or hear of any cancer, although I met a large number of medical men, and made diligent inquiry regarding the same. I visited very many civil, military, and mission hospitals, with a total of many thousands of patients, and ministering to many millions of population: in Japan, Korea, China, the Philippines, India, Siam, and Egypt, I met the same response, that cancer was very rarely seen among the natives.

Now there must be some reason for this unequal distribution of cancer. Laboratory researches have not helped us in discovering it, except that they have done much to clear the way for a proper understanding of the real nature and cause of cancer, though the evidence furnished is largely of a negative character. In order to appreciate fully the basis on which our thesis rests, it will be well to state very briefly the accepted facts in regard to cancer.

1. Cancer is but a deviation from the normal life and action of certain of the ordinary cells of the body.

2. It is possible that the diseased action may begin first in what is known as "embryonic rests," or pre-natal, wrongly placed tissue elements.

3. Cancer is *not* wholly of traumatic origin.

4. It is *not* caused by a microorganism, or parasite.

5. Cancer is *not* contagious.

6. Cancer is *not* hereditary in any appreciable degree.

7. Occupation has *not* any great influence on the occurrence of cancer.

8. Cancer is *not* altogether a disease of old age.

9. It does *not* especially belong to or affect any particular sex, race, or class of persons.

10. Cancer is *not* confined to any location or section of the earth.

11. *No* single cause of cancer has yet been demonstrated, nor is it likely that this will ever be the case, as the experimental and other investigations have covered almost every possible line of research, with only *negative* results.

But there must be some cause, or reason, why cancer is thus unevenly distributed and why it is so steadily increasing almost everywhere; why it is so exceedingly prevalent in some localities and among certain peoples, and again so rare or even absent among others; for we have seen that aborigines are not affected, while others, in proportion as they have been affected by so-called civilization are correspondingly affected. Wolff has shown in a remarkable table, that while cancer in the native Australians has remained about stationary, it has increased among the English residents in cities *seven fold*, and another writer remarks that while the native Australians are practically free from the disease, when they mingle with foreigners as servants and employees and adopt their diet and customs it occurs more frequently among them. The same has been observed among native Africans and those in India and elsewhere.

Analyzing the various data obtained, we find that cancer has increased in proportion to the consumption of the three articles, meat, coffee and tea, and alcohol.

In England, where the consumption of meat has doubled during the past fifty years and recently was 130 pounds per capita yearly, cancer mortality has increased *four fold*. In Italy, where the consumption of meat is the least of any of the European countries, cancer is least frequent, and in the county of Kerry, Ireland, where meat is seldom eaten, the death rate from cancer is not one-third that in England. The same comparison may be made between a number of other countries, did time permit. The United States in 1909 consumed much more meat than England, namely 172 pounds per capita, and, as already stated, cancer has increased over 25 per cent. since 1900.

Alcohol must also be accredited with a portion of the increase of cancer in both these countries, as it is well known that the disease presents a far greater augmentation in those occupations where alcoholic drinks are indulged in, as in bartenders, printers, and others.

Coffee has been shown to have its largest per capita consumption in Holland, where the cancer death rate is among the highest, while Hungary is the smallest consumer of coffee, and the cancer mortality there is among the lowest, namely 39 per 100,000 living. The people of the United States consume one-third of all the coffee produced, more than Germany, Austria, Hungary, France, and the United Kingdom combined. England and her colonies, where cancer is steadily increasing, consume one-half of the world's output of tea.

Williams has given some interesting and important data regarding the effect of prosperity and wealth, leading to self-indulgence and indolence, in the augmentation of cancer mortality, which time does not permit our long dwelling upon. He shows clearly that as these elements of modern civilization have developed, cancer has surely increased, and he gives striking illustrations of the same. In England it was found in one decennium that cancer mortality was more than twice as great among well-to-do men, having no specific occupation, as among occupied males in general, the ratio being 96 to 44.

Nerve conditions have also been found by many to be an important element in the production of cancer, and the very great nervous strain accompanying modern civilization must be reckoned among its causative factors, possibly through its effect on metabolism.

To understand how these various elements mentioned, and probably others, have an influence in the genesis of cancer we must briefly consider the physiology of nutrition and the metabolism of cancer as far as it has been ascertained.

All recognize, of course, that the body nutrition, in health and disease, depends upon the nutritive elements taken into the system, as proteids, carbohydrates, and fats, with oxygen inhaled and water imbibed. We know, of course, that there is a certain equilibrium to be maintained in regard to its various component parts, and that over-indulgence in certain articles can without doubt produce disease as, for instance, acute or chronic gout from free indulgence in Port and Madeira wine. Just where the fault lies, and why, after a certain time the system rebels and refuses to properly metabolize and remove waste products, or why the latter exert such a baneful influence on different portions of the economy, and give rise to various inflammations and misgrowths, is hard to tell, and must be the subject of future study, but the fact no thinking man can doubt. Later we shall hope to throw some little light upon it.

The metabolism of cancer has been the subject of considerable research, and there have been many reports in this direction which can be but briefly alluded to here; unfortunately, however, most of these investigations have been made upon advanced cases, where the system has been already depressed by the poisonous toxins produced in the already well-developed cancer mass, or where the disease process has already involved important viscera and interfered with their proper action. What we need is careful metabolic studies on precancerous states of relative health, also in very early cancer, and likewise after surgical operations, when the local manifestations of the disease have been removed: only thus can we rightly learn the true errors of metabolism which lead up to cancer.

But enough has been developed to show that the cancerous person manifests grave aberrations from the normal state, other than the local tumor.

The *blood* exhibits great changes in cancer, especially toward the end of the disease. The haemoglobin content tends to constantly fall, and the red cells to diminish, and to exhibit various phases of degeneration. The white cells increase, and the proportion of their varieties changes greatly. Unfortunately the plasma has not been much studied, and yet the condition of this fluid must be of the utmost importance, as from it are derived not only the solid constituents of the blood but also those of the entire system. It also holds in solution the phosphates, carbonates, sulphates, and chlorides, the latter often varying greatly and being chiefly responsible for the isotonic relation of cells and serum. In cancerous cachexia a diminution of carbonic acid, a constantly diminished alkalinity, and an increase of acid principles of the blood have been fully demonstrated, pointing in all probability to an acid intoxication. It seems that the toxic secretion from a cancerous mass itself has a distinctly injurious action on the blood, for after the complete removal of a cancerous mass there is often found an increase of haemoglobin, as I have witnessed, and a high leucocytosis has disappeared after the removal of schirrus of the breast, only to return again with the recurrence of the tumor.

The *urine* in cancer has also been much studied, and is rarely if ever found to be that of health, although it cannot be said that any definite and specific changes have been established which are pathognomonic of the disease: the urinary excretion will constantly be found to be extremely deficient, both as to its quantity and its total solid elimination. In one very interesting case of primary cancer of the breast, in a stout, flabby lady, near 55, in private practice, the total quantity of urine, meased daily for weeks, is always very far below the normal amount, and in spite of active medication it seems almost impossible to raise the total daily solids excreted in the urine, to much more than one-half of that called for by the weight of the patient. This I have observed in very many cases.

In regard to the changes which have been reported in the urine of cancer patients, many observers agrée that there is a disturbance of proteid metabolism, and dependent upon this many deviations from normal are found in the urine. The urea is invariably diminished, often very greatly, as I have verified time and again in many cases. The nitrogen partition is greatly disturbed, with increase in colloid nitrogen to more than double the normal amount, and an increased elimination of xanthin, oxyproteic acid, and urinary ammonia; oxyproteic acids are reported by Blumenthal as increased even in very early cancer, and independently of the size of the tumor and degree of cachexia, seemingly showing them to have some specificity for cancer, because they have not been found in other forms of malignancy.

Notable changes have also been recorded concerning the sulphur elements in the urine, with a great increase in neutral (unoxidized) sulphur, and a considerable excess of sulpho-cyanic acid, together with an increase in sulphates and indican, showing the results of intestinal fermentation of protein elements, which I have also constantly observed. There have been likewise other changes reported, which time forbids our considering.

The *saliva* is an important element in the digestion of carbohydrates, and consequently in metabolism and the genesis of cancer; but, unfortunately, I have not been able to find any investigations relating to its condition in this disease. But in very many tests which I have made in cancer patients it is commonly found acid, often strongly so; in my hospital cases I have it tested before and after each meal, and watch with considerable interest its change to alkaline under efficient treatment, which includes prolonged mastication.

The *internal secretions* have also been the subject of much research and speculation of late years, in regard to their influence on metabolism and the life processes of the economy, and some studies have been made concerning their connection with cancer, which cannot now be long dwelt upon. But there seems to be little doubt but that the secretions of the ductless glands in common have much to do with regulating the metabolism of the body cells. We know, for instance, that disease of the pituitary body produces bone disorder, resulting in gigantism, that thyroid derangement results in myxedema, and that disease of the suprarenal capsules gives rise to Addison's disease, or bronzed skin. May we not rightly argue that derangement in one or more of these has something to do with the cellular changes which we call cancer? The favorable results which have attended the administration of thyroid, which I have myself often witnessed, as also a combination of the three extracts, as reported by some, would seem to confirm this.

The *pancreatic secretion* performs undoubtedly an important part in metabolism, and although some researches have seemed to show that Beard's claim for it in cancer was not well founded, the matter should be again investigated, possibly along the dietary lines herein considered.

Very much more could be given in regard to the metabolism of cancer, did time permit, but enough has been said to show that there are gross perturbations of the system connected with this disease, and that the local tumor is but an expression of one aspect of a constitutional disorder, which if unchecked tends to death, aided undoubtedly by a virulent poison secreted by the malignant cells of the tumor, when it has once developed.

Everything has its beginning, but, as Ribert says, "no one has ever seen the beginnings of mammary cancer," nor of any other malignant lesion, and we are in utter ignorance of the first change which takes place when a cell or cells take on a rampant or malignant action. But whenever or however it takes place the impetus must be from the plasma bathing the cell which was previously normal and innocent. We have not time to discuss the subject of "embryonic rests," which quite probably have to do with the genesis of the disease. But these are now known to be common anatomical or histological elements, many of which are present in every one, and which are ordinarily quite harmless. It is, therefore, quite unreasonable to ascribe the cause of cancer to them alone—there must be some deeper, underlying cause which excites them to take on and continue malignant action, and that cause is found in the perverted blood and lymph stream resulting, as several writers have affirmed, from a prolonged violation of the laws of perfect health, although other evidence of this may not have been previously recognized in the individual patient.

It is more than probable that a local irritant is the exciting cause of the starting up of the aberrant action of some particular cell or cells. These then go on multiplying inordinately, destroying adjacent tissues, and finally break down, instead of forming normal tissue. But the local irritant cannot explain why, when once started by local injury, the cells should pursue such a progressive, aggressive, and invasive course. The reason is found, as Sir Astley Cooper and others have believed, in some faulty condition of the system, which is now shown to be from a perverted metabolism, arising from many causes, and among others from overindulgence in animal protein, coffee and tea, and alcohol.

It would seem, therefore, that for the development of the local manifestation of cancer (the tumor or new growth) three elements are requisite, namely: 1. A predisposition or suitable blood condition. 2. A local stimulation or irritation of the part affected, *upon*, 3. The site of an "embryonic rest."

In but a relatively small proportion of cases can the direct local irritant be made out with certainty, and even in cancer of external parts, as the breast, there is often no consciousness of external injury or even a blow, while in cancer of internal parts this is very seldom recognized. I am quite aware that cancer may follow gastric ulcer, that gall stones may act as an exciting cause, and fecal impactions in intestinal diverticula are the starting point of cancer, etc. But the relative rarity of such occurrences shows that there must be some hidden, underlying, constitutional cause which feeds the deranged cells. I appreciate, also, the part which metastasis plays in spreading the disease to distant parts, but this is because generally the faulty metabolic cause is allowed to continue, for when this is checked by proper dietary and other treatment even metastatic foci disappear.

We come now to the question as to what this metabolic disorder is which incites formerly normal tissue cells to take on and continue this diseased action, which is really the true problem in cancer. Alas, the actual and exact state of blood which leads up to the disease has not yet been fully determined, although all that has been learned and already briefly alluded to under the metabolism in cancer, points clearly to the lines of study which should be more closely followed. And even if we should be long in establishing a definite and true metabolic disorder, or should never determine it, this should not deter us from acting on clinical grounds, from experience, even as is constantly done in regard to many other ailments, illustrations of which will readily occur to every one. Indeed, how constantly diseases are treated empirically, with greater or less success, without any great knowledge of their real etiology.

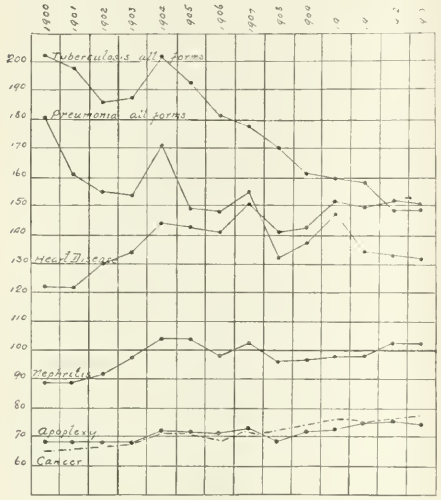
Coming now to the important question of the prophylaxis and treatment of cancer to which this study of its medical aspects leads, we find that we have advanced far toward a proper understanding of the same. We have seen that cancer is but a wrong development of certain previously normal body cells, possibly "embryonal rests," by a process of agamogenesis, dependent upon excessive and faulty nutrition. Laboratory and other studies have decided pretty certainly that it is *not* due to a parasite, *nor* contagious, that it is *not* hereditary, *nor* due wholly to local irritant action, that it is *not* altogether a disease of old age, *nor* belonging to any particular occupation, and that it does *not* affect any particular sex, race, or class of persons, and that it occurs all over the earth, but with striking difference in frequency according to certain peculiarities of life, associated with advancing civilization. We have been thus forced, by exclusion, to recognize that it must be due to some systemic change, whereby the perverted nutrition offered to certain irritated cells causes them to take on a morbid action, which is prolonged by a continued mal-nutrition, and increased or aggravated by a vicious secretion from these diseased cells themselves, in other words, that it is a disease of faulty metabolism.

It will be interesting and instructive to consider for a moment some of the other diseases which are also causing a constantly increasing mortality, as shown by the accompanying table, taken from the volume of the United States Mortality Statistics. These are all recognized as due to faulty metabolism, induced by advancing so-called civilization.

It is seen here that while the death rate from infectious diseases, tuberculosis and pneumonia, has declined steadily and rapidly, that of organic heart diseases has risen greatly, and nephritis has shown a steady rise, as also apoplexy. This latter has about kept pace with cancer, which has risen from 63 deaths per 100,000 living in 1900 to 78.9 in 1913, a gain of 15.9 per 100,000 in 13 years, or over 25 per cent.

If we accept the fact that the mortality of these diseases is steadily rising from the effect of modern civilization, we must also admit that cancer, whose mortality is increasing coincidently, is due to the same cause. And as these diseases are recognized to be largely the result of erroneous eating and drinking, we find here a corroboration of the claims now set forth in regard to cancer. It seems incredible that the profession has so long ignored or rejected the facts showing a constitutional origin

of cancer, and have persisted in regarding it as a local disease, and have so long trifled with it, by seeking to remove the *results of the disease*, while neglecting to rectify its cause; for in spite of active and intelligent surgery the death rate advances with sure and steady steps.



Organic heart disease, nephritis, and apoplexy show a continual and great rise in mortality, and cancer has a coincident rise of over 25 per cent. As the three former are recognized to be largely due to the incidents of modern civilization, mainly in the line of erroneous eating and drinking, it would seem reasonable to ascribe cancer to the same cause.

Prophylaxis of Cancer. From what has preceded it can readily be understood that the prevention of cancer lies largely along dietary and hygienic lines, including such medical attention as shall secure healthy action of the secreting and excreting organs. If the figures and facts obtainable are correct, if cancer has surely been observed to increase under certain conditions of life, if it is found to be absent or relatively rare under certain other conditions of living, if cancer has been known to disappear spontaneously in certain individuals, especially when they have changed their mode of living, it must then follow that when the exactly correct habit and state of life are continually maintained, the disease will not occur.

In other words, when the blood stream nourishing the tissues is ideally correct, the individual cells of the body perform their functions normally, and as each cell is worn out it is removed by a healthy catabolism and renewed by a normal anabolism, and homologous cells replace those which have ceased to be able to perform their function. On the other hand, when there is perverted metabolism we have various forms of deranged action, to which we give the names of various diseases, one of which is cancer. Here in place of homologous cells, maintaining the tissues in a normal condition, we have a malignant metamorphosis into heterologous cells, which take on a disorderly or rampant action, and refuse to assimilate themselves to others, so as to form healthy tissue; we have then a mass of low vitality tending to easily break down and ulcerate, and to extend their malignant action to adjoining tissues, under the continued influence of a contaminated blood current.

Time does not permit further elaboration of this important subject, the details of which must now be patent to all. They are included in a simple living, with perfect mastication, reasonable exercise, the avoidance of all excesses, especially along the lines of protein, tea and coffe, alcohol, etc., with the maintenance of healthy habits of life, especially in regard to bowel action. The greatest safety is with an absolute vegetarian diet, with the single exception of butter.

The medical treatment of cancer can be put in a few words, although in individual cases it may involve the most assiduous attention to the most minute particulars regarding the individual in many directions, and over a greatly prolonged period of time; no detail of the patient's life can be too small or insignificant to have some bearing on the deranged metabolism which affects the cancerous growth, for good or bad.

There is, of course, no single remedy for cancer, nor will there ever be, because of the true nature of the disease, as I have tried to outline it. For the same reasons I cannot believe in a successful serum therapy, it seems so illogical, and the very multiplicity of the forms of serum which have been lauded from time to time, only to end in disappointment, would seem to point toward ultimate failure, when all possibilities along this line have been exhausted.

The first element of treatment is an absolutely correct vegetarian diet, with the avoidance of coffee and alcohol in every form.

But it is not enough for the physician to simply direct that this be taken, but to be thoroughly successful every detail must be carefully attended to so that the patient receives adequate nourishment. The details of this cannot be dwelt upon, and the matter is fully considered in various works on food and nutrition. A vegetarian diet needs no defense, for millions of human beings naturally live thus, and escape cancer, and thousands in civilized lands are adopting it for health. But there must always be care taken, not only that sufficient calories are consumed each day, but also that there is a daily proper amount of vegetable protein, carbo-hydrate, and fat in a form and condition to be acceptable and well digested. A good part of the fat required can be supplied by butter, of which one quarter of a pound should be taken daily, representing 800 calories.

It would surprise you if you knew how almost invariably cancer patients are constipated and have long been so. Indeed, with me it is such a great exception to find it otherwise that I have come to look upon this feature of imperfect intestinal excretion, or intestinal stasis, as it is now called, as one of the prime elements in the causation of cancer. This has been strongly emphasized by Sir Arbuthnot Lane, the distinguished English surgeon, who has spoken of cancer as one of the terminal results of intestinal stasis. I feel almost like saying that the toxins produced by the millions of microorganisms generated through intestinal stasis and fecal putrefaction are the real, incidental cause of cancer.

The kidney secretion is also found to be at fault in every case of cancer which I have studied, and is, of course, an indication of the faulty metabolism which prevails in these cases. It is necessary, therefore, to study this excretion repeatedly and most carefully, in all possible directions, in order to understand the exact condition of the patient, as it changes, daily or weekly. This does not refer

to the presence of albumen or sugar, for I have seldom found these in my cases, but it relates to the total amount of solids thus excreted daily, and to the various component parts and their relation to one another. I have already mentioned that I seldom find the total amount equal to that which should be passed in proportion to the body weight of the patient, although often the quantity of the urine may not be far from normal.

For this purpose a very thorough volumetric analysis should be made weekly of the urine, which should be measured and recorded daily, as is the routine in the hospital and in many of my private cases. The measured volumetric acidity is very important, as also the urea, chlorides, phosphates, sulphates, indican, etc., and the treatment should be guided thereby, the aim being to secure a return to metabolic health. Alkalies form a very important part of the treatment of these cases, but details cannot be given for want of time.

We have seen that the blood presents great changes in cancer, and this should be studied weekly, and iron or other remedies given as indicated. The weight of the patient should also be taken weekly, and while it is often desirable to reduce those who are corpulent, more commonly the weight is watched to improve the nutrition by proper dietary or medicinal measures, which cannot be here dwelt upon.

If time permitted I wanted to give you in detail reports of some of the many cases which I have had, mainly in private practice during the last thirty and more years, for it is hard to carry out satisfactory treatment in hospital cases for a sufficient length of time to be sure of positive results, but I must content myself with very brief mention of the same.

I will not weary you with statistics, but only state that I have a hundred or more records of cases in my office, and a considerable number in the New York Skin and Cancer Hospital, where I have taken up this special line of investigation and treatment during the past year. In about one-quarter of the cases in private practice, there had been previous surgical removal, with recurrence; many of the other cases were small, early tumors, but some of them quite far advanced before treatment, some even with much ulceration and metastatic adenopathy. In almost all of them other medical men, often several, had previously diagnosed cancer, and in a number of instances surgical operations had been arranged for. So that while the diagnosis could not be confirmed microscopically in a large share of cases, there could be little doubt as to its accuracy. And even if possibly some few of the cases were only simple adenoma of the breast, the dissipation of this by non-surgical measures avoided an operation which might possibly be followed by cancer, as has happened in certain cases which had been shown microscopically to be only adenoma after removal. In addition to the cancer cases there were also some 22 other breast tumors which were not included among the former. I will briefly mention a few of the cancer cases:

Case I.—Mrs. B. E. C., aged 44, was first seen on September 12, 1892. She had a flat painful tumor in the outer lower segment of the right breast, pronounced cancer by a well-known prominent surgeon, who strongly urged its instant removal. Within six months the breast became perfectly normal, and remained so for sixteen years, when I lost sight of her.

Case II.—Miss B. M. L., aged 45, was first seen January 4, 1894, with a painful tumor in the upper outer quadrant of the left breast, diagnosed as cancer by three medical men, one of them a surgeon of prominence, who had arranged for surgical removal the next day. Within two months the tumor was less distinct and flatter, but it did not entirely disappear for eleven months. She was seen from time to time also for sixteen years, and had had no recurrence, the breasts being both normal when examined at the end of that time.

Case III.—Miss J. M. A., aged 45, was first seen October 12, 1905, with a tumor of the upper, inner quadrant of the left breast, awaking her with pain at night, which had been repeatedly diagnosed as cancer by different medical men and surgeons, the latter insisting on its surgical removal; but she had always declined operation. Within two months there was little to be felt in the breast, and on January 6, 1906, three months from the first, it had quite disappeared, both breasts being perfectly normal. She has been seen for various troubles, up to the present time, over nine years, and remains perfectly free from any breast trouble, in spite of hard work and worry all the time, as a city missionary.

Case IV.—Miss G. M., aged 44, has been under constant surveillance and treatment for various troubles since she was first seen, November 13, 1905, up to the present time. She had a tumor in the upper, inner segment of the left breast, with enlarged axillary glands: several medical men had diagnosed it cancer, and a hospital surgeon of prominence had pressed for an immediate operation. Within four weeks the painful sensations had almost passed away, and the tumor had diminished materially in size. A month later the breast was almost the same as the other, with some general caking in both. During these nine years she has been busy as a public school teacher, and although troubled with rheumatism, etc., there has never been any recurrence of the tumor, although at times there is caking of both breasts with the menstrual period: the axillary adenopathy has long ago disappeared. Her sister, aged 60, has just died with cancer of the stomach in a distant locality. I could give many more such cases, less striking perhaps, but time allows only of brief mention of some cases which had recurred after operation.

Case V.—Miss H. M., aged 61, came to me June 21, 1913, with multiple nodules in the tense skin left after removal of cancer in August, 1911, further surgical operation being out of the question. Under very active treatment, including thyroid and *x*-rays, many of the tumors disappeared, though some reformed and were removed under local anesthesia, the wounds healing kindly; she lived comfortably, under frequent observation, without pain, for sixteen months, and then was lost sight of, as she was doing very well and wanted to take the *x*-rays nearer her home, some distance from the city.

Case VI.—Mrs. W. C., aged 45, first seen November 17, 1914, was twice operated on at the New York Skin and Cancer Hospital, and came to me with some hard, recurrent lumps, reddened and immovable, quite inoperable. Under faithful treatment she has been very well, without pain, and doing hard work at house cleaning, etc. She is yet under treatment, and lately a new lump has formed, though the others have subsided materially: but she experienced no pain and during these five months has worked very hard, without much or any concern regarding her trouble, except to follow out treatment faithfully.

One case treated in the hospital, with very careful laboratory studies, is worthy of mention, on account of the remarkable improvement occurring in an apparently hopeless case.

Case VII.—Mrs. C. M. was first seen February 12, 1914, with cancer of the right breast, which had been operated on twice, on November 14, 1912, and January 16, 1914. When seen there was ulceration with many nodules around, the liver was enlarged to two inches below the ribs, hard and nodular; the right arm was enormously swollen and helpless. When she left the Hospital, against my wishes, June 20, 1914, in four months, the ulceration had entirely healed, many of the nodules had entirely disappeared, and the arm had returned to normal size, like the other, by measurement, and the liver had retracted to a trifle below the margin of the ribs, with hardly any nodules to be felt. While in the Hospital careful laboratory investigations were made according to a definite daily and weekly schedule, which cannot be detailed here. Suffice to say the blood

improved from 3,262,000 erythrocytes on entering, within two months to 4,282,000 and the leucocytes fell from 9,000 to 5,200, with many other improvements in her condition.

I must just mention one more private case, which though fatal showed the remarkably good effects of careful medical treatment, when a primary case has advanced far beyond the possible aid of surgery:

Case VIII.—Mrs. M. B. J., aged 68, was first seen February 17, 1914, with an enormous hard, cancerous mass in the right breast, the size of half a large melon, ulcerated under a crust over much of the surface, and with immense axillary and supraclavicular adenopathy. This had been kept concealed until the day before she called, and she was profoundly cachectic. In a short time the discharge beneath the crust ceased, the breast became softer, and on August 15, it was recorded that it was soft and movable, and not larger than the other breast, with no discharge, and no pain since a short time after beginning treatment; the axillary glands had diminished three quarters in size, and the supraclavicular glands were much smaller. She died with pulmonary edema on September 9, having had practically no inconvenience from the breast during the seven months of treatment.

Our time does not permit any further consideration of this most interesting and important subject, and I fear that I have trespassed already too greatly on your patience. But feeling as I have for many years, with a constantly growing confidence in my thesis in regard to the cause of cancer and its proper treatment, and with increasing experience, I cannot do otherwise than urge all whom I may, to investigate and see if the claims I make are correct. I know well that I am going contrary to the commonly accepted ideas in regard to cancer, and that very much work will be necessary before the views here presented will be adopted and acted upon sufficiently to check the steadily rising mortality from this terrible disease. But if the facts and statistics which I have referred to are found to be correct by others, it is not too much to hope that, within the next generation at least, the mortality table will show a decline more or less commensurate with that which has taken place in regard to tuberculosis and pneumonia, and we will no longer have the frightful death rate of 90 per cent. of cancer victims.

531 Madison Avenue.

SPEECH-ELEMENTARY SOUNDS.

By A. L. BENEDICT, A.M., M.D.,

BUFFALO.

"CONSULTANT IN DIGESTIVE DISEASES, CITY AND COLUMBUS HOSPITALS; ATTENDANT MERCY HOSPITAL; EDITOR "BUFFALO MEDICAL JOURNAL."

An apology is usual whenever one departs from his established line of work. It may be contended that speech, as evidence of nationality, social condition, etc., is a diagnostic matter applicable to every specialty, that it is affected by pathological conditions of the mouth, pharynx, etc., which may logically be considered parts of the alimentary canal; that it is one of the matters which belong to the general field of medicine irrespective of specialization. The real reasons for the selection of this subject for the present paper are, however, a personal interest antedating even the study of medicine and the observation in an editorial capacity, that it is neglected as a subject for original medical articles and that, in text books on general physiology and on practice even in the specialty commonly designated laryngology, it is sometimes omitted, usually very casually discussed, sometimes with an obvious misconception of facts and principles. Having made this criticism, it is only fair to state that this article is written with no idea of its being considered beyond criticism. It is merely the same mixture of appropriation of the discoveries of others, of some little original study, of truth and error, of information and of ignorance —appreciated or itself ignored—which are characteristic of most medical papers.

Speech is preeminently a human characteristic. It is possessed by no lower animal except in the sense that parrots, a few other birds, and very rarely domestic quadrupeds, may be taught to imitate human speech to a limited degree and possibly to use words intelligently. No race of man has been known that does not possess speech, although it may be admitted that there was a primitive man that did not possess it. It should not be confused with the limited range of inarticulate cries of most voice-possessing animals, expressive of the primitive emotions. Such cries are, to some extent characteristic of all animals; usually of all members of a given species irrespective of geographic distribution and isolation; they are possessed by man also and, unlike speech, are usually identical without regard to distribution and isolation which have produced so marked diversity of language.

Speech should be sharply distinguished from voice. The latter consists of sound waves produced by the vibration of the vocal cords, usually during expiration. Speech consists of various added sounds, produced by muscular control of the supralaryngeal air passages. These cannot properly be termed harmonics, since they are absolute and bear no relation to the tones of the laryngeal voice. The vowels may perhaps be termed overtones since they are continuous vibrations, although they have no mathematic, harmonic relation to voice. The consonants, however, whether continuous or not, consist in checks and modifications of sound, of a still different character, to which it is difficult to apply a definition, although this has been attempted.

That speech and voice are entirely distinct, though usually or at least often coincident, is shown as follows: (1) In whispering, the laryngeal cords are not in action. (2) After laryngectomy, or any condition interfering with the action of the vocal cords, speech is perfectly preserved, unless, of course, there is simultaneous mutilation, paralysis or other interference with the speech organs themselves. (3) After any extensive mutilation of the supralaryngeal portions of the respiratory tract, including both nasal and oral passages, and notably after resection of large portions of the superior maxilla, voice remains in perfect condition barring the interference with resonance from the superior air cavities, while speech is more or less interfered with. As some linguists have compromised on the notion that vowels are produced in the larynx while consonants are pretty obviously produced by supralaryngeal vibrations, it may be definitely stated that resection of the superior maxilla interferes with the production of most vowel sounds. In one case observed no ordinarily recognized vowel sound could be formed—merely the neutral vowel of unaccented *e* in French, the vocalized *r* as in burr, the vocalized *l* as in table, and the undifferentiated vowel sound so frequent in unaccented English syllables, for which we have no letter and which is, indeed, scarcely recognized by the majority of linguists.

The vowels are continuous vibrations, each of definite and arbitrary pitch,* without reference to the general pitch of the voice. They apparently consist of vibrations by resonance, of a chamber consisting of the pharynx, the hard palate and the tongue, the adjustment of this chamber to a given resonance being made by the tongue, a highly muscular organ. Vowel sounds are also formed in nature and in the vibration of various artificial noise-making vehicles, machinery, etc. Strike any surface and it will emit a vowel tone or note the sound of a passing vehicle, of a waterfall, etc. The common onomatopoietic words squeak, bang, click, boom, etc., exemplify the range of tones corresponding to vowels.

In their normal, relaxed state, the walls of the vowel-chamber happen, on the average, to be tuned to the tone represented by *ah*—the original *a* of most languages. Possibly we may explain the tendency to deepen this tone to *aw*, as in Dutch, to elevate it in pitch to approximately the English *a* in ask in Spanish, to hesitate between the Spanish *a* and the English *a* in hat in French, and the development of the Yankee "flat" *a* or of the standard long *a* of English in general, by racial averages in the development of the facial bones. Individual tendencies toward mispronunciation may be similarly explained. The fairly general tendency to vowel decay in many languages, notably in Greek and English, which is generally in the direction of elevation of pitch of a given vowel, as we compare ancient and modern pronunciations, is quite plausibly explained on the theory that change in diet and conditions of life generally have gradually diminished the size of the vowel chamber, so that each vowel has been sharped, somewhat analogously to the development of concert pitch from the physical standards of vibration.

While there is theoretically an almost infinite range of possible vowel sounds, those generally recognized may be tabulated as follows:

	Ah	
Not		At
Aw		Air
But		Bet
Oh		Ate
Put		It
Boot		Meet

Those in the first column gradually descend in pitch by lengthening of the vowel chamber, while those in the second column gradually ascend in pitch by shortening it, the former by depression of the jaw and flattening and projection of the tongue, the latter by raising the jaw and the middle portion of the tongue.

All of the primary vowels occur in English, but some do not occur in various other languages. The short O of not is, by many persons, not differentiated from *ah* and we have curiously inconsistent tendencies to make it *aw* or *ah*. Thus, many persons say dawg, lawg, but cahg, hahg, etc. God is usually pronounced Gahd in swearing, Gaud in praying. Analogously, the distinction between *a* in at and in hair is not marked. The latter sound should not be confused with the pronunciation of *a* as a diphthong ending in short *i* (in it) sometimes before *r* (the letter *i* being usually interpolated merely as a sound-indicator to distinguish from *ah* as in are) and before *g* and *ng* as in bag and bang. There is a good deal of difference of opinion as to whether these words should be pronounced with the simple short *a* or whether the pronunciation *ba i* (short) *g* and *ba i* (short) *ng* is correct.

It will be noticed that the vowels are arranged as long and short, which strikes most of us as natural, yet it is hard to say just why these terms are used. Certainly they do not refer to actual time of pronunciation, which may be literally short for long vowels and protracted for short vowels.

Umlaut vowels.—These are analogous to musical chords of two notes. That is to say, pairs of vowels each short or long in the undefinable sense, and of corresponding place in the opposite ascending and descending scales of pitch, are pronounced simultaneously. A in ask, calf, bath, etc., is a coincident pronunciation of *ah* and *a* in hat, although many persons give it merely the latter sound. Many English and a few American persons make this sound by combining *aw* and the long *a* of air. It is a question whether the Spanish *a* and the broader pronunciation of the ordinary French *a* is the umlaut combination of *ah* and short *a* or a sound strictly elementary and intermediate between *ah* and short *a*. The umlaut combination of *u* in but and *e* in met is commonly heard in French in the sound of *eu* while the long umlaut of the same pairs is represented by the German *ö*, but the long sound may be heard in French and the short in German. The next pair of umlaut combinations, *u* in put plus *i* in it, or *oo* in boot plus *ee* in meet, is represented by both the German *ü* and the French *u*, but both are usually long.

Terminal semivowels.—It will be observed that for the sound of *oo* as in boot, the vowel chamber is at its longest, with the jaws somewhat apart, the tongue flat at the bottom of the mouth and the lips may even be protruded, while for *ee* as in meet, the tongue is arched up nearly to the top of the hard palate, with its tip depressed to get it out of the way, thus making the minimum length of vowel chamber corresponding to the highest pitched resonance. Paradoxically, a combination of these two chambers occurs for the umlaut *ü*, the tongue being contracted so as to allow the air to escape at its sides so that there is a double resonance of *oo* and *ee*. If, at these limits, the vowel is pronounced very quickly, we have a consonantal checking of the air current, corresponding, respectively, (1) to the English *w* or (ancient) Latin *v* or (ancient) Hebrew *vav*, (2) to the English *y* or Latin or German *j*, (3) to a combination of these two, not heard so far as the writer knows in any language but easily formed by anyone who has mastered the umlaut *ü*. While it is not absolutely necessary to protrude the lips in forming either *oo* or *w*, there is a natural tendency in this direction, and, hence, to the degradation of the original Latin *v* to its modern sound in English, Italian, etc., or to that of *f* as in German. This change occurred in Latin, probably in early Imperial times, and it also occurred quite early in Hebrew. The *j* has shown a greater permanency but has deteriorated to a guttural aspirate in Spanish, to a sound represented by French *j* and common in English but without any fixed method of representation, and to *d* plus French *j* in English.

Liquid semivowels.—These are *l* and *r*, formed

*While each vowel has a characteristic, fixed pitch, this varies to a considerable degree, as does the "fixed" pitch of a musical tone. C, for example on different instruments. Vowels may be flatted or sharped through carelessness or personal incapacity, just as a musical note may be.

by vibration of the tongue held at one of two fixed points, either in contact with the anterior arch of the hard palate for *l* or stiffened by muscular contraction at its posterior part for *r*. Either *l* or *r* may form a whole syllable without any vowel in the limited sense. In most languages, *r* is not thus used, and in English, purists insist that bird, err, etc., and various other words be pronounced with a distinct vowel, and linguists often declare that the vowel sound in burr is identical with that in but, but the latter is not the case and, in ordinary pronunciation, there is no sound of a vowel except that inherent to the *r* itself. *L* as a vowel is heard only in unaccented syllables in English, but there is no reason for this limitation except usage.

The nasal element.—Usually, in speech, the expired air issues almost entirely through the mouth, not enough passing through the nose to cause an audible vibration of the upper pharynx and nares. Any vowel may be nasalized, either as a matter of individual or racial habit or on account of some defect of the palate. A general nasalization of speech is made in imitating the inevitable enunciation of those with cleft palate, in Yankee and Yiddish dialect imitations, etc. Nasalized vowels are found in American Indian languages but, otherwise, so far as the writer's limited acquaintance with languages goes, only in French. The nasal French vowels correspond to *o* (on) *u* in but (un), *aw* or at least *o* in not and *ah* (en) and *a* in hat (in). All the vowels may be easily nasalized and it should be clearly understood that the nasal vibration is not simply an added *n* but a supplementary vibration synchronous with the entire vowel sound.

Nasal consonants.—As will be considered more in detail later, most of the consonants may be classified as to location according as there is more or less obstruction to the air current anteriorly, at about the lips, mesially at about the upper incisors or anterior arch of the palate and posteriorly at the posterior part of the palate. If, in pronouncing *p*, *t* and *k*, the organs concerned in producing the characteristic sound are held in position, the expiration of air is stopped, the nares being closed by the faucial muscles. If the latter muscles are relaxed, the air issues through the nose producing three characteristic nasal consonants, *m*, *n*, and a sound represented by *ng* or by *n* before *k* or *g* (or *x*). In regard to *ng*, it may be said that the two letters may either represent the palatal nasal alone or this nasal plus the hard sound of *g*—the former in wringer or finger as pronounced by a German, the latter in finger, linger, etc., pronounced by an Englishman or American. The distinction between sonant and surd, to be described with regard to mutes, is not appreciable for the nasals; neither is any difference as to exact location of the obstacle to expiration through the mouth, as noted in sibillants. In most European languages, the nasals do not precede, in the same syllable, another consonant sound except one formed in or near the same location nor are they used initially before a consonant, though the latter is easy and common in African languages, provided the following consonant is formed at the same spot.

The remaining consonant sounds are susceptible of a threefold classification: (1) according to approximate location of the interference with the air-current anterior or labial; mesial, dental or anterior lingual; palatal or guttural, the former term being rather more correct anatomically. (2) According as the interference consists of an actual stoppage of the air current, with immediate relaxation—mutes or explosives—or of a partial restriction of the air current—sibillants or fricatives. (3) In pairs of surd and sonant consonants according as the obstruction or limitation of the air current involves so firm muscular contraction that no auxiliary vibration occurs or a rather loose contraction, so that such vibration does occur. In German, an intermediate degree is recognized as in ob, Brod, etc., in which the final mute is pronounced half way between sonant and surd. There may, analogously, be an intermediate degree between a mute and the corresponding sibillant, as in the Spanish *d*, pronounced according to grammarians half way fibetween English *d* and *th* in then, or as in the partially successful attempts of foreigners to pronounce the two sounds of *th* or the similar sounds resulting from the attempt to pronounce *d* and *t* with the incisors missing.

What may be generally termed interference consonants may be tabulated as follows:

	Mutes	Sibillants or Fricatives
Anterior or Labial.	B sonant P surd	V F
Mesial or Dental		Th (then) sonant Th (thin) surd
	D sonant T surd	Z S
		(osier) sonant Sh
		sonant corresponding to next Ch (German sound as in Ich) surd
Palatal ..	G (hard) sonant K surd	sonant corresponding to next Ch (German sound as in Buch) surd
		.. sonant, absence of H, smooth breathing in Greek
		sonant, corresponding to next X in native pronunciation of Mexico

The anterior interference consonants may be formed either between the two lips, as *b* and *p*, between the lower lip and the upper incisors, as *v* and *f* by most normal, metagnathous persons (Greek *phi* is said to have been blown between the lips) or between the upper lip and the lower incisors as in prognathous persons. For these three methods, there is no appreciable difference in sound except that the mutes, *b* and *p*, formed between a lip and the opposite incisors, tend to be intermediate between mutes and fricatives.

For the mutes, *d* and *t*, *g* (hard) and *k*, the location indicated is the common one, although they may be formed at sites corresponding to the various fricatives and some languages distinguish them accordingly. The curious duplication of the *k* by *q* in so many languages, probably indicates an original somewhat distinct mute formed farther back in the palate. It will be noted that the mesials shade gradually into the palatals, as we pass from *sh* to the softer German *ch*. The sonant gutturals corresponding to the two sounds of *ch* (German) are not recognized in any language that the writer knows, but are occasionally heard. The smooth breathing, representing like any sonant, a loose contraction or relaxation of the palatal muscles, is really inevitable if the corresponding *h* sound (rough breathing) is not produced or if no contraction occurs at another point of the speech chamber. Thus, it is usually regarded as the absence of a consonant although the Greeks seem to have regarded it as a definite sound and some Hebrew scholars consider that the *aleph* or *a*, originally a vowel, had come to represent the smooth breathing.

The enumeration of elementary sounds is some-

what like the count of the bones of the human body. It has been shown that, in many ways, intermediate sounds may occur, both for vowels and consonants. There are 13 distinct primary vowel sounds, all but two of which are generally used in English, even by those not affecting the niceties of speech—*o* in not and *a* in air. The six combination or umlaut sounds may or may not be counted separately. So, too, any one of the 13 original and 6 umlaut sounds may or may not be nasalized. Hence, we may count the vowels as 13, 19 or 38, according to the point of view.

The terminal semivowels, *w*, *y*, and the umlaut combination of the two may be considered simply as briefly pronounced *oo*, *ee* and *ü*, that is to say not enumerated separately at all, or we may count them as two or three as in regard to the distinction of umlaut vowels.

There are two distinct liquid semivowels, not to mention the variation of *r* from the Bostonian or English partial eclipse of this sound to the French rolling in *Sacrrrrré* nor the special *y* or *ly* sounds of *ll* in French and Spanish respectively, which do not count as separate sounds from those elsewhere listed.

The nasal consonants, unlike the nasal modifications of vowels, are so distinct that they must be counted as three.

There are three pairs of mutes, easily distinguished, without reference to the possible differentiation of sounds according to finer discriminations of place of formation—6.

Similarly, there are eight pairs of fricatives, not counting the alternate methods of forming the *vs* and *fs*—16, but we may subtract the smooth breathing or absence of *h* for reasons stated.

Summing up, the total number of elementary sounds or speech, not counting clicking noises, etc., found in some savage languages, may be counted as 39 up to 78, the difference being mainly in regard to vowels. A conservative count may be considered to be about as follows:

		Present in English
Primary vowels	13	13
Umlauts	6	2*
Nasal element	1	0
Limiting semivowels	3	2
Liquids	2	2
Nasal consonants	3	3
Mutes	6	6
Fricatives exclusive of smooth breathing	15	9
	49	37

*No authoritative distinction between long and short.

Diphthongs and triphthongs will be considered only briefly. In English and most other languages, there are no consonantal tetraphthongs except inclusive of *r* or *l* as a vowel—as in teachers (*t* plus *sh* plus *r* plus *z*). Neither are there vowel triphthongs except with the terminal semivowels, *w* and *y* at the beginning as in the name of the letter *y* (*w* plus *ah* plus *ee*). Consonantal triphthongs are common and follow in English, pretty definite rules of arrangement in accordance with ease of sliding from one position of the speech chamber to another. Theoretically, vowel diphthongs may be formed in any possible combination. Practically, only certain ones are used in most languages. In English, those recognized are *ah* plus *ee* (long sound of *li*), *aw* plus *ee* (*oy*), *ah* plus *oo* (*ow*), *ee* plus *oo* (long sound of *u*), which is rather uncertainly distinguished from the terminal semivowel *y* plus *oo*. Short *a* plus short *i*, as stated, is commonly heard in such words as bag and bang, but there is a question whether this is correct. Continental Europeans criticise the English and even more the Americans for making the long *a* and long *o* diphthongs, by adding *ee* and *oo*, respectively. For example, we ordinarily pronounce bone as boh-oon. The late Dr. Roswell Park was one of the few exceptions encountered by the writer. The Greek *ei* was pronounced analogously to the ordinary American long *a*, but with both components of the diphthong short in sound. While it is ordinarily stated that the Greek *oi* and Latin *oe* were pronounced like English *oy*, and Latin *ae* like our long *i*, it is questionable whether the components of the diphthong did not preserve their original sounds, especially as *aw* is a rare sound in most languages.

It should be clearly understood that this article deals with sounds and not letters. English spelling is notoriously far from phonetic. Only a few sounds are invariably represented by certain letters, and vice versa. Thirteen vowel sounds are represented by 5 letters—supplemented by *w* and *y*—and there are often duplicate methods of representing the same sound and marked irregularities in the clumsy system of indicating special vowel sounds by silent letters. *Q* duplicates *k*, *j* and *x* represent diphthongs—not to mention the confusion of *g* and *j*, of *c* and *s* or *k*, of *s* and *z* and many other inconsistencies. Thus, we have at best 23 letters to represent 37 elementary sounds. An attempt is made to compensate by the use of indicator letters, but even these are not used systematically. For instance, *sh* represents a single sound, so does *th*, but one of two distinct sounds which can be determined only by rules of etymology. *Ch* represents a consonantal diphthong, but neither *c* nor *h* but *t* plus *sh*. *Wh* represents the two sounds indicated by its letters but in reverse order. It is not intended to discuss English spelling further than to point out the futility of a reform with our present alphabet, and for this reason to adhere to historic and etymologic spelling, but merely to caution the reader against being misled in the consideration of elementary sounds, diphthongs, etc., by the appearance of the word in print.

228 Summer Street.

THE EARLY DIAGNOSIS OF STREPTOCOCCIC SORE THROAT, AND THE EFFECT OF VACCINES IN ITS TREATMENT.

By RALPH R. MELLON, M.Sc., M.D.,

ANN ARBOR, MICH.

ASSISTANT PROFESSOR OF PHYSICAL DIAGNOSIS AND DIRECTOR OF THE LABORATORY OF CLINICAL PATHOLOGY, HOMEOPATHIC HOSPITAL, UNIVERSITY OF MICHIGAN.

In April, 1914, I published an article[1] entitled "A Method of Early Diagnosis of Streptococcic Sore Throat." A brief description of the method is as follows:

With a sterile cotton swab, get a representative idea of the organisms present by rubbing it over the tonsils, palate, and as much of the retrotonsillar region as possible. Make smears on cover glasses and cultures on blood agar. (This is prepared by adding one part whole human blood to ten parts 2 per cent. glucose agar.) In place of incubating these tubes for 18 to 24 or even 12 hours, as is usually done, it is preferable to make an examination of the very first colonies that appear on the medium. Eight or ten or these should

be stained in Loeffler's methylene blue and examined. They usually appear in from three to six hours. The tube is then incubated for 18 to 24 hours, and a representative smear of the growth is again examined microscopically.

It was evident that a marked morphological dissimilarity between the smears and the first colonies existed. A 24-hour culture showed about what one would reasonably expect to find from a consideration of the variety of the organisms in the smear. It was interesting to find that the first colonies were in the most cases pure cultures of the streptococcus, while a representative examination of the growth in 18 to 24 hours showed such a mixture morphologically that no satisfactory diagnosis could be logically given.

In all cases which had undergone operation for the removal of the tonsils, the latter had been procured under aseptic precautions, and a thorough exploration of the crypts made. The same procedure was adopted as in examination of the throat before tonsillar enucleation, viz., a direct examination of the cryptic contents, which were then transferred to the usual blood agar, and the first colonies examined. In this way we were able to make comparison with the findings obtained by the swab method.

Aside from the dissatisfaction with the ordinary method, the basis for the adoption of the above procedure lies in *a priori* considerations. Since bacteria are supposed to flourish in the body only in case the soil is favorable for their reproduction, the method of transferring some of this soil to artificial media really represents an attempt to make use of this tenet. In this particular instance, assuming that the underlying infection is streptococcic, it is possible that in case the virulence of this organism was increased, such an event might be roughly measured by the relative length of time it required to appear on the medium.

And when I speak of increased virulence, I mean increased reproductive capacity on the part of an organism, which often is, but may not be, an index to its toxicity. This lately acquired ability of the streptococcus to multiply, by virtue of a lessened aggressivity on the part of the host tissues, can be roughly measured by its rate of growth and the length of the chains that appear in the first colonies of a blood-agar slant. Even in so short a time as 24 hours, the organism loses some of its recently acquired properties, as is shown by the lack of chain formation and the increase in the size of the individual. This is apt to be the case in the acute anginas of moderate severity. However, in those of unusual severity, almost pure cultures of the streptococcus can be seen even after 24 hours. I recently had such a case, in which only after 36 hours did several large colonies of staphylococci develop. Prolonged cultivation on artificial media caused a reversion similar to that which the less toxic undergo.

A second element that I consider of importance in this connection is the length of chains that appear. I am perfectly aware that this contention, considered as a basis of scientific classification, is untenable, and that the length of the chains can be reversed at will by alteration of environmental conditions. Nevertheless, I contend that the environmental are not the sole factors in determining the length of the chains. Even then a partial explanation can be found in the *in-vivo* and *in-vitro* disparities regarding this characteristic. In the throat, for example, the exudative process, combined with the muscular movements of the affected parts, produce a condition of unrest which is not conducive to chain formation. The same is true of these organisms growing in the blood. In bouillon we usually have long chains produced when the medium is undisturbed, but frequent shaking during the course of the growth precludes such formation. Again, the agglutinative powers of the medium, whether it be natural or artificial, are more productive of groups of diplococci than of long chains. Nevertheless, we took particular care to guard against environmental errors by making our media as constant a factor from every standpoint as possible. It makes a difference whether whole blood or blood serum is used, as the latter is certainly more conducive to the formation of long chains. In experiments being done at present whole blood and serum-agar are being used in a parallel way, but, of course, not interchangeably.

As favorable evidence for the validity of this method, I have detailed the experiences of two epidemics of acute streptococcic sore throat, in which 75 cases were studied. These cases were all treated with a stock streptococcic vaccine whose immunizing capacity was good. The throats were examined bacteriologically at the end of from three to six weeks, using the method above described. Examinations of normal throats at that time served as controls.

Some of the conclusions of the article are as follows: This epidemic of sore throat occurring in Ann Arbor two years ago gave rise to a method which at least was successful in an early diagnosis of the affected cases by an examination of the first colonies that appeared on a suitable medium. As evidence in favor of the efficiency of this method we have (1) the results of the specific vaccine with control cases in which no vaccine was used; and (2) the return, bacteriologically, to normal of the affected throat. It would seem that there is a relation between the virulence of the organism and the length of the chains, although such relation is not proportionate. In this connection it is hoped that this method will apply to ordinary sore throat and, at least in those which are due to the streptococcus, give an early indication of its presence in a virulent condition. I am glad to state that for some time past we have applied this method to about forty of these cases, and the results so far have corroborated our earlier studies. This series of cases, with the additional ones that are accumulating, will be reported in the near future if there is justification for such a report.

In the past two and one-half years we have examined a number of throats, both acutely and chronically inflamed. In all cases the method above indicated was employed, and many cases received vaccine treatment.

For the sake of clearness I have made an arbitrary division of my cases into four groups. They are, of course, subject to the overlapping that is common in any attempt at biological classification. In Group I. I have placed those in whom the tonsils were quite large, although the patient did not show any constitutional symptoms which are known to be related to pathological tonsils. Group II comprises all grades of ordinary sore throat, follicular tonsillitis, and arthritic involvement the severity of which depends on the epidemic. Included in this group are those following operation on the nose. The symptoms did not follow in the

first 24 hours after operation, and hence were not strictly postoperative. They usually made their appearance in from three to four days following operation. The patient suddenly developed a sore throat, a temperature of 103° to 105°, accompanied by a moderate degree of prostration. Usually the temperature fell gradually and recovery in a week was the rule.

Group III comprises cases which have always been regarded as normal, and Group IV contains those cases in which the arthritic symptoms were prominent, and the tonsillar involvement insignificant, at least from a gross viewpoint.

The first group, containing fifteen cases, was quite uniform in showing findings which could in no way be separated from those of perfectly normal throats. The fact that we rarely found long chains of streptococci in the first colonies from the crypts of such tonsils was also significant. In addition, it was certainly not the rule to find hemolytic cocci in these crypts.

Group II comprises 25 cases. The symptoms were often those of follicular tonsillitis, and the cases varied from those showing only local symptoms with slight fever, to ones with marked constitutional depression. The smears from the tonsillar surface showed a great increase in the number of intracellular and extracellular diplococci, which occasionally occurred in short chains. Very often bacilli of varying size were found, and occasionally those of the true Klebs-Loeffler type were encountered. The mouth spirochetes and the *M. catarrhalis* were usually present also.

The first colonies usually showed chains of streptococci which varied in length from 10 to 100 cells. Very often these organisms were hemolytic and sometimes they showed a large capsule, but they never fermented inulin. It should be noted that the large majority of organisms were arranged in chains, but there were, of course, many diplococci. In some few cases the diplococci were associated with or outnumbered by the *M. catarrhalis*. In one case true Klebs-Loeffler bacilli constituted the predominating organism in the first colonies, although this patient did not develop true diphtheria. The 24-hour cultures consisted mainly of grouped diplococci, although rarely the chain form of the organism predominated. A later examination of these throats (three to eight weeks) showed only diplococci in the first colonies, corresponding in every particular to normal throats.

The vaccine results in these acute cases were interesting. For the most part they responded very quickly and decisively. A moderate local and constitutional reaction occurred which was soon followed by a decrease in temperature, as well as a marked improvement in the subjective symptoms and the general condition of the patient. Case No. 1 was subacute and showed splendid results. In this series of cases the results were obtained independently of the use of gargles, with the possible exception of hot salt solution. In a previous communication I have expressed myself in regard to the use of gargles in these acute cases. With the exception of the reagent above mentioned, suffice it to say that local measures from my experience are entirely unnecessary.

I have obtained the best vaccine results by employing strains of streptococci of proved immunizing powers. These are not necessarily autogenous, but they are certainly not to be regarded as stock vaccines in the ordinary sense of that term. I have lately used a strain of *Streptococcus viridans* isolated from a case of scarlet fever which gave better results than the ordinary autogenous vaccine, not only in the throat cases but in the other streptococcus infections as well. The organism was of mild virulence for rabbits but the serum of these animals developed strong immunizing powers. I have also isolated a strain from an old abdominal wound which gave similar results. But streptococci from many other conditions, though virulent, were useless as vaccines. I believe the autogenous preparations should be used whenever possible, unless one is fortunate enough to have at hand a strain which has a high immunizing potential.

It is well known that virulence and immunizing power are not necessarily synonymous. I have isolated some streptococci from cases of septicemia which have been utterly worthless for immunizing purposes. The conditions which are necessary to produce a good immunizing strain are very imperfectly understood at present, and it belongs as a part of the future development of the science of immunity to devise constant results in this regard. Any method which will produce the most secondary and tertiary groups (in the sense of Vaughan) and eliminate the toxic group of the protein molecule should give the best immunizing response. At present Besredka's method[4] of sensitizing vaccines appears promising. Gay,[5] of California, extracts a poisonous substance from the sensitized typhoid bacillus and uses the extracted sensitized sediment, which he claims gives a greater immunity than any method yet devised in typhoid fever. Its application to this more universal infection will, it is hoped, improve the antigenic powers of the vaccines.

Group III contains a series of twenty cases having presumably normal throats. The smear practically always showed a mixture of organisms. Although the proportion of the different kinds varied, it was unusual that the predominating organism was not a diplococcus. The first colonies were composed almost entirely of grouped diplococci, the individual organisms being quite large (involution forms). The 24-hour culture showed a very luxuriant growth, with the diplococci predominating, although not infrequently the bacilli and staphylococci occupied the foreground.

Group IV contains twenty-five cases. It was noteworthy that the tonsils in these cases were usually small and somewhat lobulated. Sore throat and recurrent tonsillitis, although having a place in the patient's history, were certainly not the presenting features, either subjectively or objectively. Constitutional symptoms were quite marked, the joint involvement being foremost, although albuminuria and cardiovascular diseases were by no means infrequent.

The smear examination showed nothing abnormal except in cases having frequently recurring tonsillitis, and in those who had recently recovered from attacks. In such instances the number of intracellular diplococci was increased, and some extracellular short chain formation was present. The same could be said of the first colonies. If the attacks were so frequent that the mucosa seldom returned to normal for any length of time, the first colonies were apt to show chains of considerable length. In the 24-hour culture the diplococci predominated regardless of the length of the chain displayed by the first colonies.

Cultures of the crypts from the 15 cases of this

group which underwent tonsillar extirpation showed in every case a pure culture of a streptococcus which was often hemolytic. The first colonies, as well as the 24-hour cultures of some of the strains, showed long chain arrangement.

Analysis.—An examination of the bacteriological findings of this series of 65 cases of tonsillitis, with 20 cases from normal throats to serve as controls, shows that my contention is of value in acute cases of tonsillitis, no difference whether they are acute exacerbations of a chronic tonsillitis, cases from epidemics, from postoperative sore throat, or "hospital sore throat" which is such a common contagious condition among nurses.

However, the method is of no value in cases of chronic tonsillitis, either with or without constitutional symptoms, but an examination of the crypts of enlarged tonsils in these cases almost invariably shows a pure culture of the streptococcus, which manifests varying grades of hemolysis. These findings are in accord with those of Davis,[6] who places emphasis on this point. He says: "The bacterial flora of the tonsils, as revealed by a study of chronic cases, is usually strikingly different from the flora of the crypts. They may occasionally be similar, but usually are not. Subcultures as ordinarily made from the surface of the tonsils, especially in chronic infections, are quite unreliable for determining crypt flora."

However, it is still a question how much biological difference exists in these cases between crypt cocci and throat diplococci. If there is constantly an exchange of cocci from the throat to the crypts, and vice versa, the difference would not seem to be so great. But the fact that in the same case one may find intracryptic hemolyzing cocci which in the first colonies often give rise to long chains, while the extracryptic cocci do not have these characteristics, gives rise to the idea that the former are more pathogenic. Davis and Rosenow have constantly produced arthritides in rabbits by injection of intracryptic cocci as well as by tonsillar emulsions, but what proportion of extracryptic cocci would produce arthritis I do not know.

In the last two years we have had over 100 cases of sore throat in nurses alone, and in practically all instances the streptococcus was the causative organism. I think that there can be no doubt that the "hospital sore throat," an occupational disease long known among nurses, is merely one of the varied manifestations of the activity of this organism.

During the two years following the milk epidemic sore throat there was an unusual number of cases of acute tonsillitis following operations on the nose, but also after other operations. Practically all cases were streptococcic, the virulence and toxicity of the organism being probably induced by a trauma of the neighboring tissue or by a direct extension of the inflammation.

That most cases of tonsillitis, whether chronic or acute, with their attendant sequellæ, are due to this organism there can no longer be any doubt.

Summary and Conclusions.—1. An early examination of cultures from acute sore throat is valuable because it precludes an overgrowth by contaminating organisms, and because it often gives a clue to the virulence and toxicity of the infecting agent.

2. Although of advantage in acute and subacute cases, it is of no value in chronic ones.

3. Our ideas as to what constitutes a normal mouth and throat must undergo revision. Because one does not have any condition in his oral cavity which causes pain is not proof of the bacteriological normality of that cavity. His tonsils make him a streptococcus or diphtheria carrier, just as surely as one who harbors the typhoid bacillus is a carrier of that organism. It is now well known that streptococci may develop a focus in the gums and around the roots of the teeth, as well as in the tonsils.

4. Examinations of the oral cavity should look to a more careful interpretation of the organisms found there. If the work is done with the adherence to the limitations above mentioned, valuable information may at times be derived. The relation of hemolytic cocci to the arthritides and the *S. viridans* and the pneumococcus to endocarditis (Rosenow) necessitates the use of blood agar for this work, as it affords a ready clue to that particular member of the group with which we have to deal. In the chronic cases cultures of material from the crypts and animal inoculation may often clear up the diagnosis of many so-called cryptogenic infections.

5. The acute cases of streptococcic sore throat respond very quickly and decisively to a vaccine of proved immunizing powers. Provided the vaccine was used early, it has not been my experience so far to see any case of this condition develop any of the numerous complications which may sometimes occur.

It is not my intention to laud the merits of stock vaccines because, generally speaking, the autogenous are the logical therapeutic agent. But certain strains of this organism often yield much better immunizing results than are seen with the autogenous vaccine. If one is fortunate enough to have such a strain at the time it is needed, there is no justification for the autogenous preparation; otherwise it would seem advisable to obtain the latter as early as possible.

It is true that many cases apparently recover without any treatment, but if the many sequelæ could be followed up in every case, we might revise our notions on the self-limiting ability of this disease.

Because the apparent symptoms of one attack have been eliminated it is by no means a proof that such an attack has not laid the body liable to the more stealthy changes which result from the continual absorption and ingestion of these organisms.

Who at present would have the temerity to say how many cases of arthritis, nephritis, etc., have had their origin in repeated attacks of sore throat, each of which was supposed to have limited itself, but which was merely the flare-up of a smoldering focus of infection?

In closing, I wish to express my appreciation for the valuable technical assistance rendered by Mr. H. C. Allen and Mr. W. R. Voigt in the performance of this work.

REFERENCES.

1. Mellon, R. R.: "A Method of Early Diagnosis of Streptococcic Sore Throat," *University Homeopathic Observer*, April, 1914.
2. Rosenow, E. C.: *Journ. of Infect. Diseases*, IX, 190; X, 113; XI, 286, 480.
3. Vaughan, V. C.: "Protein Split Products in Relation to Immunity and Disease."
4. Besredka: Comtes rendues de la Société de Biologie, T. 74, p. 1177, May, 1913, and T. 74, Nov., 1913.
5. Gay, F. P.: *New York Medical Journal*, Oct. 24, 1914.
6. Davis, D. J.: *Jour. of Infect. Diseases*, X, 1912.

608 Oswego Street.

TWO CASES OF DEPRESSED NASAL DEFORMITY RESULTING FROM THE SUBMUCOUS OPERATION.*

By WILLIAM WESLEY CARTER, A.M., M.D., F.A.C.S.,

NEW YORK,

RHINOLOGIST AND OTOLOGIST TO BELLEVUE AND ALLIED HOSPITALS (GOUVERNEUR HOSPITAL.)

As the history bearing upon the etiology of the deformity in both of these cases is practically the same, they will be considered together.

Both of these men are healthy and neither has ever had syphilis or any other constitutional disease. One is nineteen and the other forty-one years

of age. Both were suffering from nasal obstruction, due to deflected septa. One had the submucous operation performed one and a half years ago and the other two years ago. *In neither case was the operation followed by suppuration.* Both patients were operated upon by men of recognized ability.

Though the patients quickly recovered from the immediate effects of the operation, shortly afterwards the cartilaginous dorsum of the nose dropped in and marked depressed deformities resulted.

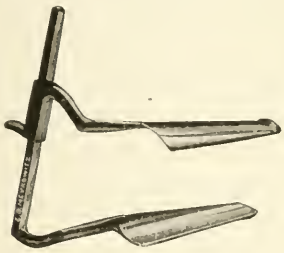
Examination of these patients shows that the upper edge of the septum where it should lie wedged in between the two lateral cartilages, has either been dislocated or removed from this position.

These two cases are reported not altogether because of the interest attached to them as clinical exhibits. They are shown chiefly for the purpose of emphasizing a point in connection with the technique of the submucous operation which I tried to impress upon the profession a number of years ago, when I devised and advocated the use of the first punch-forceps intended for the removal of the septum.

I have always maintained that we should consider first the relief of the nasal obstruction and that the

intranasal cosmetics should be held as a matter of secondary importance; and, further, that only that portion of the septum should be removed which interferes with free nasal respiration and drainage.

This removal of the septum should be accomplished by means of an instrument which shall remove a circumscribed and definite amount of tissue, and without traction upon the remainder of the septum. This can be done only by means of a punch-forceps. Forceps having a pinch bite cannot accomplish this, no matter how sharp the edges may be. Any instrument used in removing the septum which produces traction may dislocate the upper edge from its position between the two lateral cartilages where it acts as the keystone of the cartilag-



inous arch. The dislocation of this means a depressed deformity, such as you see in these patients. This deformity can be properly corrected only by the transplantation of bone or cartilage.

Personally, as far as I know, I have never had a case where deformity resulted from this operation, and I feel that this immunity has been due largely to the care I have always exercised in preserving the integrity of the nasal arch by protecting the upper edge of the cartilaginous septum.

During the past year I have seen several cases similar to the ones I have shown to-night and the number of these deformities is increasing with the spread in popularity of the submucous operation. This accident is, to a large extent, avoidable, and should be carefully guarded against, for it casts a reflection upon one of the most artistic and useful operations in rhinology.

69 West Fiftieth Street.

* Cases presented before N. Y. Academy of Medicine (Section on Laryngology), January 27, 1915.

REPORT OF A CASE OF PANOPHTHALMIA OCCURRING DURING PNEUMONIA.

By ROBERT L. PITFIELD, M.D.,

PHILADELPHIA,

VISITING PHYSICIAN TO ST. TIMOTHY'S AND GERMANTOWN HOSPITALS.

The case detailed here is one of pneumococcus infection, interesting because of the widespread fields of invasion and because of the extreme virulency of the infection or of the lack of defensive mechanisms of the individual affected and because of the rarity of the total eye infection and involvement.

Always during the acute course of pneumonia there is a bacteremia which persists until just before the crisis. Then some chemical process, with a dampening effect akin to a wet blanket on a blazing fire, snuffs and smothers out the infection and if there is sufficient vitality and sound organs the patient recovers. There are many cases in which there is no crisis, of course, and many who die after the crisis. In the instance here related this immunity process was too feeble and failed to stay the invaders, or else the type of the pneumococci was too virulent to be affected by any protecting process in the blood stream.

From the lungs, a focal infection appeared in the meninges, the eyes, again in the lung previously invaded but nearly well, and probably in the endocardium.

B. H., female, aet. 15, was admitted to St. Timothy's Hospital suffering from meningitis. There were delirium, headache, vomiting, retracted head, rigid neck and limbs, tache cérébrale, and a diagnosis at first hand needed but a glance. All signs of meningitis were present save the scaphoid belly. There were coarse râles in the apex of the right lung and brownish sputum, and from the history it was apparent that there had been pneumonia in this site.

Her history was that of an overgrown school girl, who had been subject to repeated infections of the tonsils, having had chorea and rheumatism. Evidences of an old endocarditis were manifested by a marked two and fro apical murmur, thrill, and shock too marked to be very recent; besides the history of previous dyspnea confirmed this view.

On entrance to the ward she had a leucocytosis of 33,400, albumin blood and casts in her urine. Negative Widal reaction. On spinal puncture, cloudy spinal fluid was obtained which was largely composed of polynuclear cells, and many pneumococci globulin was also detected. No tubercle bacilli were found either in the fluid or sputum.

Physical examination revealed a young girl with wide staring prominent eyes, with retracted neck, flushed cheeks, having some play and quivering of the nasal alae, adenitis of the postcervical chain and a full thyroid. Her chest was well developed and expanded freely and rapidly. The cardiac movements were perceptible through the walls, the apex was in the sixth interspace and the heart dullness was increased an inch to the right and outside the nipple line on the left. There were a double mitral murmur, a marked thrill, and diastolic shock. The sounds were very rapid and labored, but regular. The lungs were normal, save for some fine râles throughout and an indefinite area of dullness in the right apex posteriorally, and with coarse bubbling râles and blowing breathing like a resolving lung which it seemed to be. The abdomen was slightly distended but otherwise normal, save that the liver was slightly enlarged, spleen could not be felt, kidneys not tender on palpation. Her extremities were cold, cyanotic, rigid. The reflexes all were heightened and abnormal even such as Babinski's and Oppenheim's present, also Kernig's sign. There was marked catatonia and no edema.

Over night on the eleventh day, her eyes seemed to bulge more, and were injected, the corneas were hazy and the fluid in the anterior chamber was milky and there was much edema of both eyelids. Evidently, there was present from this data and from a very unsatisfactory view of the fundus and vitreous, an acute exudative cheroiditis. The right lung became again consolidated from bottom to top, delirium was constant and wild, sordes gathered in the teeth, carphalogia and subsultus tendinum appeared. The patient had to be restrained on account of her delirium.

On the fourteenth day of illness, the eyes became more swollen, and lids were highly edematous, the optic bulbs appeared like two boiled white onions. Pneumococci were found in the pus in the coniunctival sac. Her breathing was very rapid, also the pulse, spine absolutely rigid, feeding by nasal tube from the entrance to the hospital. Active stimulation, hydrotherapy and intravenous infusion of salt solution were resorted to. Argyrol, boric acid, dionin, and atropine were employed unavailingly to the eyes. On the sixteenth day the girl succumbed to her disease with acute edema of the lungs as the terminal expression. There was evidently a pneumococcal meningitis, with pneumonia and panophthalmitis of both eyes due to the pneumococcus infection. The outlook for life was always grave, and for her sight extremely bad. It was well perhaps that she died.

5211 Wayne Avenue.

A NEW MEASURING BOARD FOR INFANTS.

By RUDOLPH DURYEA MOFFETT, M.D.,

NEW YORK.

ASSISTANT VISITING PEDIATRIST IN THE GERMAN HOSPITAL AND DISPENSARY, ATTENDING PHYSICIAN TO THE CHILDREN'S DEPARTMENT OF THE GERMAN HOSPITAL DISPENSARY.

THE accurate measurement of the infant is of recent development from a purely scientific standpoint. It has been, however, of interest for the mothers to know the height or length of their babies. Being impressed with the necessity of something that would more accurately measure the length of the baby, I devised a measuring board

upon which you can measure the length of the baby not only in inches but in centimeters. This measuring board was constructed for me by the Kny-Scheerer Company of New York, and is made of light oak, along the center of which there is a wooden scale of centimeters and inches. Along both sides are two boards so as to prevent the infant from falling off the measuring board. The head of the baby is placed at the end marked "A," and the part marked "B" slides along in the grooves against the feet so that when the part marked "B" comes in contact with the feet the number of inches can be recorded from the scale. The illustration shows all of these points fairly well, and where scientific work is to be carried on this measuring board is of special service.

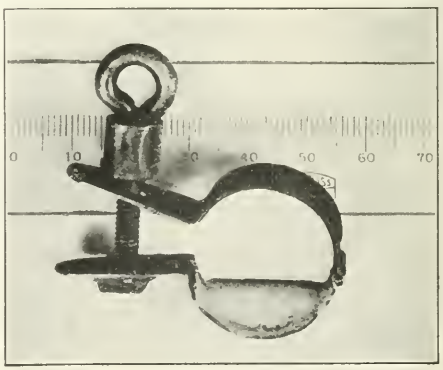
830 Park Avenue.

A URETHRAL CLAMP FOR POST-OPERATIVE URINARY INCONTINENCE, DEVISED AND MADE BY A PATIENT FOR HIS PERSONAL USE.

By ABR. L. WOLBARST, M.D.,

NEW YORK.

THE clamp shown in the accompanying illustration was designed and manufactured by hand by a patient in the Genitourinary Outpatient Department of Beth Israel Hospital. The man is 82 years old, and for several years has been suffering from urinary incontinence, the sequel to a perineal prostatectomy. By day he wears a rubber urinal, but



he found it impractical to wear this cumbersome apparatus during the night. As a result, necessity being the mother of invention, he set about to find a way to control the involuntary outflow of urine while he slept.

Being a coppersmith by trade, he made the clamp about to be described entirely by hand of sheet brass. It is made of two arms or lips, joined together at one end by a hinge. Through the center of the terminal lips, he fitted a thumb-screw, which when turned to the right engages a nut on the under side of the lower lip. This nut is soldered to the lip, thereby strengthening the thin layer of metal and at the same time giving it a sufficient thread to provide a proper purchase. The upper arm or lip of the hinge is concave and smooth, and its edges are turned up so as to form a flange, thereby preventing cutting or chafing of the skin with which it comes in contact. The lower arm has its concavity filled in with a piece of sheet metal in such a manner as to form a smooth, convex, semi-cylindrical surface. Between the lip and thumbpiece, is a solid brass collar which keeps the thumb-screw from hugging the lips and thus making it awkward to operate. The metal is 0.635 mm. in thickness and 12 mm. in width. The entire clamp weighs about one ounce.

The method of use is interesting. Before retiring, the patient attaches the clamp to the penis, just behind the glans, the body of the organ fitting snugly into the concavity of the upper lip. The smooth straight surface of the lower lip makes gentle yet firm pressure on the urethra, as a result of which, when the clamp is closed by means of the thumb-screw, not a drop of urine is allowed to escape. So that when he retires and clamps the urethral canal tight, the urine gathers in his bladder and in his urethra as though he had a natural sphincter. When he feels full, he awakes, gives the thumb-screw a few turns to the left, thereby removing the pressure upon the urethra, and empties his bladder in the normal manner. He tightens his clamp again and is once more ready for several hours of sleep.

The ingeniousness of the little apparatus, its skilful manufacture, and the age of the patient all combine to justify this detailed report of a surgical curiosity.

113 East Nineteenth Street.

Medicolegal Notes.

Labeling Bottles Containing Poison—Evidence. — A practising physician in a mining camp where there was no drug-store or pharmacist not only prescribed but compounded his medicines. One of his patients went to his office complaining of a stomach trouble. The doctor prepared for him a mixture of nux vomica, which he put in a two-ounce bottle of a brown color. In an action against him for negligence for failing to label the bottle the doctor testified that he pasted upon it a label with the written direction: "Take five drops in water after each meal." He also gave the directions verbally to the patient. Some weeks after, the patient's wife went to the doctor, suffering from some menstrual trouble. He prepared a remedy for her, which he put in a brown three-ounce bottle, but without placing any label on it he gave it to the patient, telling her that the dose was a teaspoonful as needed. After about half the contents of each bottle had been used the wife took a teaspoonful out of her husband's medicine-bottle, which she thought contained her medicine. Almost immediately she went into convulsions. The doctor was called and reached her in about an hour. By that time she had returned to consciousness, and told the doctor that it was the time for her monthly sickness, and that she had taken a dose of the medicine which he had prescribed for her. The doctor assumed that she was suffering only from her female trouble, and no doubt attributed her marked improvement to the efficacy of his medicine. With her husband he went to his office and sent back some pills. On returning, the husband gave his wife another teaspoonful of the medicine out of which she had taken the first dose an hour before, and which all supposed was the bottle prepared for her a month before by the doctor as a remedy for her female trouble. The medicine again threw her into convulsions, and the doctor was hastily summoned. From the symptoms his suspicions were aroused, and he examined the bottle and discovered the mistake. At that time this bottle did not have a label on it. The doctor administered an antidote and in a few hours the patient recovered consciousness and was out of danger, though she suffered ill-effects for several days. There was evidence to indicate that her health was permanently impaired, although there was a conflict in the proof on that point. She sued the doctor for $5,000 damages. The case was squarely submitted to the jury on the question as to whether the doctor did or did not place a label on the bottle of poison. The jury returned a verdict for the doctor. This was affirmed on appeal, where it was held that under the Kentucky statute the trial court properly refused to allow the husband to testify that the defendant labeled the bottle, the exception to the statute permitting a husband to testify for his wife in any matter in which he acted as her agent, not being applicable.—Nicholson vs. Patrick, Kentucky Court of Appeals 170, S. W. 20.

Malpractice — Insufficient Evidence. — In an action against a physician for causing a miscarriage by electrical treatment applied when the plaintiff was advanced in pregnancy about two months it appeared that, while the treatment was being administered, the plaintiff went to a drug store, and purchased, without a physician's prescription, an ounce bottle of extract of cotton root, the contents of which she took in certain doses. On appeal from a judgment for the plaintiff, it was held that, as the evidence left it purely conjectural whether the proximate cause of the miscarriage was the electrical treatment or the extract of cotton root, judgment should have been entered for the defendant notwithstanding a verdict for the plaintiff. The court quoted from the opinion of Mr. Justice Taft in Ewing v. Goode, 78 Fed. 442, another malpractice case, as follows: "When the burden of proof is on the plaintiff to show that the injury was negligently caused by defendant, it is not enough to show the injury together with the expert opinion that it might have been caused by negligence and many other causes. Such evidence has no tendency to show that negligence did cause the injury; when the plaintiff produces evidence that is consistent with an hypothesis that the defendant is not negligent, and also with one that he is, his proof tends to establish neither."—Coombs v. James, Washington Supreme Court, 144 Pac. 536.

Proof of Employment.—In an action to recover for services as a surgeon in operating on the defendant, removing his prostate gland, etc., it appeared that the defendant first consulted his physician as to the advisability of calling some one else and the physician called the plaintiff, who told the defendant he would perform the operation and the defendant assented. This evidence was held sufficient to show that the plaintiff was employed by the defendant.—Meany v. Anglemire, 189 Ill. App. 357.

Practising without Authority—Clairvoyant.—Massachusetts Rev. Laws, c. 76, §9, provides that the provisions of section 8, prescribing a penalty for one who, not being lawfully authorized, practices medicine, shall not apply to a clairvoyant, provided he violates none of the provisions of section 8. In proceedings for practicing medicine in violation of section 8 the defense was that the defendant had acted as a clairvoyant. There was evidence that two men called on her for treatment; that while asleep, holding the patients' hands, she gave advice to the first and told the second the nature of his sickness; and that in both cases she furnished the patients with medicine for which they paid her. She testified that when consulted by a patient she went into a trance and that while in the trance she was told by "occult force" what the matter with the patient was and what remedy to prescribe; and on coming out of the trance she prescribed what had been revealed to her while she was in it. It was held that the word "clairvoyant" must be confined to its ordinary meaning, namely, a person who sees, while in a trance, things which by reason of distance or for other reasons are not ordinarily visible, and, so construed, section 9 does not authorize a clairvoyant to prescribe medicine revealed to him by "occult force" while in a trance.—Commonwealth v. Delow, Massachusetts Supreme Court, 106 N. E. 846.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 15, 1915.

WAR BRIDES, ILLEGITIMACY, AND LEGALIZED ABORTION.

It is quite in keeping with the extreme sex consciousness of the present era that considerable discussion should be aroused by some of the unhappy consequences of the Great War, so far as these affect the sexual and domestic life of the millions of people involved in the struggle. Surprisingly varied are the phases in which the problems of sex have presented themselves. Shortly after the outbreak of the war the expression "war brides" sprang into being, typifying these women who married their soldier lovers on the eve of the latters' departure for the front. There were, indeed, preached from many pulpits in England sermons advocating the speedy marriage of all engaged couples, and in several districts marriage fees were remitted in order to facilitate the welding of the bonds of matrimony. The aim of all this was to ensure an ample harvest of new lives to take the place of those that would inevitably be lost on the field of battle. In this campaign for a more accelerated racial productiveness the dramatist has perceived valuable material for his pen.

War, with its vast cataclysmic upheavals of society, brings to light and intensifies many evils that exist during peaceful times. Illegitimacy is one of these. The cry has already been raised in England that the concentration of soldiers in different parts of the country has been accompanied by a vast increase in illicit sexual indulgence—a fact not new in history—with the result that there will soon be born a large number of offspring of these irregular unions. It would appear that Nature accomplishes in a simple manner without the ceremony dictated by religion and convention an object for which publicists and sociologists diligently strive. At any rate, the plight of the "unmarried mothers" has already been made the subject of an eloquent appeal to the British nation. Ronald McNeill, in the London *Morning Post* of recent date, writes that "thousands of young girls are nearing the ordeal of womanhood, racked with shame and with terror of the cruel censure of the world they live in." And what of the children? "Are they, the offspring of the heroes of the Marne, of Ypres, of Neuve Chapelle, to carry through life the stigma of shame for 'irregular' birth? Are they, who on eugenic principles, should be the most virile of our race, to be handicapped from the start by impoverishment both of physical constitution and of moral character, through the ignorance, prejudice, and injustice of their earliest environment?" The appeal is made that the children "be boldly adopted as the honorable children of the State" rather than "that they should slink through life as the children of shame and the parish." Undoubtedly this plea for the expectant girl mothers will reach many a sympathetic ear. But how, may it be asked, will it be possible to distinguish between the general run of illegitimate children, of which England can boast a goodly crop even during peaceful times, and those whose fathers are alleged to be soldiers fighting under the colors? Surely the wisdom of Solomon would not be equal to the task.

This problem of war-time illegitimacy has also arisen in France. L. Tissier, a noted obstetrician and authority on medicolegal topics, contributes to the *Journal de Médecine et de Chirurgie*, March 25, 1915, the text of a discourse on this subject that he has recently delivered before the Medicolegal Society of Paris. He calls attention to the principle known in French jurisprudence as the "reconnaissance du ventre," according to which a man can certify before a notary that he is the father of an infant, conceived but not yet born. Since the outbreak of the war there have been many instances in which a uniformed soldier appeared with his mistress at the bureau of birth records and signed a declaration affirming that they are the parents of a child that is to be born. The object of this legal formality assures to the mothers those bounties provided by the government for the future mother if the father is serving in the army. Besides, in case of the death of the father the illegitimate child whose paternity is acknowledged participates in any inheritances to the extent allotted to an illegitimate child; it is also entitled to the pension accorded to the child of a soldier who has died in service. Tissier proposes the adoption of another principle into the body of jurisprudence, a principle the exact antithesis of the one described above, and designated "la méconnaissance au ventre," the repudiation of the unborn child. This would have to do with those instances in which a married woman whose husband is serving with the army has been ravished by one of the enemy. Tissier would accord to the husband the right to declare that he is not the father of his consort's child, a right that it is difficult to conceive any chivalrous Frenchmen would care to exercise, even though the real father were a German.

This brings one to the subject of the State sanctioning abortion in the case of women violated by the enemy. Rape is one of the evils that has followed all warfare from the dawn of history, and it is one of the unhappy consequences of the present war. The German medical journals have published discussions as to the propriety of the State permitting abortion in the case of any woman violated by one of the enemy, but the consensus of the best opinion in Germany has been that the State could not sanction this procedure. The same opinion appears to prevail in France. Tissier, in the same journal, cited above, presents the arguments

against this legalized abortion for other than therapeutic purposes, as follows: The bearing of a child is not only the consequence of conception. The entire organism of the female feels the impress of impregnation. The performance of abortion cannot remove this effect. It would be better to permit the unfortunate victim of alien lust to bear the fruit of her conception to term and then to abandon it clandestinely to the State. At any rate, abortion would not remove the stigma of violation; at the same time it would subject the victim to an added danger.

THE ETIOLOGY OF GASTRIC AND DUODENAL ULCER.

One of the most perplexing problems with which the medical profession has had to do is that concerning the etiology of gastric and duodenal ulceration. The theories that have been advanced are numerous and, strange to say, many of them are founded on what appears to be good experimental evidence. On one point only are most of the investigators agreed. That is that the incidence of ulceration of the gastric or duodenal mucosa depends primarily upon some definite disturbance in the circulation in a limited area. Wilkie has found the cause of such disturbance in the occurrence of retrograde embolism in the radicals of the portal system draining the stomach and was able to produce ulcers by the injection of almost any insoluble powder into the veins of the omentum. Rosenow is of the opinion that the ultimate cause is infectious in its nature and he has been able to produce chronic ulcers by the intravenous injection of streptococci which had been isolated from ulcers of the stomach. He assumes a specific elective affinity of such organisms for some tissue in the stomach wall and that the result of their activity will be chronic ulcer formation, and furthermore he appears to have excellent experimental evidence in favor of his contention.

The latest theory is that propounded by Friedman (*Jour. Med. Research*, 1915, xxxii, 95), who has pointed out the value of the red cell count in the diagnosis of ulcer showing that with duodenal ulcer there is usually a polycythemia while in the majority of cases of ulcer of the stomach the blood shows an anemia. Several investigators had already noted that injection of epinephrin was followed by a temporary increase in the erythrocytes of from thirty to one hundred per cent., so that Friedman was led to try the effect of repeated injections of epinephrin upon animals. Of twelve dogs which received repeated injection of epinephrin, eleven developed lesions of the duodenal mucosa. Five controls showed no such lesions. He therefore is of the opinion that an excessive secretion of the adrenal gland might have a selective action upon the mucous membrane of the duodenum and that such result is to some extent due to the fact that the duodenum receives its innervation through the sympathetic system. Some experiments seem to show that the duodenal region is more irritable to mechanical and thermal stimulation than the rest of the small intestine, which would explain the selection of the duodenum rather than portions of the gut further down. The lack of increase in the blood pressure he explains by arguing that the increase in adrenal action may be so slight that the blood pressure is not affected but that when prolonged, even this slight increase may be able to bring about the structural changes which he found. In additional support of his theory he mentions that partial extirpation of the adrenals in dogs and rabbits has resulted in lesions in the stomach.

It is quite difficult to correlate the experimental results of these investigators. It is possible to imagine that in a given individual, some strain of streptococcus proliferates actively in the tonsils and eventually finds its way through he gastrointestinal tract. The organisms then may work their way through the walls of the gut into the portal radicals and their location in the stomach or duodenum be determined by the excess or deficiency in the adrenal secretion. This is however pure imagination, and all these theories will need a tremendous amount of testing. The clinician unfortunately, is left in exactly the same position in which he has always been—the cause remains unknown. The reports are stimulating however, and it is to be hoped that many workers will take up the task of finding the truth which must be hidden somewhere in this material.

THE INFLAMMATORY TUMORS OF THE ABDOMEN.

Scant attention has been paid to this subject in the textbooks of surgery, and only within the past ten years has it provided a theme for articles in the periodical literature. One of the most noteworthy of these is Arnsperger's paper on the inflammatory tumors of the sigmoid flexure. Lejars has written on the inflammatory pseudoneoplastic tumors of the abdomen; Moynihan and Mayo Robson have referred to the simulation of malignant disease within this cavity; Futh has described a pseudocarcinomatous infiltration of the intestinal wall accompanying disease of the adnexa; and these and other surgeons have reported similar conditions involving the stomach, liver, biliary passages, and other viscera. Jaroski, Heymann, Küttner, and Hofmeister have reported cases of inflammatory processes beginning within the abdominal cavity and finally involving the wall of the latter in a distinct neoplastic formation.

Gino Baggio contributes an important study on this subject to *Il Policlinico*, Sezione Chirurgica, January and February, 1915, and reports two cases of his own. He points out that in some of the instances cited there was no real tumefaction, but simply a conglomeration of various viscera to one another or to the abdominal wall. In other cases the inflammatory mass consisted of an extensive proliferation or infiltration. Any one of a number of morbid factors was held responsible for the condition; usually it was the extension of an inflammatory process involving the lining or wall of the gastrointestinal tract. This tendency to a wide diffu-

sion of the growth often made it difficult or impossible to differentiate the condition from a malignant neoplasm, more especially in cases in which a marked cachexia was present. As a rule diagnosis was impossible without the aid of exploratory laparotomy and subsequent microscopic examination. The ideal treatment is summed up in the words "noli me tangere." In thirty-seven out of forty-seven cases simple abdominal section sufficed to effect a cure. In ten cases the mass was resected and in four of these death followed the operative procedure.

A special group of cases of inflammatory tumor of the abdomen comprises those secondary to the presence of a foreign body either in the lumen or in the wall of a hollow viscus. In the latter instance the inflammatory mass frequently develops at the site of some operative cicatrix usually the result of the presence of suture material that has not been absorbed. There have been reported in the literature a number of cases in which a migrating foreign body was responsible for the tumor formation. Similar to these cases, both clinically and pathologically, are those in which abscesses with a small amount of pus develop in the walls of the viscera or in the abdominal parietes, the extension of neighboring or propagated from remote infective foci.

Although inflammatory tumors of the abdomen are relatively rare, they are of eminent clinical importance in view of the fact that they are usually diagnosed as malignant growths. It is quite likely that some of the instances of spontaneous disappearance of visceral cancer have really been instances of inflammatory tumor undergoing spontaneous involution.

Recent Views on Arteriosclerosis.

Several years ago Klemperer, representing the clinicians, announced his opinion that alcoholism played a dominant rôle in causing arteriosclerosis. Whereupon Von Orth, the successor of Virchow, representing the pathological anatomists, took Klemperer severely to task for his generalization. A very large percentage of arteriosclerotics, he said, showed at autopsy a complete absence of the more direct evidences of chronic alcoholism, such as gastritis, fatty liver, alcoholic colon, and the like. In this connection it is interesting to note that in a recent study of this subject, read before the United Medical Societies of Berlin (*Berliner klinische Wochenschrift*, March 8) Klemperer represents the newer teachings rather than the traditional ones. Arteriosclerosis is a disease chiefly of the intima. Experimentally it can be set up by certain toxic substances (adrenalin, aliphatic aldehydes, lactic acid). In mankind the frequency of the disease in the gouty and diabetic is ascribed to catabolic toxins. Powerful toxic substances, such as alcohol and tobacco, may act as contributory causes. Acute infectious diseases, especially in the young, play a very decided rôle, as does syphilis. But experimentally bacteriotoxins cannot cause the affection. As yet, Klemperer asserts, we have no proof that a meat diet can cause arteriosclerosis, though he admits that continuous high blood pressure can produce it, and an excess of animal protein in the diet is believed to be one cause of high blood pressure.

Psychopathology of Desertion.

Experts attribute desertion in time of war to temporary affects, rather than to any special lack of ethical levels. In other words, the act of running away in time of battle may not differ radically from the poriomania of epileptics and obsessives. Specht, however, in a paper read before the Military Medical Society at Erlangen (*Muenchener medizinische Wochenschrift*, February 23) stated that he found no epileptics among his deserters, although these men were clearly psychopathic degenerates, and known as such even before the war. Three cases are cited, one of which was a substitute reservist. He deserted, was captured, and submitted to a mild punishment. His condition was that of psychogenic stupor. When set free he committed suicide by drowning. The second case was in an imbecile, noted in peace time for running away, who had also deserted before the war. He is now in an asylum. A third subject is a mental and moral defective, and alcoholic degenerate. He deserted when drunk and was found eight days later in a swamp. It appears that men of this type, not being taken at the period of mobilization, are accepted later as volunteers largely because of their great patriotic fervor, which suggests the old quotation to the effect that patriotism is often the last refuge of certain undesirables.

News of the Week.

Mme. Depage.—Many surgeons and others in America have been greatly shocked and grieved by the death of Mme. Marie Depage, wife of Dr. Antoine Depage, Chief of the Red Cross of Belgium, who lost her life in the *Lusitania* atrocity. She had been in this country on a mission for the Belgian Red Cross and had renewed many old friendships and made countless new ones among Americans of all classes, and especially among members of the International Congress of Surgeons, of which her husband was president. With her was lost over $100,000 which she had collected for the Red Cross needs in her country.

Report of the Treasurer of the Committee of American Physicians for the Aid of the Belgian Profession.—The following contributions were received during the week ending May 8, 1915:

The Medical Society of St. Lawrence County, Gouverneur, N. Y.	$25.00
The Orange County Medical Assoc., Santa Ana, Cal.	25.00
Dr. Parke W. Hewins, Wollesley Hills, Mass.	25.00
Dr. Emma B. Culbertson, Boston, Mass.	25.00
Dr. L. L. McArthur, Chicago, Ill.	25.00
Dr. V. B. Jackson, Washington, D. C.	10.00
Receipts for the week ending May 8th	$135.00
Previously reported receipts	6,585.50
Total receipts	$6,720.50
Previously reported disbursements:	
1,825 Standard boxes of food at $2.20	$3,575.00
1,309 Standard boxes of food at $2.30	3,010.70
Total disbursements	6,585.70
Balance	$134.80

American Medical Association in New York City.—The Merchants' Association of New York has started a movement to bring the 1916 meeting of the American Medical Association to this city. It has issued a circular asking physicians to endorse the movement which, it says, is favored by the officers of the A. M. A. Invitations have been extended by all the county societies comprised in the Greater City except the New York County Society, in which action has been deferred. Unless invited by the latter the A. M. A. cannot come, so the Mer-

chants' Association asks that the physicians of this county recommend their society to extend an official invitation to the national body.

Dr. John Dill Robertson has been appointed Commissioner of Health of Chicago to succeed Dr. G. B. Young, U. S. Public Health Service, who retired recently after a successful term of service.

Dr. Richard S. Creel of the U. S. Public Health Service has been offered the position of Health Commissioner of Boston, and at the request of the Mayor the Public Health Service has granted Dr. Creel an indefinite leave of absence in order that he may accept the appointment.

Dr. A. Jacobi was the guest at a dinner given in honor of his eighty-fifth birthday by a number of physicians at the Hotel Astor on May 6. Addresses were made by Mr. Nathan Straus, Health Commissioner S. S. Goldwater, and others. Dr. James P. Warbasse was the toastmaster.

Dr. Otto V. Huffman, secretary of the New York State Board of Medical Examiners, has been elected secretary of the faculty and executive officer of Long Island College Hospital, Brooklyn, as successor to Dr. Joseph H. Raymond, deceased. Dr. Huffman is an alumnus of the Medical Department of Columbia University, 1903. He was formerly pathologist to Sloane Hospital for Women, in New York, and instructor in clinical pathology in Columbia University. Dr. Huffman is also secretary and treasurer of the Federation of State Medical Boards and editor of its publications.

Dr. John W. Wainwright, formerly editor of the *American Practitioner*, has joined the editorial staff of *American Medicine*.

Saved from the Lusitania.—Among those rescued when the *Lusitania* was destroyed were four American physicians—Drs. Howard Fisher of Washington, J. T. Houghton of Saratoga Springs, Owen Kenan of Palm Beach, and F. Warren Pearl of New York City.

A New Medical School for Columbia.—It is announced that Columbia University is going to build one of the largest medical schools in the world on a part of the site which was formerly the American League baseball grounds at 165th street and Broadway, which the Presbyterian Hospital recently purchased. Columbia University and the Presbyterian Hospital have joined forces in the creation of the new school and hospital. The project includes the new medical school to replace the present College of Physicians and Surgeons, and the removal of the Presbyterian Hospital from the East Side to the new site. Columbia University has set five years as the time limit for the raising of a fund of $7,500,000, which will include the cost of its share of the land, the cost of building a new medical school, and an endowment fund for the maintenance of the school.

Washington University Medical School.—The new buildings of the Washington University Medical School, St. Louis, were dedicated with appropriate exercises on April 29 and 30. Addresses were made by the dean of the school, Dr. Eugene L. Opie, President Lowell of Harvard, Mr. H. S. Pritchett and Dr. Abraham Flexner of the Carnegie Foundation, Dr. Welch of Johns Hopkins, Surgeon General Gorgas, Drs. George Dock, R. J. Perry, and William T. Porter.

The Cook County Hospital.—The Chicago *Tribune* states that eighty-eight members of the attending staff of the Cook County Hospital will lose their positions in accordance with a decision handed down by Judge Fornoff in the Circuit Court. He issued a mandamus writ compelling the county civil service commission to restore to their official records an examination held on Dec. 7, 1911. This examination was held by the commission to have been conducted fraudulently, and a new examination was ordered. The eighty-eight doctors were those who passed the later test. The Judge held that while there may have been mistakes made in the marking of one or two of the examination papers, there was no evidence of fraud and no justification for the commission's action in canceling the entire examination.

The American Gynecological Society. — The fortieth annual meeting of this society will be held at the Greenbrier White Sulphur Springs, W. Va., on May 18-20, under the presidency of Dr. Thomas J. Watkins of Chicago. The secretary is Dr. Lehy Broun of New York City.

The Death Rate of New York City.—The number of deaths from all causes reported during the week ending May 1 was 1638, with a death rate of 14.72 per one thousand of the population, as against 1593 deaths and a rate of 14.89 during the corresponding week of 1914.

Fifteen Medical Missionaries Wanted.—The American Board of Commissioners for Foreign Missions needs at once fifteen surgeons and physicians for work in mission fields. Nine are wanted for China, four for Turkey, one for Africa, and, most urgent of all, one at once for relief work in Serbia, with station at Monastir. The candidates should be not over 35 years of age. In equipment the board requires a degree from a distinctly first-class medical school and, in addition, an interneship or its equivalent. Specialization is not demanded, though special preparation is welcomed. Details as to service may be secured from Dr. C. H. Patton, 14 Beacon Street, Boston.

A Study of Mouth Infections and Their Relation to Pyorrhea.—The Bulletin of the New York City Health Department states that an interesting study concerning the relation of certain microorganisms to pyorrhea, and designed to devise, if possible, preventive measures against this condition, is now being carried on at Public School 21 by bacteriologists of the Bureau of Laboratories of the Department of Health. A special class has been organized, consisting of children whose gums show evidences of the possible beginning of pyorrhea. This will be subdivided into several groups, one of which will serve as the control, and the others to be submitted to a definite course of treatment. The course of the condition will be followed both clinically and microbiologically and the investigation promises to yield valuable information.

Societies to Meet in San Francisco in June.—Lowell Otis Reese gives a list in the *Military Surgeon* for April of the following medical organizations which are announced to meet in San Francisco in June:

Pacific Coast Oto-Ophthalmological Society, June 14, 15, 16.

American Society of Tropical Medicine, June 14, 15, 16.

American Association Medical Milk Commissions, June 17, 18, 19.

Pan-American Medical Congress, June 17, 18, 19.

American Climatological and Clinical Association, June 18, 19.

American College of Surgeons, June 21.

Medical Society of the State of California, June 21.

American Proctologic Society, June 21, 22.

American Therapeutic Society, June 21, 22.

American Hospital Association, June 21, 22, 23, 24, 25.

American Medical Association, June 21, 22, 23, 24, 25, 26.

American School Hygiene Association, June 25, 26.

American Academy of Medicine, June 25, 26, 27, 28.

Obituary Notes.—Dr. EDWIN T. M. HURLBUT, formerly of Sebastopol, Cal., a graduate of the University of Buffalo, Medical Department, Buffalo, N. Y., in 1867, a member of the Medical Society of the State of California, and the Sonoma County Medical Society, and a veteran of the Civil War, having served in the Twenty-fourth New York Artillery, died at the Veterans' Home in Napa County, Cal., on April 12, aged 87 years.

Dr. R. SYDNEY CAUTHEN of Charlotte, N. C., a graduate of the Baltimore, Md., Medical College in 1902, and a member of the Medical Society of the State of North Carolina and the Mecklenburg County Medical Society, died suddenly, from heart disease, at his home on March 24, aged 43 years.

Dr. JUDSON ELAM HAIR, JR., of Greenville, S. C., a graduate of the University of Maryland, School of Medicine, Baltimore, in 1912, died at Mobile, Ala., from tuberculosis, on March 25, aged 26 years.

Dr. JOHN M. GAINES died at Hagerstown, Md., on March 29 at the age of 77 years. He was graduated from Jefferson Medical College in the class of 1860 and he served as a surgeon in the Confederate Army during the Civil War.

Dr. LANDRETH W. THOMPSON died at Philadelphia on March 31 at the age of 52 years. He was graduated from Hahnemann Medical College and Hospital of Philadelphia in the class of 1887. He was for many years surgeon to the Children's Homeopathic Hospital and a member of its Board of Directors, surgeon to St. Luke's Hospital, professor of emergencies in Hahnemann Medical College and corresponding secretary of the Germantown Medical Club.

Dr. WILLIAM H. BUNN died at Philadelphia on April 1 at the age of 75 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1861. He took an active interest in Masonic matters.

Dr. WILLIAM BROOKS BIGLER died at Dallastown, Pa., on April 1 at the age of 81 years. He was graduated from Jefferson Medical College in the class of 1865.

Dr. FRANCIS MANTON HOLLY of Greenwich, Conn., a graudate of Yale University, Medical Department, New Haven, in 1855, one of the founders of the Greenwich Medical Society, and a surgeon in the United States Army during the Civil War, died at his home, from pneumonia, on April 7, aged 82 years.

Dr. MAXIMILIAN JACOBY of Roosevelt, N. J., a graduate of the Long Island College Hospital, Brooklyn, in 1910, died at the Elizabeth General Hospital after a short illness, from blood poisoning, on April 9, aged 32 years.

Dr. ROBERT J. RIVERS of Paducah, Ky., a graduate of the Hospital College of Medicine, Louisville, in 1902, died suddenly in Hopkinsville, Ky., on March 29, aged 37 years.

Correspondence.

SIMPLIFYING HYDROTHERAPY.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In the MEDICAL RECORD of May 1, Dr. Hinsdale's excellent paper refers to the impossibility of standardizing physical therapeutics. This is due to the fact that the premises are inexact in all therapy, chiefly because of physical and psychic differences in patients. That a closer approximation to this ideal may be attained in the application of water in disease, is demonstrated by thousands of observations recorded in the Vanderbilt and Riverside Association Clinics, and in a private institution during the past twenty years, in which the prescriptions were exact, the patients were ambulant, and regular reports of reaction, weight, etc., were recorded. In other words the prescription was written as exactly as is one for drugs and it was executed by attendants trained as well. In fact here was a corroboration of the view expressed in my article on "Fatality of Text Book Hydrotherapy" (MEDICAL RECORD, July 1, 1911) and in my address before the Academy of Medicine on "Management of Pneumonia Patients" (MEDICAL RECORD, Dec. 12, 1914). It was clearly shown that hundreds of cases of sunstroke were lost in the best hospitals by irrational use of ice and cold water, the mortality under this treatment being 33 per cent., while the mortality in St. Vincent's Hospital under O'Dwyer was only 6 per cent., when water, at proper temperature, based on physiological rationale was applied. The same result was shown in pneumonia, when water was used rationally.

Similar inaccuracy and indifference to exact prescription on physiological rationale accounts for the numerous failures encountered in the hydrotherapy of ambulant cases. That the failure due to this may be as easily avoided in ambulant as in the acute cases is evident from the following instances:

1. One justly eminent neurologist almost invariably prescribes for neurasthenia "hot box and charcot douche," leaving to the attendant the duration of the former and the temperature, pressure and duration of the latter. Positive results are impossible.

2. On a recent visit, in an advisory capacity, to a celebrated health resort, I found the arrangements for douches, which had been added, at my my suggestion, eighteen years previously, used in the most unphysiological manner. The hot air cabinet, which is very useful for preparatory skin-heating before the tonic (cold) douche, was out of commission on the male side. A gentleman, who came with a letter from his physician advising tonic baths, was ordered by the Medical Director "electric light box" for two minutes, followed by a douche of 90° F., two minutes. As a result the patient, taking this treatment daily, lost flesh steadily. Why? Because two minutes' stay in the electric light box does not heat the skin sufficiently to induce the necessary temperature contrast for stimulation, when followed by a circular douche of 90°! The patient was cold before entering the douche. He failed steadily, lost four pounds, while his wife, who took tonic treatment, without the doctor's prescription (as is commonly permitted here) obtained a correct tonic bath, viz., "hot air cabinet" until warm (not perspiring) followed by one minute circular douche 95° to 90° F., succeeded by a fan douche at 85° F., daily reduced one degree—"dry with friction." She gained

rapidly. As I have often pointed out, the hot air box heats the skin before perspiration, which always depreciates a feeble patient, ensues. It may, by prolongation, become an active diaphoretic, which is useful in well nourished individuals, and which I always prescribe in what is termed "eliminative treatment" for rheumatic and gouty conditions of the well nourished and for obesity, etc. The electric light cabinet, on the contrary, heats by radiation and *does not warm the patient before perspiration ensues.* It is therefore suitable only for "eliminative treatment." *No one familiar with hydrotherapy ever prescribes a definite duration of the hot cabinet,* because patients differ in their capacity for diaphoresis and their ability to perspire increases day by day. In the application of water, on the contrary, gradual inuring or training is demanded.

Precision may be easily obtained without itemizing by simply prescribing "tonic treatment," which every well-trained attendant knows to be "hot air cabinet until warm, followed by circular douche of one minute 95° reduced slowly to 90, twenty pounds pressure; followed by fan douche, 85° F. (reduced daily one degree), followed by jet douche in the latter days of treatment. Dry with gentle friction. Report in ..... days." This I have termed "neuro-vascular training." It may go on until reaction ensues without friction by nurse, when it may be continued every other day until restoration is secure.

For "eliminative treatment," the prescription used in the clinics and in private practice with satisfactory results for twenty years was "hot air, or electric light cabinet until patient has perspired ..... min.; followed by circular douche two minutes, 100 to 90° F., pressure twenty pounds; followed by fan and jet douche 90 to 85° F. daily reduced one degree, pressure twenty pounds. Friction drying. Report weight, etc., in .....days." The physician need prescribe only R Elim. Treated. Following this exact method (ordering tonic or eliminative treatment, without writing detailed directions) the patient receives a report at intervals, prescribed by the doctor, who may record the effect and increase or diminish the items as he deems best. Of course a trained attendant is as necessary as is a trained druggist. It may be mentioned that this apparatus treatment is appliable only in ambulant cases. In acute hospitals the apparatus is superfluous, as several have learned to their sorrow. See "Principles and Practice of Hydrotherapy," published by William Wood & Co. My home and hospital "vascular training" method was published in the MEDICAL RECORD of July 22, 1913.

SIMON BARUCH, M.D.

51 WEST SEVENTIETH STREET.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

HOSPITAL FINANCE—KING EDWARD'S FUND FOR LONDON—RESEARCH ON TROPICAL DISEASES—HOSPITAL SATURDAY FUND—HUTCHINSON'S MUSEUM—OBITUARY.

LONDON, April 23, 1915.

THE annual meeting of the governors and council of King Edward's Hospital Fund for London was held at St. James's Palace on Monday, when the speaker took the chair and the Honorable Secretary (Sir Savile Crossley) read a letter from the King expressing his Majesty's regret at the loss sustained by the fund in the death of Lord Rothschild, honorable treasurer and chairman of the finance committee, and approving, as patron, the appointment, as his successor, of Lord Revelstoke, who has for many years been an active member of the finance committee. Further, the King, gratefully appreciating the services of the governors (the Duke of Teck, Viscount Iveagh, and the Speaker of the House of Commons), in carrying out the duties of president during the five-year term expiring in June, intimated his intention to reappoint them. The Speaker briefly moved a resolution, seconded by Lord Iveagh and unanimously carried, recording the great services of Lord Rothschild during the whole period of the fund's existence. The Speaker next reported that under the terms of the Act of Incorporation it became the duty of the governors to appoint a successor, and they had chosen Lord Revelstoke, one of the original members of the finance committee, who has devoted the most watchful care to the fund's investments and has consented to undertake these additional responsibilities. The King, as patron, had approved of this, as well as of the Hon. Algernon H. Mills as a member of the council, and the Hon. N. C. Rothschild as a member of the finance committee. The balance sheet is quite satisfactory in spite of the financial disturbance occasioned by the war, the total receipts for the year (1914) being over £529,885, of which more than £315,000 were contributed for capital, and £214,000 for general account. The latter amount is made up of annual subscriptions, donations, ground rents, legacies, investments, and sums from the League of Mercy, and several trust funds. In this year of war the distribution was somewhat lower than in the previous year, but not in the amounts given toward maintenance of hospitals, the diminution being due to postponement of building expenditure. During the last ten years this fund has distributed among hospitals, convalescent homes and consumption sanatoria £1,417,750, and since the foundation of the fund a total amount of £1,950,416 8s. 6d.

The King and Queen and the other Royalties support this fund by handsome annual subscriptions, as do several city companies and other institutions. The League of Mercy again gives £14,000, making, since its foundation in 1899, £216,000 besides its contributions to institutions outside the fund's area of work. A further sum has been received in augmentation of capital from the estate of the late Sir Julius Wernker, who was a member of the council. The council express great satisfaction at the amalgamation of small special hospitals, and has continued to promote this desirable policy, which it has long advocated. The report moved by the Speaker was seconded by the president of the Royal College of Physicians (Dr. F. Taylor), and carried unanimously by the well satisfied audience.

Another annual report presented this week is that of the advisory committee of Tropical Diseases Research Fund, which was issued on Wednesday. This committee, you may perhaps remember, was set up in July, 1904, at the instance of the then Colonial Secretary. The chairman is Sir J. West Ridgeway. Last year the revenue was £3,745, toward which the Imperial Government gave £1,000 and the Indian Government £500, the balance being made up by smaller contributions from tropical parts of the Empire. The expenditure reached £4,250, of which the London School of Tropical Medicine took £1,450, the Liverpool School £1,200,

the London University £850, and the Cambridge University £750. The excess over income had to be drawn from the accumulated balance, which is thereby so much less.

The Secretary of State, after consultation with the advisory committee, addressed a dispatch early in the year to the governments which support this fund. In his dispatch Mr. Harcourt pointed out that the period of five years for which grants had been promised had expired, and asked that they might be renewed for another five years, and as they have agreed to this the work will be continued for that period. A further satisfactory fact is that the commonwealth government of Australia requests their Parliament to continue their grant of £200 a year on behalf of the Northern Territory.

Yet another annual meeting the same evening—that of the Hospital Saturday Fund. This was presided over by Sir Vezey Strong, who observed that since its establishment in 1873 the fund had collected and distributed nearly £700,000 among London medical charities. For the last few years exceptional difficulties had been experienced as many people had expected that there would be less need for hospitals after the State had established insurance against sickness. But this was not the case. No help had resulted for in-patients, though there was some reduction in the number of out-patients. The war, too, had affected receipts, absorbing money which might have been subscribed to hospitals of which the work was increased by many wounded from the front. It is hoped subscribers will remember that their benevolence is more needed, rather than less, on account of the troublesome times.

So you are taking from us the remarkable museum founded by Sir Jonathan Hutchinson, which represents the life-work of that industrious clinical observer and collector. It comprises hundreds of colored drawings, plates, photos, engravings and other pictures, with manuscript, and often letter-press descriptions, of such as had been published. Many very rare specimens are among them, for Hutchinson delighted in collecting and comparing such. If we part with it regretfully, it is better for America to have it than any other country.

Chemical skill is not confined to any country, and there is no reason why our manufacturers should have handed over the preparation of alkaloids to Germany. It seems to be a question of profit, or, as our druggists say, of the rate of wages. The Imperial Institute in 1903 called attention to the hyoscyamus muticus which grows freely in the Egyptian desert and offers a source of atropine. Some manufacturers took the hint, but not all. Hence price has gone on increasing with the heavy purchases for the army. The Institute has lately referred to the matter again, and it is hoped that our English firms will not let slip the opportunity of securing the supplies of the plant from Egypt and showing their laboratories are equal to any.

Surgeon-General Aylmer Martin Crofts, C.I.E., I.M.S., died on the 12th inst., suddenly, from heart disease, from which he had suffered a long time. He retired from the service last year, having filled many important posts, among them P. M. O. Rawal-Pindi Division, and Senior M. O. in the China Expedition. He held the Afghan medal and the Khedive Star, the Order of St. John, and that of Philip, and was Honorable Surgeon to the King.

Sir Thomas Clouston, late president of the Royal College of Physicians, died on the 19th inst., at Edinburgh, where he passed most of his distinguished career. His name will be familiar to you as one of the leading authorities on mental diseases. In 1873 he was appointed superintendent of the Edinburgh Royal Asylum, which, under his administration, was recognized as a model of its kind and an excellent training school for medical superintendents and all engaged in the study of the physiology and pathology of the insane. For thirty-five years he lectured on the subject, and was regarded as an able teacher and an active promoter of all benevolent reforms in the care and management of the mentally afflicted. He was knighted in 1911.

Dr. Frederick Taylor is the new president of the Royal College of Physicians.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

SCHOOL FOR MIDWIVES—BUREAU OF HEALTH EDUCATIONAL CAR—CHOLERA IN MINDORO AND ZAMBOANGA—OPPOSITION TO A TUBERCULOSIS SANATORIUM—PERSONAL.

MANILA, February 17, 1915.

ONE of the most practical steps recently taken to secure a reduction of the infant mortality through the islands has been the establishment of a school for midwives in connection with the Philippine General Hospital. It was recognized that the highly trained general nurses graduated from that institution do not meet the urgent need for competent but inexpensive obstetrical service not now available in the islands, and the plan is to create a special class of obstetrical nurses to meet this need. It is estimated that ultimately some 5,000 such nurses ought to be available, to meet the needs in the very many communities where physicians are either absent or insufficient in number. The recent Legislature strongly favored the new plan of a midwives' school, and it is strongly approved by the people as a whole, who constantly see the results of the ignorance, superstition, and inefficiency of the untrained midwives who now practically have charge of all the births in the islands. The Executive Secretary has just sent out a letter inviting each province to send a representative to the new school which will open April 1. The school will give free education, subsistence, and quarters, but not laundry. The province will be called upon to pay the cost of the journey to Manila and return, and a monthly allowance of not less than 10 pesos nor more than 15 pesos. The course of study will continue for one year, at the end of which time the graduate midwife would return to her home and take up practice, since it is believed that only by developing a better class of midwife, and putting it in economic competition with the untrained midwives can the elimination of the latter be brought about. It is expected that some of the graduate midwives will be given official salaried positions as such at their homes, for gratuitous service to obstetrical patients unable to pay therefor. They will also be kept in touch with the Bureau of Health, which will keep them supplied with simple literature on health matters for distribution among the people with whom they come into contact. It is believed that they can do a vast amount of good as missionaries of cleanliness and elementary hygiene and sanitation.

The Bureau of Health educational and exhibit car is meeting with great success in its work. In the first three months of its operation over 100 towns were visited, and lectures in the local vernacular on

health matters were given to audiences aggregating over 75,000 people. A vast amount of sanitary literature has also been distributed. The car, with its exhibit and moving-picture show, has proved very interesting to the people, who are always attracted by anything that savors of amusement, and has brought home to them in a practical way the methods and beneficial results of sanitary work. The car is now in Manila, refitting for work in the province of Nueva Ecija.

A small but sharp outbreak of cholera has occurred in Pinamalayan, Mindoro. The place is somewhat isolated and as soon as news of the occurrence of the disease was received, a coast guard boat with a couple of doctors and half a dozen sanitary inspectors was sent there. The latter returned after a week of work, reporting that the infection had been eliminated. A few days later the American judge there was attacked and died, and a second sanitary detachment had to be sent down. The large family of the deceased American was brought to Manila, and all found to be cholera carriers. This is the season when cholera usually practically disappears, and such instances as these show clearly how the infection can be bridged over from one rainy season to another, to light up a new epidemic at that time. Cholera has also occurred in Zamboanga, which is more than a week's sail from any cholera-infected port, and the outbreak there must have resulted from an infection introduced by a carrier. The importance of carriers in the spread of the disease cannot be overestimated, and from what we already know of the period in which the infection can be harbored by apparently healthy people, it could readily survive a trip from Asia to the United States, and gain entrance thereto in the bodies of healthy persons. No security can be entertained in respect to the introduction of cholera infection unless all persons from cholera-infected ports are bacteriologically examined and found negative. This looks like a large task, but in practice it is not if the work is well organized. And, of course, the cost of keeping up a little extra laboratory equipment and personnel is utterly insignificant beside the necessity of keeping the disease outside the United States. Persons, not things, are responsible for the transmission of cholera infection in the vast majority of instances. And the world has become so small lately, through improvements in rapid transit, that cholera infection anywhere is not a matter of unconcern to health officials in the United States.

A considerable amount of opposition has developed against continuing the sanatorium of the Antituberculosis Society at San Juan del Monte, which is located in buildings in close relation to the old Deposito, or reservoir, for the Manila water supply. Some fifty or more tuberculosis cases are constantly under treatment there, and the necessity of enlarging and repairing the accommodations has raised the question of removal. Dr. Angeles, as chief physician for the society, has been investigating the question of accommodations elsewhere, and the hotel at Antipolo seems to have many advantages. Antipolo is high and cool, and only a short run from Manila. The hotel has not proved a paying investment and could probably be secured at a very reasonable cost. However, the people of Antipolo, which is a great religious center at certain seasons of the year through pilgrimages to the shrine of the Virgin of Antipolo, have raised strong objections to the location of a tuberculosis hospital in their community, and the matter has become one of local politics. The people of Antipolo believe that such a sanatorium would deter many persons from visiting the shrine, to the material financial disadvantage of their community. It appears now as if the opposition would be sufficiently strong to prevent the project.

Dr. Burdette, who has been in the islands many years, and has been physician-in-chief of St. Luke's Hospital, operated under the auspices of the Episcopalian Church, has recently returned to the United States for an indefinite period, by reason of failing health. The hospital authorities have named Drs. James E. Reed and Strahan as attending physicians in his place, and Dr. Reed will take up his residence in the hospital. Dr. H. E. Stafford has been appointed surgeon-in-chief.

Progress of Medical Science.

Boston Medical and Surgical Journal.

April 29, 1915.

1. Dispensaries: A Growing Factor in Curative and Preventive Medicine. S. S. Goldwater.
2. Care of Prospective Mothers. A. B. Emmons, 2d.
3. Perforations of the Stomach and Intestines by Foreign Bodies That Have Been Swallowed. F. S. Watson.
4. Varieties of the Gold Sol Test (Lange) in Several Loci of the Cerebrospinal Fluid System: A Study of Twenty-eight Autopsied Cases. H. C. Solomon and E. S. Welles.
5. A Study of Leprosy: With Especial References to the Pulse and Temperature. J. A. Honeij.

1. Dispensaries.—S. S. Goldwater reviews the progress which has been made in dispensary work, which progress consists in the increasing number of individuals treated and in the improvement in methods. In order to reach maximum efficiency a dispensary should be attached to a hospital. Social service work is an indispensable part of the modern dispensary activities. Clinical team work, a valuable feature of the well-organized dispensary, is not available for the patient just above the poverty line. The Boston Dispensary, however, has made a beginning with its self-supported evening clinics.

2. Care of Prospective Mothers.—A. B. Emmons, 2d, states that the problems of maternity and its relations with society are enormous. Scarcely a patient comes to the maternity clinics to-day who is not worried by some social difficulty added to her physical burden. Such problems as illegitimacy, drunkenness, and desertion are frequent, while improvidence, unemployment, and a too small budget are the usual state. The pregnancy clinic attempts to meet these difficulties through the organization and cooperation of the nurses and social workers. Pregnancy care is preventive medicine as applied to obstetrics, *i.e.* the utilization of every known means to keep the prospective mother well and strong, to foresee and forestall dangers, and intelligently to provide for confinement. This may be merely proper care in the home at a minimum expense for the normal case, or the best skill available in a hospital for averting tragedy. Preventive obstetrics thus includes a wide knowledge of the anatomy, physiology, psychology, and sociology of the patient. To obtain the greatest efficiency in pregnancy care there must be cooperation of the doctors, nurses, milk stations, hospitals, boards of health, and the patients and their families.

3. Perforations from Swallowed Foreign Bodies.—F. S. Watson reports a series of six cases of perforations of the stomach and intestine from foreign bodies that have been swallowed. In the reported cases of foreign bodies ingested perforation has occurred in about 8 per cent. One point noted is that perforation has taken place in the bowel in a few instances after

the foreign body has passed through and out of the gastrointestinal tract, seemingly without having inflicted any injury. In these cases the subsequent perforations have been produced as the result of an ulcerative process. One of the factors determining the detention of foreign bodies is a narrowing or constriction of the bowel. The most frequent sites of perforation are in or near the right iliac fossa. Two points which have especially interested the author in connection with this subject have been: The difficulties of making a correct diagnosis owing to the absence of information of a foreign body having been swallowed and the immunity to injury of certain persons who swallow without harm almost anything they can take into their mouths while others cannot swallow even a bristle without having a perforation of the stomach or intestine result.

4. **Cerebrospinal Fluid and the Gold Sol Test.**—H. C. Solomon and E. S. Welles state that their work with the colloidal gold test demonstrates that the composition of the cerebrospinal fluid in the various cisternæ and spaces of the cerebrospinal axis may differ, and that therefore in all probability there is not a free circulation or exchange of the fluid. They have further proved that the examination of the albumin content of cerebrospinal fluid obtained by lumbar puncture is not in all cases a true indication of the condition existing higher up. What is true of albumin is probably true of other substances, particularly the Wassermann reaction, as the Wassermann bodies are probably contained in the globulin.

5. **A Study of Leprosy.**—J. A. Honeij concludes that leprosy is an infection by a specific organism capable of causing marked changes and capable by itself of producing suppuration. Surface lesions are constantly associated with secondary infecting organisms—streptococci, staphylococci, and other bacteria. These are in large part the cause of sloughing and disfigurement. Leprosy bacilli are found in the blood stream and not necessarily during febrile periods only. The infection is general. In advanced cases lesions are numerous and bacilli are present in enormous quantities. If toxic substances are present in however minute a quantity, profound infection during the course of the disease will probably be capable of producing sufficient toxin to give rise to the "toxic-febrile" attacks. They occur at irregular intervals depending upon the state of the patient and stage of disease and upon the number of lesions, as well as the presence of secondary infecting organisms. The attacks occur principally in the advanced stage and tubercular form and, from the author's experience, not in the anesthetic cases. The constitutional symptoms produced are fever, rapid pulse, malaise, prostration, headache, pain, nausea, vomiting, chills, and nervous disturbances, such as anxiety, depression, and delirium. This train of phenomena is indicative of an infection.

New York Medical Journal.

May 1, 1915.

1. Plastic Surgery—Corrective and Palliative Repair—in the Treatment of Malignant Disease. W. S. Bainbridge.
2. Splenectomy. A. A. Kerr.
3. A Theory of the Mechanism of Gastric and Pain Crises in Tabes. J. Byrne.
4. What Electrotherapy Cures. H. H. Seelye.
5. Clinical and Experimental Trichomoniasis of the Intestine. K. M. Lynch.
6. Post Partum Retrodisplacement of the Uterus. T. H. Cherry.
7. The Relative Frequency of the Morphine and Heroin Habits. C. B. Farr.
8. Tonsilloadenectomy and the Control of the Hemorrhage. C. F. Adams.
9. The Elimination of Soluble Radium Salts Taken Intravenously and per Os. Harvey A. Seil, Charles H. Viol and M. A. Gordon.
10. Bacillus Bulgaricus in Diabetes Mellitus. P. Horowitz.

1. **Plastic Surgery in Treatment of Malignant Disease.**—W. S. Bainbridge first outlines the history of plastic surgery which was practised by the Hindus two thousand years ago. The punishment of nose cutting which was inflicted upon the inhabitants of a conquered city stimulated attempts to repair the mutilation, which attempts, curiously enough, were delegated to the tile makers. Tagliacozzi of Bologna established the art of plastic surgery upon a firm footing. The author discusses plastic surgery particularly as it is applicable in cancer under the two divisions—corrective or restorative repair and palliative repair. The former may be resorted to in precancerous conditions and in the physical defects remaining after the removal of a cancer. Palliative repair is applicable in irremovable cancer. In many cases in which it is impossible to rid the patient of all macroscopic evidences of cancer, great relief may be afforded, both physically and psychically, by clearing off the affected area, fulgurating, or otherwise cleaning up the ulcerating surfaces, and then applying autoplastic or heteroplastic flaps or skin grafts to the denuded area. It is sometimes possible to succeed in getting very large areas covered in this manner. It is obvious that the patient is far more comfortable afterward than would have been possible with an ulcerating open wound. And these patients sometimes remain "clean" so far as the external cancer is concerned, perhaps dying of internal cancer without knowing, except in obstructive cases, that they have not been entirely cured of the disease. Internal cancer is, as a rule, a far more merciful affliction than external cancer, and the comfort which the patient experiences with the covering over of the cancerous area is compensation enough for the care expended in the plastic operation.

2. **Splenectomy.**—A. A. Kerr states that the indications for this operation are: (1) Injury or prolapse. (2) Certain cases of movable spleen. (3) Sarcoma or lymphosarcoma in the early stages. (4) Simple hypertrophy, with or without cirrhosis. (5) Cysts. (6) Hydatid diseases. Localized tuberculosis of the spleen. (7) Splenic anemia with splenomegaly. In leucocythemia, the splenomegaly being part of a general systemic condition, splenectomy is contraindicated.

3. **The Gastric and Pain Crises in Tabes.**—J. Byrne believes that the gastric and pain crises of tabes seem to be primarily the result of a banking of potential in the neurons distal to the lesion, *i.e.* in the ganglion cells. This banking of potential goes on with greater or less rapidity, depending on the activity of the metabolic processes, the character of the food, mode of life, atmospheric conditions, the degree of completeness of the block in conduction at the site of the lesion, etc., until the obstruction is no longer able to prevent the passage of impulses inward toward the cord. Then individual neurons, one or any number at a time, commence discharging, and impulses reach the brain, causing pains referred to the peripheral areas of distribution supplied by the discharging neurons. In the case of the vagal and glossopharyngeal neurons the afferent impulses impinge with greatest effect upon the vomiting center, causing nausea, vomiting, and the distress that accompanies them. After repeated successive discharges the cell bodies become fatigued, the potential falls below the point necessary to force a passage at the site of the conduction block, and the attack ceases for a time.

5. **Trichomoniasis of the Intestine.** — K. M. Lynch points out that trichomonas is a definitely pathogenic microorganism. The intestinal form produces a mild enteritis manifested by an intermittent diarrhea. Infection by this organism may occur by mouth or by rectum, more naturally by mouth, from active forms in rabbits, but probably from encysted cells in human be-

ings. The duration of the infectivity of water containing either active trichomonads or the encysted is probably not long. The form of the cell may be so altered by environment as to render immediate recognition difficult. This organism is capable of artificial cultivation. It multiplies by direct cell division; this, with the transformation into the encysted form which may again become active, constituting the life cycle of the organism. Rabbits are susceptible to experimental infection by trichomonas.

6. **Postpartum Retrodisplacement of the Uterus.**—T. H. Cherry notes that postpartum retrodisplacements of the uterus are far more frequent than is generally thought, and that the discovery of this complication would be made more often if the patients were followed throughout the entire period of involution by the obstetrician and if he made frequent bimanual examinations to the sixth or eighth week. The etiological factors are relaxed uterine ligaments, attempting to hold a heavy, freely movable uterus in proper position, while an increase in intraabdominal pressure produces a posterior displacement. A great many displacements can be prevented both during the lying-in period and later by the institution of postural treatment and the hastening of involution. The treatment is the immediate reposition of the uterus and its maintenance by whatever procedure is most applicable to the period and state of the pelvic structures undergoing involution. The results of the prevention and conservative treatment of retrodisplacement are most satisfactory, and if instituted in time very few patients are subjected to permanent pessary life or need come to operation.

Journal of the American Medical Association.

May 1, 1915.

1. Concerning Landau's Color Test for Serodiagnosis of Syphilis. J. A. Kolmer.
2. The Wassermann Reaction as a Clinical Test, with Special Reference to Its Bearing on Matrimony. W. J. Heimann.
3. Further Studies on the Spinal Fluid with Reference to the Involvement of the Nervous System in Early Syphilis. U. J. Wile and J. H. Stokes.
4. The Intravenous Injection of Mercurialized Serum in Syphilis. A Preliminary Report. L. Thompson.
5. Involvement of the Eighth Nerve in Syphilis of the Central Nervous System. A. W. M. Ellis and H. F. Swift.
6. Roentgen Therapy in the Treatment of Deep-Seated Malignant Disease. G. E. Pfahler.
7. The Supraclavicular Venous Pulse in Man. C. J. Wiggers.
8. The Question of Spontaneous Cirrhosis of the Liver in Rabbits and Other Laboratory Animals. A. L. Grover.
9. Action of the Opium Alkaloids, Individually and in Combination with Each Other on the Coronary Artery and the Coronary Circulation. D. I. Macht.
10. Intraspinal Administration of Morphine. H. McGuigan and E. L. Ross.
11. A Unique Foreign Body in the Urinary Bladder. G. de Tarnowsky.

1. **Landau's Color Reaction in Syphilis.**—J. A. Kolmer states that Landau at first used iodized petrolatum for the test, prepared by mixing 5 drops of tincture of iodine in 10 c.c. of paraffin oil. To 0.2 c.c. of the serum was added 2.5 c.c. of this reagent and the test tube set aside in a dark place for from five to fifteen hours. Syphilitic serum, it is claimed, decolorizes the mixture, while the color persists a reddish yellow with normal serum. Later the technique was modified and a 1 per cent. solution of iodine in tetrachloride of carbon employed. To 0.2 c.c. of the fresh, clear serum is added 0.01 c.c. of the iodine reagent; they are well mixed until all color disappears from the reagent and then set aside in a dark place for four hours at room temperature. With the serum of a syphilitic the fluid is a clear, transparent yellow; with a nonsyphilitic serum the fluid becomes a whitish gray and is opaque. The author concludes that of eleven serums of persons and four of normal rabbits and dogs reacting positively, and of ten reacting negatively in the Wassermann reaction, the tests with Landau's iodized petrolatum were entirely unsatisfactory. Both normal and luetic serums alike were found to produce partial decolorization of the reagent, and complete decolorization was likewise observed with both normal and luetic serums. The results with active and inactivated serum were practically similar. Cerebrospinal fluids of both syphilitic and nonsyphilitic persons tested with iodized petrolatum produced similar results in that both alike caused little or no change of the reagent. With the iodine in tetrachloride of carbon reagent the results with fresh active serums after standing four hours at room temperature, as directed by Landau, were as follows: Of seventy-four serums giving a positive Wassermann reaction, fifty-three, or 71.6 per cent. gave a positive iodine reaction. Of sixty-one serums giving a negative Wassermann reaction, eighteen, or but 29.5 per cent., gave a negative iodine reaction. As based on the Wassermann reaction, the iodine test yielded about 70 per cent. false positive reactions with Wassermann negative serums. The error of the iodine test, therefore, not only is in the low percentage of correct positive results, but is especially evident in the high percentage of false positive reactions with nonluetic serums. With cerebrospinal fluids the iodine reagent produced no visible changes, irrespective of whether the fluids were from normal or luetic persons.

6. **X-Ray Treatment of Deep-Seated Cancer.**—G. E. Pfahler believes that if malignant disease can be completely removed it should be dealt with surgically. Each operation for malignant disease should be followed by postoperative treatment. The extent and character of this postoperative treatment will depend on the location of the disease. Where there is an absolute necessity for delay in operation from some other cause the patient should be treated by means of the *x*-rays, and this treatment should be directed toward the glandular area particularly. Inoperable cases should always be given the benefit of the rays. Some of them will be removed and others made operable. Such treatment should be instituted at once and not as the patient approaches a dying condition. Local recurrences yield to *x*-ray therapy fairly well, and some of these patients can be made permanently well. Metastatic carcinoma, even when it affects the bones, has been shown to heal in at least one case reported by the author.

9. **Action of Opium Alkaloids on the Coronary Artery.**—D. I. Macht concludes from his experiments that of the principal opium alkaloids some affect the coronary circulation markedly, others slightly, and still others not at all. Morphine produces a mild dilation of the coronary, codeine a very slight one, narcotine and papaverine a very marked one, and narceine and thebaine none at all. A combination of morphine and narcotine produces a much lesser relaxation of the coronary artery than that produced by each of them individually. This action of the opium alkaloids has been studied in three different ways and probably holds good in the clinic. It is hoped that these observations may conduce to a more rational therapy of cardiac conditions.

The Lancet.

April 24, 1915.

1. Wound Infections and on Some New Methods for the Study of the Various Factors Which Come Into Consideration in Their Treatment. Sir A. E. Wright.
2. The Scotoma of Migraine. F. W. Edridge Green.
3. Some Physical Defects Met With in the Raising of an Army. Sir T. Oliver.
4. The Treatment of Gunshot and Shell Wounds. With Special Reference to Carbolised Glucose as a Dressing. H. B. Whitehouse.
5. Brain Abscess in a Case of Paratyphoid B. R. L. Scott and W. H. Johnston.
6. A Case of Hystero-Catalepsy. L. A. Weatherly.
7. The X-Ray Theatre in War Hospitals. J. R. Caldwell.
8. A Reinvestigation on the Nature of the Cellular Elements Present in Milk. R. T. Hewlett and C. Bevis.
9. Urinary Calculus in the Pelvic Portion of the Ureter. J. H. Adams.

10. Memorandum on the Treatment of the Bacterial Infections of Projectile Wounds. F. F. Burghard, Sir W. B. Leishman, Sir B. Moynihan and Sir A. E. Wright.

1. Wound Infections.—Sir A. E. Wright, in the third contribution on this subject, points out that the Listerian method is of little avail in the treatment of projectile wounds, for these are infected before they are seen by the surgeon. Prophylactic applications of antiseptics give good results only when the microbes are accessible. In projectile wounds the microbes have been carried down deep into the tissues and lie on the inner face of a torn and ragged track blocked by blood-clot and hernia of muscle. The ordinary antiseptics used in wounds have practically no penetrative power. Although the washing out of the wound with antiseptics reduces the number of bacteria in the accessible portions of the wound, nevertheless the serosaprophytes left behind multiply rapidly. The wound fills up again with pus, and in spite of frequent redressings the tryptic action of the pus dejects the granulations and skin surfaces and bacterial poisons are absorbed into the system. The psychological method of treatment is offered by the author as a substitute for the so-called antiseptic method. Where there is an abscess sac or a closed cavity containing pus this must be laid open and an outlet for the discharge must be provided—if possible in the most dependent part. Where an infection has spread diffusely in the tissues free incisions must be made; and where these incisions pass through infiltrated tissues they must be carried from sound skin to sound skin and all the way down to the healthy structures underneath; and here hot fomentations should afterward be applied. Lastly—and this is one of the teachings of the present war—when amputating through infected tissues unrestricted drainage must be provided either by leaving the wound unsutured, or, in cases of gas phlegmon, by reverting to the medieval method reintroduced by Fitzmaurice-Kelly of cutting the limb squarely across at the same level and dispensing entirely with flaps now deemed so essential.

In the treatment of infected wounds one should employ an agent for powerfully increasing the outflow of lymph. This can be effected by the application of hot fomentations or by the introduction of ether into the wound. But better than either of these, because it it is more continuous in its action, and because it renders the lymph incoagulable, and also because it represses emigration, is the lymphagogic application which the author has been recommending now these many years back. This consists of a 5 per cent. solution of common salt mixed with ½ per cent. of citrate of soda. This brings into play osmotic forces and "draws" the lymph out of the walls of the wound by a *vis a fronte*. The citrate of soda is added with a view to decalcify and render incoagulable the outflowing lymph. This lymphagogic solution has in this war proved itself preeminently useful. When brought into application upon a dry and infiltrated wound or a wound that is foul and covered with slough it resolves the induration, brings back moisture to the surfaces, and cleans up the wound in a way that no other agent does. Applied in gaseous gangrene in the form of a wet dressing to incisions which have been carried down into infected tissues it causes lymph to pour out of the wounds and arrests the spread of the infection. And again, applied in gaseous gangrene to an amputated stump in cases where it has been necessary to leave infected tissues behind, it reverses the lymph stream and draws out the infected lymph—saving life in almost desperate conditions.

4. Treatment of Gunshot and Shell Wounds.—H. B. Whitehouse, adopting Wright's recommendations, has treated a series of shell and gunshot wounds of varying degrees of severity by the application of hypertonic saline solution. The results obtained were sufficiently convincing to prove the correctness of Wright's views. At the same time the degree of lymph lavage produced by a saline solution was not great, and although sepsis diminished and wounds healed, the important factor of time was not sensibly diminished. It appeared to the author, therefore, that even better results were possible by employing a solution of greater osmotic power. He therefore had a solution of liquid glucose prepared containing sufficient carbolic acid to have a strength of 1 in 80. This solution was applied directly to the wound surfaces and by means of plugs was carried into the recesses of the same. In a few hours sufficient lymph was exuded from each case to saturate the whole of the wool and bandage covering the part. Coincidentally the purulent character of the discharge changed, and in a day or two a healthy granulating surface remained. The cases so far treated by carbolized glucose dressings include severe compound fractures and large lacerated wounds of the extremities, some involving the elbow-joint and necessitating excision of the joint. One case of shell wound of the cranium exposing the dura mater and injuring the superior longitudinal sinus was also so treated. All of those patients made a rapid recovery and were ready for transfer to England at the end of seven days.

British Medical Journal.

April 24, 1915.

1. A Method of Treating Compound Fractures of the Femur Due to Projectiles. A. H. Tubby.
2. Recent Observations on the Pathology of Ulcer of the Stomach, with Indications for Treatment. By C. Bolton.
3. On Gastric Analysis. T. Heaton.
4. Comparison Between Some Physiological and Pathological Conditions. J. Barcroft.
5. Epidemic Cerebrospinal Fever: The Place of the Meningococcus in Its Etiology. A Bacteriological Study. E. C. Hort, C. E. Lakin and T. H. C. Renians.
6. Clinical Laboratory Methods in Metabolic Diseases. A. de T. Monillot.
7. On Wound Infections; and on Some New Methods for the Study of the Various Factors Which Come Into Consideration in Their Treatment. (Part III.) Sir A. E. Wright.

2. Gastric Ulcer.—C. Bolton adduces clinical and experimental proof to show that the chief damaging factor in this condition is the acid of the gastric juice which acts upon the wall of the stomach both as an irritant and as a necrotic agent. Poisons circulating in the bland lower the resistance of the mucous membrane to the digestive action of the gastric juice. Hyperacidity increases the destructive action, as shown experimentally in the monkey, by a more or less diffuse gastritis, by definite local patches of gastritis, and by follicular ulceration.

3. Gastric Analysis.—T. Heaton finds that the interpretation of the figures obtained by gastric analysis after a test meal is, by reason of the number of factors involved, a matter of great complexity. Any additional means of standardizing results is therefore desirable. Such means is afforded by adding to the meal a fixed proportion of some inert substance, such as urea, whose proportion can be estimated subsequently in the gastric content. It is then possible to arrive by calculation at an approximation to the figures for the actual composition of the secreted gastric juice, as opposed to those of the mixture of this with the remnants of the fluid of the meal. By this method it is possible also to eliminate the disturbing influences of an abnormally rapid or an abnormally slow rate of emptying of the stomach into the duodenum. The conditions of hyperacidity and of hypoacidity can in that case, the author says, be differentiated from those respectively of hypersecretion and hyposecretion.

Berliner klinische Wochenschrift.

March 22, 1915.

Satisfaction of the Protein Requirement in War.—Salkowski refers to estimates that the protein consumption per capita in Germany before the war was 92.9 gm. per diem. Of this amount about 25 per cent was obtained from abroad. These figures refer to perfectly utilizable protein. It has been claimed also that they represent a luxus consumption, due to the great amount of animal food eaten by those who can afford it, but that the amount consumed is within physiological limits, and therefore diesirable. The author dissents and claims that any excess consumption of protein is not desirable, save in the mind of the dealer in meat. If the German depends on the home markets his daily per capita requirements will be 67.2 gm. The actual requirement has been computed at 64.6 gm., so that Germany can really supply enough protein for every one. Even this figure may be too high, as Chittenden's work gives the minimum average requirement as 51 gm. At first sight this figure seems to be as unnaturally low as the 80 to 90 gms. of Pflüger, Bohland and Bleibtreu seem unnaturally high; for the average between the two is close to the amount discussed originally. On the other hand very recent work by German investigators appears to show that even Chittenden's figures are too high. The experiments of Hirschfeld, Hindhede and others have shown that in certain subjects during the test period, and with certain foods, the protein used was but 44.36 and even 25 gms. The author obtained as a figure 42.41 gm. The older experiments of feeding dogs on the low protein diet sufficient however to prevent nitrogen waste, showed that in time the animals developed severe general symptoms, diminished resistance to disease (tuberculosis). These finds gave rise to the belief that rich protein feeding gives correspondingly good results. This theory has remained a theory but is supported by the fact that a subject who consumes a minimum of protein and makes up the total requirement with starch and fat burns up far more food units than one who has a good protein fraction in his diet. In other words high protein and low protein both have drawbacks. The poor man must get his protein from the cheaper foods. War bread is poor in it, as are also potatoes. Skim milk and skim cheese are rich in protein, cheap and utilizable. Legumes are rich in protein, cheap and much less utilizable (30 or 40 per cent of the contained albumin goes to waste!); but this state of affairs is easily obviated by preparing flour from beans, peas, etc., the waste being about 12 per cent in this form. These figures refer to dogs, for these flours or meals do not seem to have been tested in man. A desideratum is therefore a bean bread which should be far more valuable than potato bread. But while peas and beans are normally cheap per se milling will add to their cost, and they will be scarce until the next harvest. After drying and milling they can be used as an adjunct to rye meal for the preparation of bread, etc. The author alludes briefly to the blood of slaughtered animals which can be used on a much larger scale than at present. The use of blood soup seasoned with vinegar (the blood cooked with dried fruit) could be made more general. The author feels quite certain that blood is the ingredient which gave the black hue to "Spartan broth." To prepare blood for food, take coagula produced by heating the dilute fluid, dehydrate with alcohol or ether, dry in the air, and grind into a fine powder. A certain feeling of grit cannot be eradicated. and the cost of production is considerable; so that dried blood will hardly be a popular article of diet.

Familial Cancer of the Stomach.—Pel of Amsterdam gives a remarkable case of familial cancer in which four generations (the fourth having but two members) are tabulated. Nothing is known of the causes of death in the first generation of four people —for two families intermarried. The second generation showed in one family four cases of cancer, every member being attacked; while of three members of the other family two were attacked. A man of one family married a woman of the other. The man died at 40 of cancer of the stomach, while his wife lived to be 86 and did not develop the disease. This couple had nine children, three of whom died of cancer of the stomach or esophagus. The others are living and well, ages from 75 to 63. The oldest, a daughter, had two children, daughters, one of whom died of cancer. In this family, ten members developed cancer, the majority cancer of the stomach or esophagus or merely "visceral." In three only the cancer attacked the face. More striking in the way is another episode in which in a single family of seven children, five died of gastric cancer. No predisposition was apparent. In the first example there was a marriage of members of badly tainted families. Quite a number of similar cases are related in literature.

Berliner klinische Wochenschrift.

March 29, 1915.

Warfare and Alimentation.—Rosenfeld, referring to the English blockade of Germany, quotes von Moltke as saying in substance that Germany will succumb without resistance if her agriculture fails. The situation is reversed to a certain extent in England because even in times of peace her agriculture is by far inadequate to support her. Germany imports food products, but also exports them; for example, she imports wheat and exports rye, so that shortage in wheat does not in the least mean famine. With eggs the case is quite otherwise. Germany imports them normally from Austria and Russia, and Austria will probably be soon forced to consume her own eggs. But the Russian shortage means only that each German individual must reduce his consumption of eggs by an insignificant margin. It is the same with milk and cream. France was exporting 5,000 tons of milk per annum, and the loss of this is practically not felt at all. The 30,000 tons of Russian (Finnish and Siberian) butter cut off mean the loss of about a pound of butter annually per capita. Germany is losing 18,000 tons of beef and mutton tallow from Argentina, America and Australia, and 50,000 tons of herring from England. Legumes from Russia (amount not stated), are forfeited, and 215,000 tons of Indian rice. All breakfast cereals are cut off, but these can be replaced in a fashion, and of coffee there is an immense storage in Hamburg. The real articles which matter are not the preceding but the wheat, rye, barley and oats, potatoes, fats, meats, sugar and fodder. Loss in wheat can be offset largely with excess of rye production. Further, rye cannot be used as fodder, and its utilizability can be greatly enhanced by stronger milling. Finally, rye will readily bear a 10 per cent. addition of potato flour. The combined result is an equivalent of the lost 3,000,000 tons of import wheat, and doubtless an excess over the latter. Germany loses 250,000 tons of import fats which can only be offset by sugar, 600,000 tons. This can be supplied with the greatest ease as Germany excels in sugar production. So great is the latter that the vegetable substances from which it is largely produced can be returned to the

fodder column to help make up the deficit therein. The sugar beet in particular must be cultivated to the limit both for sugar making and fodder. This will also help out the mediocre potato crop of last year, which amounted only to 45,000,000 tons. This is used up as follows: human consumption, 13,000,000; distillation, 4,000,000; fodder, balance. The 1,700,000 tons of barley, aside from the brewing industry fraction, serves as food for man and fodder for beast. As the nutrient value of beer is a subject of dispute, the author advises the direct consumption of barley flour and groats. If beer is brewed we get nourishment for man in the beer and fodder in the refuse; but as already stated, we are supposed to add the caloric value of the alcohol in the beer to the carbohydrate and extractive matter; and this cannot be determined to a certainty. The amount of barley used in brewing should be more or less diminished, and the populace should acquire the habit of slaking their thirst with water. Returning to the potato crop, the fraction used for distillation of spirits should be reduced to the utmost, and the fodder fraction eliminated entirely. In a word the potato must become one of the mainstays in war dietetics and its acreage must be greatly increased. The enormous resistance of the Russian troops in the present war is imputed by the author to the proscription of vodka. German troops despite their mental, psychical, and physical superiority might take pattern by the Russian; for it is rumored that the Germans are anything but abstemious at present. In regard to meat there is a surfeit of cattle and swine with a deficit in fodder. There are more than 20,000,000 head of each kind, as a result of an active import trade before the war. Much fodder has had to be used to for human consumption, while the former large imports of fodder are no longer available. The normal deficit in fodder is from 6 to 8 millions of tons. The only course to pursue is to slaughter a certain number of animals. About 30,000 swine come first, for it requires 4 to 5 kilos of best fodder (potatoes, barley,) to nourish 2 kilos of animals. Hence, this fodder goes directly into human pabulum. From another angle, pork is the best among rivals for human consumption. The cow stands quite apart for it is a milch animal. With her, fodder is converted in part to milk. Hence, the cost to feed swine can be taken over by cattle, with profit, as well as by man. The slaughtered swine can easily be converted into hams, sausage, pickled pork, etc. The author gives the general advice of "waste nothing" and "eat for your actual requirements"—quoting an old saw to the effect that "spare diet imparts strength and full diet weakness."

Deutsche medizinische Wochenschrift.

March 25, 1915.

Experiences of a German in a Russian Prison.—A German surgeon who was captured and sent to Wologda (city) found already 4,000 Germans and Austrians, including women and children. They were permitted to organize among themselves for relief. Some of them had means, while other aid was obtained from the American ambassador at St. Petersburg. Quarters were hired and the indigent were fed, clothed and sheltered. A dispensary, hospital and drug store, were established. The author was kept occupied continually and the days passed rapidly. Diseases due to exposure were very common, and there were also cases of typhoid, scarlatina and measles. Finally smallpox broke out in the city. The Russians are quite indifferent to the presence of the disease and have no compulsory vaccination. The author at once began to vaccinate extensively and but two cases of the disease developed among the prisoners. When a contingent of Austrian prisoners passed through the city three with smallpox were dumped off and placed in the local hospital and 67 more were placed for observation in the tiny local prison, where a few more cases developed. The local prison was in such a wretched condition that the author caught cold and developed pneumonia with transient paralysis of one leg.

Straw Powder as Food and Fodder.—Boruttau refers to a discovery that vegetables can be reduced to a fine powder which could be used for food. Hence it occurred to the author to powder such substances as bran and straw. These were mingled with pure protein matter, largely perhaps to take the place of cellulose and act as food ballast. The idea of attempting to feed soldiers on powdered straw was attacked by scientists like Rubner and by the daily press. It was next thought of as fodder but nothing seems to have been done in this direction

Cancer of the Stomach in a Boy of Nine.—Karl describes a case which seems to be quite unique in literature. The patient had been a physical weakling since birth. At the end of September he began to vomit blood and could retain no nourishment. When first seen he weighed but 28 pounds. So thin was he that a growth at the pylorus could be easily palpated. An *x*-ray was thought not worth while. On December 4 the author operated. The growth was still movable, as large as a child's fist. A wide resection was performed, the duodenal end closed and a gastrojejunostomy performed. Professor Orth confirmed the diagnosis of cancer. The improvement was wonderful. The boy began to ask for food, ate well and when last heard of (March 4) weighed 59 pounds. In theory, by reason of his youth the prognosis should be as bad as possible. The case will be followed up and made the subject of a monograph.

Is There a Successful Treatment for Scarlet Fever? Koch states that during the ten years' experience of a particular hospital in which 1438 cases of scarlet fever were treated, the mortality was 15 per cent. The rate showed great variability. During one period of 6 months there was not a single death. The majority died very early from the general intoxication, the minority later from complications. When plenty of convalescent serum was available its curative power seemed indisputable. This holds good for normal serum which was employed less frequently. The author is certain that the very cases of scarlet fever which end fatally in the first few days can be cured by convalescent serum. The prompt effects seen in this connection far surpass those of antitoxin in diphtheria. As to how far normal serum can replace it remains to be seen. Doses must always be large, the serum must be sterilized, various sera may be combined, it can be given only in a vein, and amphylaxis should not develop.

Hemorrhagic Symptoms in Typhoid Fever.—Braillon and Bax note that apart from the epistaxis which may occur at the onset of the disease and the intestinal hemorrhage due to the ulceration of the bowel, typhoid fever may assume a true hemorrhagic aspect which dominates its clinical course. The hemorrhagic condition may assume two types according as it appears early or late. The early form is the more severe, similar to the malignant hemorrhagic condition occurring in other infections. The later form occurs during defervescence or convalescence in cases which have given no indication of unusual severity. It usually lasts about six or eight days, ending most frequently in recovery.—*Bulletin et Mémoirs de la Société Médicale des Hôpitaux.*

Insurance Medicine.

Life Insurance and General Medicine.—Life insurance medicine is far removed from speculation and theory and for this very reason cannot serve as a guide to bedside medicine where individualization and medical intuition plays so great a rôle: but it is of great value in medical forensic practice in which expert opinions must constantly be given on illness and death, the chances of survival as affecting the value of a life or the prospect of useful existence in the same connection. Florschütz includes all such activities under the head of Life Insurance Prognosis, with reference of course solely to selection. A trained and experienced insurance examiner, therefore, has the qualities which go to make a good forensic expert on all matters in which the future is thus involved. Medical opinions are frequently based on life insurance blanks by medical examiners.—*Blätter für Vertrauensärzte der Lebensversicherung*, Vol. V, No. 6; Vol. VI, No. 1, 1914-1915.

Influenza.—In presenting a paper on this subject before the Life Assurance Medical Officers Association of London, on January 6, 1915, Dr. H. Selfe Bennett states that for years past no cases have given rise to more doubts and difficulties than those in which there has been a past history of repeated attacks of catarrh. Such attacks are sometimes described under the title of influenza, but more often they are put down in the personal statement as ordinary colds, if indeed they are mentioned at all. A patient confined to the house for about a week, whose temperature has subsided to normal, and symptoms of catarrh have disappeared, allowed to go about his daily avocations as cured by the family physician. It has, however, been discovered that catarrhs are dangerous, and it is now recognized that the dividing line between a feverish cold and irretrievable disaster is perilously thin.

There is an intimate connection between the slighter and graver forms of this affection. In the epidemic form sudden onset with prostration of strength has been described as pathognomonic, but unless the attack is immediately followed by other symptoms, such as chronic headache, broken sleep, depression of spirits, apathy and lack of energy, the neurasthenia of which these are the signs, is not considered as directly due to the primary fever. The objective signs of lowered vitality must be sought for; the subjective signs are constantly accounted for in other ways, *e.g.* by worry, overexertion, increasing age, or other "natural causes." Thus one is told that an arrhythmic pulse and a subnormal temperature are habitual, have been noted for years, and are of no importance; the one has been put down to cigarette smoking, and the other to an idiosyncrasy. It may be so, but when this condition is found with a slow pulse of low tension, feeble cardiac action, phosphaturia, broken sleep, and a past history of severe cold, with or without bronchitis, pleurisy, or pneumonia, one is justified in not accepting the explanation as satisfactory. Sometimes we are told of an attack of neuritis or herpes zoster, sometimes of mental depression and lack of energy, with broken sleep or downright neurasthenia. We are shocked to hear of men who until quite recently were working in apparent good health, who have died a few days or weeks later of pneumonia or heart failure, or more luckily have been laid up with appendicitis. Is it unreasonable to connect such definite affections with a previous influenza, although it is not possible to prove the connection? Also, besides the close connection between influenza and the conditions mentioned, affections of the middle ear and appendicitis may follow influenza. However sceptical some may be as to the relation between influenza and inflammation of the appendix or the mastoid, few men of experience will refuse to recognize how often tuberculosis has followed upon such an attack of influenza. True, it may be that compared with the whole number of such cases the proportion that acquire graver and more definite symptoms is probably small, yet it is quite sufficiently large to form an unpleasant percentage of premature claims. In such patients the objective signs are few, while the subjective symptoms are many, though the latter are not naturally emphasized by the candidate for insurance, who will, in fact, deny that he has had influenza while he admits an ordinary cold. Questioned closely he will confess to many of the more definite symptoms, but has, as he says, "cured himself." These are they who, if postponed, go promptly to another office and are accepted without extra premium. If they die a few months or years later the examiner cannot be held responsible for non-discovery of an acute affection, no sign of a tendency to which could have been found at the time the case was examined. For here, as elsewhere so often, it is not the single sign or circumstance that leads to judgment, but the combination of several; it is comparatively seldom that one flaw condemns the man in the high court of insurance, but the conjunction of this and that to form the whole impression. The cases that trouble the examiner are not those of obvious lesions, but those where he finds a collection of imperfections, each perhaps small in itself, but making a total which other examiners may consider insufficient even for rating up, still less for rejection. These are the conditions which lead to differences of opinion among doctors, differences more rife in these days than in former times, when consultations were common.

Accident Insurance.—In an action on an accident insurance policy it appeared that the insured was in the habit of using a nasal douche, which on one occasion he sniffed into his nostrils more violently than usual, thereby drawing streptococcus germs into the middle ear, whence they penetrated through the mastoid bone into the brain, causing spinal meningitis, from which he died. Though the particular inhalation was more violent than usual, it did not appear that it was more violent than he intended it to be, or that there was any shock making him draw a deeper breath than he intended to draw. It was held that, while an unbroken string of causation might be found between the too violent inhalation and the ensuing death, there could be no recovery under a policy insuring against death from injuries effected through external, violent, and accidental means. It is not sufficient that the death or injury be an accidental result of an external cause. The cause must be not only external and violent, but also accidental. Here the external act was not accidental, but exactly what it was designed to be.—Smith v. Traveler' Insurance Company (Mass.), 106 N. E. 607.

Book Reviews.

FEVER. Its Thermotaxis and Metabolism. By ISAAC OTT, A.M., M.D., Professor of Physiology, Medico-Chirurgical College, Philadelphia, etc. Price, $1.50 net. New York: Paul B. Hoeber, 1914.

THE subject matter of this small volume comprises the substance of three lectures delivered before a second-year class of medical students. The first lecture deals with thermotaxis or heat regulation, which is supposed to depend upon four nervous centers: two basal thermogenic centers and two inhibiting cerebral centers. The author has shown experimentally that the chief basal center is the tuber cinereum. In the second lecture he discusses the subject of heat dissipation or thermolysis and states that he has located a polypneic center in the tuber cinereum. This lecture includes also a discussion of the perspiration and its relation to temperature, the internal secretions and temperature, the theory of anoci-association in relation to fever, heat production in normal and hyperthermic conditions, protein fever, and calorimetric studies of malarial fever. These studies are continued in the third lecture, which also discusses metabolism in fever, and the question as to whether fever is noxious or beneficial. Dr. Ott has written an interesting and useful volume.

FEAR AND CONVENTIONALITY. By ELSIE CLEWS PARSONS, Ph.D., author of "The Family," "The Old Fashioned Woman," etc. Price, $1.50. New York and London, G. P. Putnam's Sons, 1914.

A NEW sociological theory is propounded in this volume. The substance of this theory is that "fear of change is a part of the state of fear man has ever lived in" and that "civilization might be defined indeed as the steps in his escape." Conventionality represents a part of man's "system of protection against change he has begun to examine, and his fear lessening, even to forego." The above theory is the text about which the author has written a number of interesting chapters on the following subjects: on not taking to strangers; travelers; hospitality: the guest; hospitality: the host; introductions and disinfectant rites; caste; a postscript on chivalry; acquaintances; presents; calling; entertaining; between the sexes; marriage; in the family; age-classes; concerning ghosts and gods; and an unconventional society. The book is quite an interesting one, being based upon wide reading and scholarship. The author speaks plainly and without a superfluity of words. She finds that after all "human nature is the same the world over." The customs of savages and civilized peoples of remote times and the present are compared and contrasted. Miss Parsons believes that the society of the future will be unconventional, in which event sex itself will be "left free to express itself" rather than being under "any repressive system." "Love making will become part of the art of living and inexpertness in it a subject for jest perhaps, or for lament, but never a virtue to be boasted of or acclaimed."

ABDOMINAL OPERATIONS. Volumes I and II. Third Edition, revised. By Sir BERKELEY MOYNIHAN, M.S. (London), F.R.C.S. Leeds, England. Entirely reset and enlarged, in two octavo volumes, totaling 980 pages, with 371 illustrations, five in colors. Price, cloth, $10 net; half morocco, $13 net. Philadelphia and London: W. B. Saunders Company, 1914.

THE new edition of Moynihan's "Abdominal Operations" scarcely needs an introduction, for since the appearance of the original edition it has been rightly looked upon as one of the most important works covering this particular field. It is based upon personal experience, describes in detail only those operations and methods practised by the author, and frankly sets forth his opinions as to the best way of doing things. This does not always correspond to the popular ideas, but there is usually a good reason given for the author's stand, and we sometimes find ourselves convinced almost against our will that he has the better of the argument. In the original preface is the statement: "I have included only those operations which are common to the two sexes. No gynecological operations are described. The surgery of organs, such as the kidney and bladder, which is partly intraperitoneal and partly extraperitoneal, is not included, nor are the various operations for hernia." We cannot question the author's wisdom in steering clear of the field of gynecology, and the subject of hernia can well be omitted, for we have a surfeit of descriptions of everything pertaining to hernia and are glad to be spared further suggestions of change in technique; but we had hoped that the surgery of the kidney, ureter, and bladder would be incorporated in this edition, for operations upon those organs, particularly the kidney and ureter, are certainly common to both sexes.

The work as a whole is divided into five sections: I, General Considerations. Here we find remarks upon the preparations necessary in abdominal operations, the conduct of the operation, and the after-treatment of the patient; complications and sequels of abdominal operations; the surgical treatment of acute peritonitis, and other subjects. Section II, Operations Upon the Stomach. In this section we have one of the most valuable portions of the work. It covers a field of which Moynihan is eminently qualified to speak, since he was one of the epoch makers in the recognition and surgical treatment of gastric, and especially duodenal, ulcers. Besides the consideration of these subjects we find chapters on hourglass stomach, gunshot wounds of the stomach, two interesting chapters on cancer of the stomach, and several others covering the various operative procedures. Section III, Operations on the Intestines. This covers all the usual operations on the small and large intestines, and takes up certain special topics, such as intestinal obstruction, embolism and trombosis of the vessels of the mesentery, intestinal perforation in typhoid, intestinal exclusion, short-circuiting, etc. Section IV deals with the surgery of the liver, gallbladder and bile ducts; Section V with the pancreas and spleen.

In all parts of the work we find the subjects presented thoroughly. The surgical anatomy, pathology, diagnosis, steps of the operation considered best by the author, after-treatment, complications and their treatment, are all discussed as fully as the subject under consideration requires. While the work refers almost constantly to the contributions of surgeons from all parts of the world, the personal element is seldom lacking, thus giving added charm to a work that is well-nigh invaluable from the text-book point of view. A final word of appreciation of the unusually excellent illustrations must be added.

PRAKTIKUM DER KLINISCHEN CHEMISCH-MIKROSKOPISCHEN UND BAKTERIOLOGISCHEN UNTERSUCHUNGSMETHODEN. Von Dr. M. KLOPSTOCK und Dr. A. KOWARSKY in Berlin. Dritte Auflage. Price, 8 M. Berlin und Wien: Urban & Schwarzenberg, 1915.

THE third edition of this hand book has been quite thoroughly revised and somewhat enlarged. This is especially noticeable in the chapter on the examination of the blood, which includes a description of the Wassermann and Abderhalden reactions. In the chapter on the urine several of the methods largely used in this country, notably those devised by Benedict and Folin, and the urease method for the determination of urea are omitted. Most of these methods are of approved value and are distinctly better than those given in this volume. On page 15 there is an error in quoting a table of the sugar reactions of the Gram-negative cocci from Kolle and Hetsch in that levulose should be written instead of lactose and the *Diplococcus flavus* should be noted as fermenting levulose. The book is an extremely handy one, however, compressing as it does a great number of methods in a very small space, and would be a valuable one to the laboratory worker in spite of its omissions.

TEXTBOOK OF MASSAGE AND REMEDIAL GYMNASTICS. By L. L. DESPARD, Member and Examiner Incorporated Society of Trained Masseuses. Second edition. Price $4.50 net. London: Oxford University Press, Henry Frowde, Hodder & Stoughton; New York: Oxford University Press, 1914.

OVER half of this volume of about 400 pages is devoted to anatomy which is modified somewhat to meet the requirements of the masseur and movement cure specialist. Much space is devoted to the bones and joints, muscular insertions, and group muscles; the vessels, nerves, viscera, etc., receiving much less, though ample, consideration. The technique of massage and Swedish movements is followed by a treatise on the conditions which benefit most from the application of these resources and how to treat them. There is a brief account of medical electricity as used by the masseur. In her preface the author announces that she has in this edition substituted the Swedish classification and nomenclature for the British terms used in the first edition. The work contains over 200 illustrations. Although designed solely for the masseur, it contains much of interest to the medical man.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

109th Annual Meeting, Held in Buffalo, April 26-29, 1915.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 798.*)

SECTION ON PEDIATRICS.

Wednesday, April 28—Second Day.

DR. JOSEPH ROBY OF ROCHESTER, IN THE CHAIR.

The Remote Effects of Bad Feeding.—Dr. FRANK VAN DER BOGERT of Schenectady read this paper. He stated that more and more importance was being attached to the part played by the gastrointestinal tract in the production of ill health. To imperfect metabolism might be attributed lack of vigor, wasting, muscular weakness and incoordination. Most of the functional disorders of childhood were dependent upon gastrointestinal toxemia. Educators were beginning to realize that naughtiness at school was indicative of disturbed health. Even vascular and functional disturbances of the eye might be dependent upon disturbed metabolism. Recognizing the important part played by digestive disturbances in the ills of childhood, Dr. van der Bogert had studied 200 cases taken from his records in respect to their dietetic history during infancy and later during childhood. Of course these 200 children were all ill. Of this number 77 or 381.2 per cent. had been nursed for one year or longer; of these 77, 66 showed symptoms of chronic indigestion and 40 gave evidence of toxemia, including perverted digestion, disturbance of sleep, functional nervous disorders and chorea. In a paper read before this society last year he had shown that there was some connection between growth and recurrence of adenoids and a bad dietetic history and it was suggested that prolonged nursing was a factor in the production of adenoids. His records showed that 60 cases having adenoids, 24, or 40 per cent., were prolonged nursers. Of 55 cases of urinary incontinence, 17, or 31 per cent., had been nursed one year or longer. Prolonged nursing meant, as a rule, carbohydrate excess, since the nursing was usually in addition to other food, between meals and at night. More than 50 per cent. of the cases showed gross dietetic errors. These dietetic errors might be in the direction of proteid excess, fat excess or carbohydrate excess, though the latter was by far the most frequent. Proteid excess was rare, there being only two cases that could be considered excessive meat eaters and only two that consumed excessive quantities of milk. A study of the series with reference to indican in the urine made it safe to conclude that the presence of even large amounts of indican were not indicative of any specific dietetic excess, but rather of a general dietetic disturbance. The excess of indican seemed to originate in the decomposition of proteid matter and the condition seemed to be proteid intolerance brought about by intestinal catarrh rather than proteid excess. Certain skin lesions, such as urticaria and eczema seemed to be associated with indicanuria. The results of the ingestion of large quantities of fat were more evident in infancy than in later childhood, when they were manifested by such conditions as acidosis, recurrent cyclic vomiting, recurrent bronchitis and the effects of excess directly upon the digestive tract. The writer considered somewhat at length the carbohydrate excesses and emphasized especially the difficulty of controlling them. In speaking of the relation of dietetic errors to adenoids, he said that the invariable history of gross dietetic errors in association with adenoids and enlarged tonsils could not be disregarded; of 60 adenoid cases, over 58 per cent. gave such a history. Urinary incontinence was also frequently associated with carbohydrate excess; 38 out or 55, or 69 per cent., of the cases of enuresis gave a history of having consumed large quantities of sugar and starch. Indican was present in only 13 out of 55 cases of enuresis. Of 10 cases of enuresis in which the stools were examined, eight showed undigested starch. The exudative and lymphatic diathesis, though no doubt to a certain extent congenital, were undoubtedly due to the inability of the body to utilize necessary elecents of food and were dependent on faulty metabolism. In his experience fatal cases of scarlet fever and measles were almost without exception badly fed. Diet was a great factor in the outcome of whooping cough and the practice of feeding immediately after vomiting occurred was a bad one. In conclusion the writer urged a more careful study of the dietetic history of children coming under this attention since in dietetic errors lay the cause of many of the disorders of childhood as well as those of infancy.

Dr. HENRY L. K. SHAW of Albany said that he knew Dr. van der Bogert well and that he was an enthusiast on this subject, but personally he could not agree with him that improper feeding caused all the disorders of childhood. He thought it hardly fair to attribute all the nautiness at school, for instance, to bad feeding. In his opinion eczema was not due to the excess of any one element of food but rather to overfeeding, and one should cut down the amount of food rather than change the proportion of the food elements. He could not agree with what had been said as to the effect of diet upon the mortality of scarlet fever and measles, and he thought that after whooping cough they could not feed the children up too much. At St. Margaret's Hospital they gave the children mixed pertussis serum and those who were exposed to whooping cough did not get the disease. They did not give their children with whooping cough nauseating drugs, but did give them plenty of fresh air and they had had no deaths from this disease. It was well to discuss these matters but it was not wise to say that everything was due to improper feeding.

Dr. THOMAS S. SOUTHWORTH of New York said that with reference to prolonged nursing as a cause of adenoids, Dr. Haskin had read a paper before the Section on the Eye, Ear, Nose and Throat in which he stated that there was an absence of adenoids among the Apache indians and that this was because they nursed their babies so long, and that this was a factor in the proper development of the nose, teeth, and upper jaw. This was a new idea since it was quite generally believed that prolonged nursing produced the results that Dr. van der Bogert had found. Dr. van der Bogert did not lay as much stress on the effects of excessive amount of fat as he should. In older children too much milk might work a distinct injury and it might be beneficial to give skimmed milk or to omit the milk entirely. The reader of the paper spoke of meat as a cause of infection and indicanuria and that indicanuria was only an indication of other disordered processes and not directly to an excess of meat, but he did not speak of egg as a cause of putrefaction and indicanuria. He had several cases in which he was doing away with egg largely, and with good results.

Dr. DEWITT H. SHERMAN of Buffalo said that while these remote effects of bad feeding might be due to an excess of one food element, or to an excessive amount of all elements, it was a good plan in making a diagnosis to try each article of diet and to find which one was badly tolerated by the child; this might be some trouble, but it gave a line upon which to work and to benefit the child.

Blood Coagulation in Infancy.—Dr. HENRY L. K. SHAW of Albany read this paper and presented a simple apparatus for calculating the coagulation time of the blood. He reviewed their present knowledge with reference to the phenomenon of blood coagulation and compared the different methods that had been used for calculating the coagulation time of blood, showing that for various reasons they varied very much in the result obtained. He then presented a simple and inexpensive apparatus which was a modification of that of Dale and Laidlaw. Only one drop of blood was required, and that was taken from the finger or toe after the surface of the skin was cleansed and the first drop of blood discarded. The drop used for calculating the coagulation time was collected in a glass tube about three-quarters of an inch in length and of a caliber only sufficient to permit a shot of the smallest size rolling back and forth. The apparatus then kept the shot rolling in the tube until the viscosity of the blood stopped it, and this measured the coagulation time. Dr. Shaw presented records of tests that he had made on the blood of normal healthy infants and children. The average coagulation time for infants under one year of age for a series of 95 examinations was 3 minutes and 47 seconds; in children between one and two years of age in a series of 35 examinations the average coagulation time was 3 minutes and 54 seconds; between two and three years of age, in 20 examinations the coagula-

tion time was 3 minutes and 58 seconds. He had not yet made calculations as to the differences in coagulation time before and after eating, at different times of the day or when the blood was taken from different parts of the body. To get trustworthy results they had to use the same sized drop of blood in all tests. He believed that a knowledge of the coagulation time of the blood in health and disease would have a definite value.

The Treatment of Disturbances of Digestion in Infancy.—Dr. JOHN LOVETT MORSE of Boston presented this paper. He stated that in discussing this subject he would use the classification of the diseases of the gastro-intestinal tract which they had adopted in the pediatric department of the Harvard Medical School and which was based, as far as was possible, on the etiology of these diseases. These three consecutive divisions of his classification were: (*a*) nervous disturbances of the digestion; (*b*) disturbances of digestion; (*c*) infections. By nervous disturbances they understood those conditions in which the symptoms referable to the indigestive tract were due to abnormal influence transmitted to it from unduly irritable or exhausted nerve centers. The most characteristic symptoms were those due to disturbance of the mechanical functions of the stomach and intestines. In this condition the vomitus and stools showed no disturbance of digestion. Disturbances of digestion might be caused by an excess of anotherwise suitable food, by a food too rich but otherwise well balanced, or by a food containing an excessive amount of one or of several of the food elements. When the fermentative processes predominated the picture of the condition was spoken of as indigestion with fermentation. The term fermentation was here used in its broad sense and included all the changes which took place in the various food elements as the result of the action of microorganisms upon them. The border line between infectious diarrhea and indigestion was rather an indefinite one. Infectious diarrhea was also due to the action of microorganisms, but in this condition the bacteria entered the intestinal wall and produced definite lesions of the wall, which might or might not be severe. In order to treat these disorders of digestion intelligently and satisfactorily the cause of the indigestion must be determined in a given case. Much could be learned of the etiological factor in the individual case by a careful study of the food which the baby was or had been taking. Much more could be learned, however, by a careful analysis of the symptoms, and most by a careful study of the stools. It was in most instances impossible to make a correct etiological diagnosis without an examination of the stools, and while a macroscopical examination might be sufficient in many instances, the microscopical examination was advisable in every instance. This examination was not difficult and could be done in five minutes by any one with a little training and experience. When the disturbance was due to too much food, too rich food, or the excess of one element of the food, the amount of food in the first two instances and the amount of the excessive element in the third instance should be cut down to a lower point than would be suitable for a well baby of the given age, especially was this true of disturbances due to fat. When an individual food element was cut down it was necessary to raise the percentage of the other elements in order to keep up the caloric value of the food. In doing this care must be exercised not to get an excess of the other elements. When the protein was at fault, because of the formation of curds, it was better, instead of cutting down the percentage of protein, to prevent the formation of curds by boiling, by the addition of alkalies, or of citrate of soda, by the use of precipitated casein or buttermilk, or by pancreatization of the food. Drugs were of little or no use in the treatment of simple indigestion. There was practically never a deficiency of hydrochloric acid, pepsin, or rennin in children. In all but the mildest acute cases the intestinal tract should be cleaned out at the beginning of the treatment. For this purpose castor oil was the most useful drug: calomel might be used if there was vomiting, and milk of magnesia in the mildest cases. In severe cases it was advisable to wash out the bowel in the beginning. When the indigestion was chronic, it was advisable to begin treatment with an initial catharsis, since this was a weakening procedure when the baby was in an enfeebled condition. When the disturbance of nutrition was extreme it might take away the baby's last hope of recovery. When the baby was vomiting food should be stopped; if vomiting was severe, the stomach should be washed out. Inunctions of oils were useless in chronic disturbances of digestion. In indigestion with fermentation, which in the vast majority of instances was due to organisms which produced the fermentative changes in carbohydrates and to a less extent in fats, the stools were usually green in color, strongly acid in reaction and odor, and irritating to the skin. In these cases food should be stopped for twelve to twenty-four hours, the intestinal tract cleaned out, and water given freely. It was not safe to continue the starvation longer than twenty-four hours when the microorganism causing the trouble was of the proteolytic type, because the intestinal secretions were protein in nature and provided a suitable culture medium for proteolytic bacteria. There was no objection to a longer period of starvation when the microorganisms were of types that thrived on carbohydrates or fats. In this type of indigestion the object of treatment was the inhibition of the activity of the microorganisms. Drugs and intestinal antiseptics were of little use. The salts of bismuth, preferably the subcarbonate or milk of bismuth, might possibly diminish the severity of the symptoms. The administration of antagonistic bacteria was indicated. Lactic acid bacilli might be given in the form of broth cultures, buttermilk, or modified milk ripened by them. The latter method was preferable since the food could then be modified to meet the needs of an individual infant. Of course lactic acid bacilli should not be given when the disturbance was due to excessive action of the lactic acid bacilli. Again the activity of the microorganisms might be inhibited by a change in the character of the infant's food, since this would change the medium in which the bacteria was growing. When a baby seriously ill with indigestion, with fermentation, showed excessive vomiting, hyperpyrexia, symptoms of irritation of the central nervous system, prostration and collapse, it was advisable to repeat the initial catharsis and withhold food for twelve hours if the condition of the baby warranted it. It was seldom advisable to give coal-tar products to infants to reduce the temperature. It was useless to give drugs by enema. Morphine subcutaneously might be necessary and bromide of soda might be given for restlessness in doses of five to ten grains. Alcohol was contraindicated when these conditions were associated with vasomotor paralysis and lowering of blood pressure. Strychnia was in general the most useful of stimulants, while caffein and camphor were the best quick stimulants.

Experiments with Malt Soup for Institution Marasmus.—Dr. THOMAS S. SOUTHWORTH of New York presented this communication in which he stated that not many months ago he was called upon to assume control of wards containing a considerable number of bottle-fed institutional infants and found himself confronted with the problem of improving their nutrition. The stools of the majority were white and green in color and the infants were losing weight. Careful adjustment of the usual formulas had no appreciable influence and it became evident that it would be impossible to wait the results of further adjustments. Some plan had to be adopted to cut short the losses in weight. Malt soup was selected as offering greater promise of producing results than any other article of diet. No attempt was made to follow stock directions, but the milk content of the malt soup mixtures was adapted to the individual requirements of the infants. The purpose was to substitute for the milk sugar, and possibly barley water of the infants' formulas, carbohydrates in the form of the more absorbable dextrine and maltose contained in the malt soup extract, together with its usual accompaniment of boiled wheat starch for its recognized protective action. Their procedure was to use for each infant the number of ounces of milk or top milk which it would properly receive in an ordinary suitable formula, to add the requisite amount of water and then one teaspoonful each of malt soup extract and wheat flour for approximately each ten ounces of the total food. The mixture was brought slowly to a boil to gelatinize the starch and was then strained, cooled and bottled. In private practice it was often well to cook the mixture for thirty minutes. The malt soup mixtures proved a life saver, or, at least, a life prolonger, in nearly every instance. The prophecy made at the start that the stools would become smooth and brownish within twenty-four hours was, as a rule, fulfilled. Infants that seemed doomed promptly showed moderate gains in weight. Milk and cane sugar, both of which were disaccharides, at times overtaxed the upper part of the small intestine, with consequent disorganization of function, and the substitution for either of these single

disaccharides of mixed carbohydrates, maltose, dextrose, and starch introduced new elements and conditions. Dextrin and starch were polysaccharides and were more slowly broken up. Both the chemical processes and the absorption were spread over a greater length of intestinal surface, bringing into play new ferments and fresh absorptive surfaces. This seemed to explain the action of the malt soup in these cases. Dr. Southworth said it had been his experience that malt soup neither caused nor aggravated vomiting, but rather that vomiting had ceased under its administration. In older children suffering from subacute or acute colitism no food equalled malt soup in its ability to nourish and prevent excessive loss of weight and emaciation. The writer stated that he wished to make it clear that he was not endorsing a single method to the exclusion of all others, but simply to relate a favorable experience with malt soup when breast milk was not available and to call attention to its utility at critical junctures. No claim was made that it would solve the whole vexed problem of mortality among institutional infants.

Recent Observations in the Use of the Soy Bean in Infant Feeding.—Dr. John F. Sinclair of Philadelphia, after describing the plant and giving its history, stated that in this country it had been used largely for fodder or to increase the fertility of the soil, but experiments in the Department of Agriculture showed that its uses might be greatly extended. In China and Japan the beans were used in many different ways for food and the oil was expressed for cooking, illuminating, and lubricating purposes. Dr. John Rurâh of Baltimore had been the first to use it in this country, presenting his preliminary report in 1909. Dr. Sinclair had been experimenting with the soy bean for two years, first employing it because of its high protein and fat content as a weak gruel to replace barley water, tea, and other liquids in gastrointestinal disturbances in an effort to check the losses in weight which occurred so frequently. In this it had proved most efficient. He had used the bean in 74 cases in the wards of the Babies' Hospital of Philadelphia during the past two summers. All the babies were under three years of age and were ill with summer diarrhea. Thirty-four were diagnosed as gastroenteritis, 28 enteritis, and 12 ileocolitis. In 28 cases the condition of the patient on admission was noted as "bad" or "dying," while in 36 it was recorded as "fair" or "good." In this series of 74 cases there were 19 deaths, 11 cases unimproved, and 44 babies did well. Some of the babies gained, as evidenced by improvement in their general condition, character of their stools, and increase in weight. Twenty-eight of the 44 cases gained in weight while in the hospital. Of the 11 cases that showed no improvement all but 2 were fed too short a time to permit of the drawing of a satisfactory conclusion. In no instance had any bad result been noted from the use of the soy bean. Their experience with the soy bean and a careful study of their cases led them unhesitatingly to urge its usefulness in the treatment of summer diarrhea, in various intestinal disturbances, and in marasmus. It was well borne, readily digested and by reason of its fat and protein content furnished the necessary pabulum to nourish the sick infant.

Dr. Irving M. Snow of Buffalo believed that disturbances of digestion in infancy were more often due to congenital weakness of constitution, disturbed function or metabolism than to infection or organic changes. Some babies were made worse by injurious treatment, abuse of laxatives, etc., which certainly emptied the intestine, but which might cause vomiting, irritation hypersecretion of mucus and rapid emaciation. Especially dangerous was the employment of long and frequent periods of starvation on tea, water, or thin cereal gruel. Six to twelve hours was a sufficiently long period of starvation unless fever, vomiting, and diarrhea were unusually persistent. Albumen, milk, and dextromaltose were of high nutritive value; they were free from salt and fermentable whey and seldom caused vomiting or frequent stools. A thin, delicate baby might thus be given a suitable food. Human milk was the best of all curative foods and should be early tried in bad cases of food vomiting, and persistent diarrhea which resisted the usual diets. Even a few ounces daily would arrest emaciation and aid in the digestion of other food mixtures. In treating a baby with serious disturbance of nutrition Dr. Snow advised patience, the use of well-tried foods and the avoidance of too many changes.

Dr. Douglas P. Arnold of Buffalo said that there was no better way of dealing with disturbances of digestion than by preventing them and it could not be too frequently emphasized that the best way to do this was by breast feeding. Of course they could not rely on breast milk for older children. If Finkelstein's classification for alimentary disturbances was well worked out he thought they could treat these cases better.

Dr. Norris G. Orchard of Rochester said he questioned whether in Dr. Southworth's experiment the malt soup stood alone in having effected such a change in the character of the infants' stools. It was rare to observe such sudden changes in infants so perilously near the stage of inanition as described by the reader. It was difficult to picture in such infants any part of the intestinal tract not more or less profoundly diseased or at least lessened in tone so that the discussion as to their permeability by certain sugars or their absorption was based on rather uncertain grounds. Might it not be that the value of the malt soup lay in the combination of maltose, salts, nitrogen, and nitrogen containing compounds and to the variety of dextrines and closely allied substances as suggested by Howland? As regarded the non-production of vomiting, their experience had been quite the contrary so that vomiting had been considered a well-defined contraindication to the use of malt soup. Possibly this was due to faulty preparation or administration. More statistical data in this series would have been helpful. However, Dr. Southworth was to be congratulated that in his difficult branch of work, he had been able to achieve such satisfactory results.

Dr. Carl G. Leo-Wolf of Buffalo said he had been using soy bean ever since Dr. Rurâh had called attention to it. He had used it in about 100 cases in private and dispensary practice where one was likely to get better results than in hospital work. In some cases in which the infants were getting proper mixtures but the limit of starch tolerance had been reached, he had given soy bean with good results. Another use to which they had put this food was to give it to nursing mothers; used in this way it had been a great boon to poor mothers during the past winter. From his experience he believed that in the soy bean they had food that had a great future and would be a great help in infant feeding.

Dr. T. Wood Clarke of Utica said that Dr. Morse had said there was never a lack of hydrochloric acid or of gastric or intestinal ferments. In certain cases of vomiting curds he believed there was hyperacidity and that was the reason sodium citrate acted so well in certain cases.

Dr. George Dow Scott spoke of the slight causes that served to upset the equilibrium of the nervous child and called attention to the fact that other factors such as intervals between feeding and general hygienic conditions entered into these digestive disturbances as etiological factors. The reader of the paper on the soy bean did not say why they should give up wine and whey; he had obtained good results with them. Why could they not use split pea or lima bean soup added to the food formula?

Dr. Morse of Boston said he had been feeling more and more how isolated they were in Boston. He did not think that the speakers had entered exactly into the point of view of infant feeding that was held in Boston. Their endeavor was to try to find the cause of the disturbance of the digestion in the baby, and having determined the cause to give the food best suited to that individual baby's digestive power. They thought they could fit the different elements of the food to the needs of the infant by using percentages in older children; they used the calories and regulated them as carefully as they regulated the percentages in the infants, and hence they did not use stock methods of treatment. What he wished to give was a point of view and not a statement, a point of view broad enough to enable them to take in anything and to leave out anything they found to be wrong, but always to view the case from the standpoint of its etiology.

Can Pneumonia in Children Be Aborted? — Dr. T. Wood Clarke of Utica said that in spite of the investigations of a Cole and a Lamar, of Cruikshank, and of many others, pneumonia remained today as it was in the Middle Ages, a self-limited fever which must run its course. In the present state of our knowledge one was justified in following any signpost which might seem to indicate a possible road to a specific medication of pneumonia. It was for this reason that he related his experience in Utica during the past two years which,

though suggestive, was not convincing. He was called to see a case of pneumonia in a child where masterly inactivity was indicated but where he knew a placebo must be given. Having some hexamethylenamine with him he decided that this would be as good as anything, and it might have some beneficial influence by excreting into the alveoli. He left a mixture containing two grains to the dram, a teaspoonful to be administered every two hours. The results were astonishing and he determined to try this agent again. After citing two typical cases Dr. Clark said that during the past two years in every case of lobarpneumonia or bronchopneumonia he had pushed this agent to the limit and with but one exception the results had been gratifying. In every one of the thirty odd cases of pneumonia in children in which he had used this drug, the temperature had begun to drop within a few hours and in from twenty-four to forty-eight hours the patient was well. His experience had convinced him that the use of this drug early in the disease had in a number of instances shortened the attack and he believed that the physicians of Utica and Central New York were converted to the idea that they were no longer justified in relying on "masterly inactivity" in pneumonia in children. He hoped that his confrères with large hospital services would give this drug a tryout.

Dr. JOHN LOVETT MORSE of Boston said he believed that hexamethylenamine was inert, that it did not possess any activity unless broken up by an acid. If the reaction in the lung was acid it might do good; but in his opinion the reaction in the lung would not be strong enough to have any beneficial effect.

Dr. JOHN PRYOR of Buffalo said he did not think this agent was of value except in the urinary tract and that perhaps its value there had been overestimated; whatever action it had was dependent upon an acid medium. To have any action in the lungs more acid would have to be present than could by any possibility be there.

Dr. SOUTHWORTH of New York said that he believed they would have to consider whether it was really an established fact that hexamethylenamine could be split up only in an acid medium; of course if that fact were absolutely proved then Dr. Morse's view would hold good. Certain genitourinary surgeons employed it in an alkaline medium and believed they got good results. Dr. Clarke's view would of course have to be expressed with reserve; there might be doubt as to whether the cases were really pneumonia.

Dr. JOSEPH ROBY of Rochester said that much of the pneumonia seen in Central New York was of a mild type and ran a mild course. They should try Dr. Clarke's suggestion in adults in hospitals and see if they could cut the mortality from pneumonia. This could demonstrate the value of this agent.

A Preliminary Report on the Rollier Treatment of So-Called Surgical Tuberculosis.—Dr. JOHN H. PRYOR of Buffalo said that tuberculous lesions by an arbitrary custom when located elsewhere than in the respiratory tract had been grouped and defined quite unreasonably as belonging to the field of surgical tuberculosis and this led to unnecessary operating or other forms of surgical interference with unsatisfactory or disappointing results. This had directed attention to local rather than constitution conditions and led to a disregard of common sense agencies. That there was a genuine need for surgical relief which must be invoked at times was appreciated, but the operation should be superceded or followed by other beneficent influences. Dr. Pryor reviewed the history of heliotherapy and made a report of the work of Rollier at Leysin, showing that he claimed more than 80 per cent. of recoveries in closed cases and over 70 per cent. in open cases. Rollier had treated during the period 1905-1913, 1,129 cases. Rollier asserted that 308 of these recoveries were associated with motion of previously affected joints. The important features of Rollier's method were that the insolation was very gradual and slowly completed. The diseased part was kept covered and only exposed to the sun after the coat of tan was existent over the rest of the body. The patient was accustomed to open air life and sleeping out of doors for about one week. During this period the temperature, pulse, respiration and the results of urinary and blood examlinations were recorded. Preparation for the sun bath included protection from wind and draft. The head was protected by a linen cap or a small awning at the head of the bed. Very gradually by exposing a small portion of the body at one time, the entnre body and finally the diseased part was exposed and tanned as deeply as possible. After each insolation the patient was rubbed with spirits of camphor with a rough glove. Ultimately the insolation was practiced four to six hours every day. This treatment was all carreid out on a bed to secure convenience and control. Caution must be observed to prevent sunburns and dermatitis. Reactions might occur if the exposure was pushed too rapidly. During the summer the children well tanned could walk and play most of the day unclothed except for a loin cloth. The skin became a bronze hue and then a copper color and finally a chocolate brown which signified intensive pigmentation. Those who had visited Leysin reported that Rollier's claims were justified and his report of results not exaggerated. The Rollier treatment was first introduced in this country at Perrysburg, N. Y. The site was 1650 above sea level with plenty of woods for wind protection. Experiments with this treatment was begun in 1913 with a few patients suffering from tuberculosis of the bones or glands. The buildings were planned for open air life day and night with protection from and exposure to the sun. The child was naked except for a loin cloth, a cap, and slippers, with stockings in the winter. In the winter time the children were permitted such games as snow shoeing, tobogganing and sleighing. Pictures were shown of the children who had played one hour unclothed in the snow. This freedom was only allowed after months of exposure and gradual hardening. The children thus had exercise, games, and open air schools. They had demonstrated that they could pursue the same methods as Rollier described without any risk or danger in this climate. The exposed children developed marked resistance to cold and its consequences. As the treatment progressed practically every child showed an increase of hemoglobin and red cells. Colorado, New Mexico, and Arizona seemed to have an ideal climate for heliotherapy, but the climate of Switzerland was not a sunny climate and they had shown that good results could be obtained in localities with somewhat unfavorable weather conditions. The duration of the treatment was long and a large number of tuberculous dependents could not be sent away and were forced to be cared for at home, but the results justified resignation and patience. At the present time 65 patients were undergoing treatment in strict accord with Rollier's method. Of these, 47 were children under 15 years of age. Ten had pulmonary tuberculosis but there existed other manifestations as bone or gland involvement. It had been found that the complications disappeared rapidly under the sun treatment. All the patients at the hospital were improving in various ways which had not been apparent with open air treatment alone as was shown by better nutrition, increase in weight, the subsidence of the fever, the return to normal blood count and a subsidence of active inflammatory conditions. Motion returned in cases in which it had been entirely unexpected. The results seemed so remarkable that they justified incredulity until one had seen and was convinced. Thus far Rollier's astonishing statements had been proven true.

Dr. HORACE LOGRASSO showed moving pictures of life at the Adam Hospital, the buildings, the method of applying the treatment, the unclothed children playing in the snow, the open air school, the outdoor life in many phases.

Dr. CLARENCE L. HYDE of Perrysburg emphasized the fact that they were very careful about exposing the children in the winter. They were especially careful to protect them from the wind and from chilling. Perhaps they did not realize how warm the sun was, even in the winter; one of the children was sunburned on February 2, when the pictures were taken. In treating the fistulas and sinuses they used no antiseptic dressing, but simply covered them with gauze so that they had the benefit of the sunlight and air.

Dr. ALBERT HENRY GARVIN of Raybrook said that while there had been a great deal of interest in providing for the care of tuberculous adults, that there had been no provision made for children under the age of fifteen years. Of course, it was proper that they should not be mixed with adults as their requirements in the way of treatment were different. If, as was often stated, the genesis of tuberculosis in the adult was based on an infection in childhood, then if they would combat the disease successfully they must prevent tuberculosis in childhood.

Nuts and Fruits: Their Value in the Diet of Children.—Dr. GEORGE DOW SCOTT of New York said that among the laity there was a firm conviction that nuts gave rise to indigestion and fruits caused hyperacidity. To some the knowledge that nuts were highly nutritious was new.

Nuts, however, contained water, protein, fat, sugar, starch, crude fiber, and ash in large proportions. Each kind of nut had its particular caloric value. Dry nuts were very high in nutritive value and contained more fat than any vegetable substance known. In nutritive value nut butters were far above ordinary cream butter. Dr. Scott had given nuts to children as a substitute for meat because of the nutritive value in intestinal fermentation. The discomfort of eating nuts was due to faulty mastication and to the erroneous habit of giving them to children after a hearty meal, between meals, or late at night, whereas they should form an integral part of the meal. Probably nut protein was not as easily digested as meat protein on account of the water content of 3 to 5 per cent. in nuts against 50 to 70 per cent. in meats. It was, therefore, fair to assume that the finer nuts were divided, chopped and mashed, the more rapid would be their digestibility. Salt did not make nut food more digestible. Mothers should understand the food value of nuts better, giving a variety of nuts to suit the individual child, but it must be understood that they were given as an addition to the diet. After weaning the child, nut butter should be cautiously given. Such butters should be more carefully prepared than those for older children. The nut kernels were pounded in a nut mill until of a thick, creamy consistency, and strained through two layers of clean boiled muslin or fine wire sieve. Fruit juice or finely cut or mashed fruit should be added. The stools should then be watched for undigested particles of nuts or any chemical disarrangement as diarrhea, duodenitis, or enterocolitis. If the butter agreed, the quantity should be gradually increased, care being taken to avoid overtaxing the child's stomach or digestive capacity. In the constipation of infants, nuts formed a valuable aid as a lubricant on account of their oils, but they acted as irritants because of the large amount of refuse which they left. Fruits were given to infants because they were palatable, refreshing, nutritive, and because of their salts, their diuretic, laxative, tonic and antiscorbutic action. In scurvy and other digestive conditions, the fruit juices were almost a panacea on account of their antiscorbutic qualities. In conclusion, Dr. Scott said that the nutritive qualities of fruits and nuts were not to be deprecated; the foods were not to be given to the child as a pleasurable and luscious appetizer only, but as a food in addition to the general diet, stimulating, nourishing, and exhilarating it to a stronger mental and physical existence. Dr. Scott presented tables showing the percentages of food elements in the different varieties of nuts and foods made from nuts and compared them with other foods.

Dr. JOHN F. SINCLAIR of Philadelphia said that he thought the method of preparing the nuts for young children would be troublesome and that they had so many simple aids in the feeding of children that one scarcely felt like proposing another one that would require such patience in its preparation. It should also be remembered that children might have idiosyncrasies to nuts and fruits as they had to other foods.

Thursday, April 29—Third Day.

JOINT SESSION WITH SECTION ON SYPHILIS.

Hereditary Syphilis: The Early Manifestations, Starting from Intrauterine Life Up to One Year of Age.—Dr. LE GRAND KERR of Brooklyn presented this paper, in which he declared that congenital syphilis was not easy to diagnose. Scores of cases that he had seen in consultation had been variously diagnosed. The two conditions, comprising over 90 per cent. of the mistaken diagnoses, were malnutrition and bronchitis. Many had become accustomed to thinking of congenital syphilis only as it showed itself in a more or less virulent infection in the offspring. But there might be the hereditary transmission of the constitutional changes which were the result of the specific poison in the parent. The manifestation of these changes in the offspring were in more or less marked general disturbances which were not traceable to other sources. Those who considered only those cases in which a more or less virulent infection showed itself were taking a very narrow view of the subject. Infants were frequently seen exhibiting tissue changes which were attributable to syphilitic infection, but without any evidence of the usual syphilitic lesions. These manifestations might be called dystrophic, parasyphilitic, or toxinic, but they were the result of a syphilitic heredity. While there was abundant evidence that tuberculosis and alcohol produced dystrophies, those of syphilis were special in that they were varied and numerous. In syphilis acquired late in pregnancy the dystrophies were usually absent, since they were the result of the action of the specific poison upon forming organs and tissues. In making a diagnosis several facts should be considered: the family history, the appearance of the infant at birth, the type of the disease, and the appearance of symptoms some time after birth. In getting the history the question should never be asked "Have any of the family had syphilis?" But such a history of events should be obtained as would establish presumptive evidence as to the existence of the disease. These events were: (*a*) The tendency of the children of a given family to suffer from unaccountable anemias and malnutrition during the earlier periods of life, despite good hygienic and dietetic care. (*b*) The occurrence of anomalous types of disease in two or more children of the same family, or the unusual course of disease under similar circumstances. (*c*) Tardy development without a recognized cause, or with a recognized cause but out of all proportion to the cause, and occurring in two or more children of the same family. (*d*) The occurrence of a rachitic type of skull without other evidence of rachitis being proportionately marked. (*e*) History of the disease, direct or presumptive, in one or both parents. (*f*) A history of the abortive habit in the mother without definite cause. The rapid death of the fetus might be the only evidence of congenital syphilis, and these cases were commonly diagnosed as acute malnutrition. Probably many infants dying of "bronchitis" during the first weeks of life suffered in reality from syphilis of the lungs. Between birth and the appearance of active symptoms the Wassermann reaction as well as other tests was unreliable. Symptoms present at birth indicated severe infection, and such infants usually succumbed within a few days. After reviewing the symptoms that were seen at the time of birth, the author reviewed those which appeared some time after birth, most prominent of which were persistent rhinitis, fissures about the openings of the body, and the skin eruption which had been so variously described, due no doubt to the fact that it varied so greatly with the varying degree of severity of the infection. He referred to the nail involvement, thinning of the hair, enlargement of the spleen, hoarseness, and effects on the nervous system, and observed that enlargement of the testes was almost pathognomonic of congenital syphilis in early infancy. He called attention to epiphysitis as the most common accompaniment of early manifestation; and that with widespread bone involvement there might be crepitation which might be mistaken for paralysis. Changes in the skull, dactylitis, late eruption of the teeth, and hemorrhagic effusions, furnished further evidence of hereditary lues. It must be remembered that congenital syphilis was a much more fatal disease than the acquired form in adults, and as the vitality of the child was markedly affected by this infection one must be very guarded in his prognosis as to the future physical and mental vigor of the child.

Hereditary Syphilis: Later Manifestations after the Age of One Year.—Dr. L. E. LA FETRA of New York presented this communication. He stated that, although useful, the distinction between early and later hereditary syphilis was somewhat arbitrary and artificial. It had been customary to consider the manifestations of hereditary syphilis that appeared first about the time of the second dentition as those of late hereditary syphilis. In general these corresponded largely to those of the tertiary stage in adults, and the symptoms of congenital hereditary syphilis corresponded with those of secondary syphilis of the adult; but even in early infancy visceral and bone changes might occur, while on the other hand in the period following infancy there might be outbreaks of condylomata and of various secondary skin manifestations. The author reviewed the classical symptoms of late hereditary syphilis, calling attention to rhagades or their scars as being practically pathognomonic and describing the three types of Hutchinson's teeth. When present these tooth abnormalities were considered presumtive evidence of hereditary syphilis, but it must be borne in mind that they were often absent even when there were characteristic syphilitic changes in the bones in other parts of the body. A persistent hoarse voice might at times be the only symptom. The author said his experience had been limited to congenital abnormalities of the heart accompanying hereditary syphilis but he had never recognized syphilitic myocarditis in older children. Enlargement of the spleen and liver were common, while enlargement of the testes in early life fol-

lowed later by atrophy was almost diagnostic of syphilis, provided tuberculosis could be excluded. The extremities might show dactylitis closely resembling the spina ventosa of tuberculosis, but the differential diagnosis could be made by searching the rest of the body, or, if this showed nothing, by the Wassermann reaction. The most characteristic manifestations of late hereditary syphilis were the changes that took place in the long bones, and especially in the tibia. In addition to the enlargement and curvature of the tibia there was frequently marked irregularity of its surface, and occasionally larger or smaller nodules or indentations. The bone was apt to be tender on pressure or tapping. The extremities might show other changes, the most important of which was multiple arthritis which was a late manifestation and was commonly met with in the knees and ankles, usually, but not invariably, bilaterally. When the bones were not involved there might be a simple effusion of the synovial membrane with or without thickening, or there might be thickening of the synovial membrane, joint capsule, and adjacent tendon sheaths. The commonest form of this condition resembled arthritis deformans. After describing the skin lesions, the author stated that hypertrophy of the lymphoid tissue was general throughout the body, but most important for diagnostic purposes were the epitrochlear lymph nodes. If both of these were enlarged, and there had been no skin lesions on the hands and forearms, the finding was almost pathognomonic of syphilis, if tuberculous dactylitis or pyogenic infection were excluded. In view of the improvement that might reasonably be expected from proper treatment in nervous and mental conditions due to syphilis, the possibility of hereditary syphilis as their cause should be kept in mind and the Wassermann test done in all cases. In order to give some idea of the clinical types of hereditary syphilis met with in children, Dr. La Fetra said he had gone through the records of the Bellevue Hospital Children's Service for the past two and one-half years. Careful Wassermann tests had been made in all cases with suspicious physical signs or symptoms. During this period 148 cases of syphilis were admitted to the wards; of these three were cases of acquired syphilis, 85 were hereditary but under one year of age, and the remaining 60 were of the hereditary type and over one year of age. Of these 60 patients, 10 showed no symptoms or physical signs at all characteristic of hereditary syphilis. Many of these patients showed absolutely no abnormality, but it was known by the Wassermann reaction that they were suffering from a serious constitutional disease. In this connection it might be noted that because of the activity in prophylaxis of the Social Service Bureau children were sent to the hospital simply because they belonged to syphilitic families. Of these 60 cases there were suspicious or equivocal signs in 21, which, though suggestive, were not sufficiently characteristic to warrant the diagnosis of syphilis at the time of admission. Twenty-nine of the 60 showed signs that were characteristic of hereditary syphilis. The findings in these cases were tabulated and it was noted that the most common signs among the younger children were the eruption, rhagades, and condylomata; while among the older children the changes in the bones were most often met; next in frequency were feeble-mindedness, backward development, and affections of the central nervous system. There was no case of chorea or of juvenile tabes in this series. It was remarkable, in view of the stress laid by all teachers on Hutchinson's teeth in late hereditary syphilis, that among the 24 patients over six years of age this deformity was present only four times. Not once was Hutchinson's triad, of teeth defect, keratitis, and central deafness met with. This combination of signs, while undoubtedly pathognomonic, was seldom developed except in very severe and neglected cases. Enlargement of the epitrochlear lymph nodes was present in 18 out of the 60 cases. The lesson derived from this study was the well-worn one that early diagnosis with its corollary of vigorous treatment was of the highest value to the patient. As an aid to this early diagnosis in doubtful cases the Wassermann test carefully applied by a competent man might be relied upon almost absolutely.

Syphilis as a Cause of Feeble-Mindedness.—Dr. Henry H. Goddard of Vineland, N. J., presented this paper, in which he outlined the results of his efforts to ascertain to what extent syphilis was responsible for feeble-mindedness in the institution with which he was connected. He stated that this whole subject was in rather a chaotic condition since most of those who had endeavored to collect statistics had failed to make distinctions between the high grade morons and the low grade idiots. They had, perhaps, gone too far in assuming that if a parent had syphilis and the offspring was feeble-minded, therefore the syphilis was the cause of the feeble-mindedness. Dr. Goddard exhibited charts showing the results of his study of the family history of children of different grades of mental deficiency. While there were so many factors concerned that few definite conclusions were warranted, it seemed evident that syphilis was not nearly so frequent in the forebears of the feeble-minded as was feeble-mindedness itself or, at least, a neurotic family history. It was doubtful whether data was sufficiently reliable to warrant the statement that syphilis was much more prevalent among the feeble-minded than among the general population, but a greater prevalence among this class might be accounted for on the ground that this class of individuals were less able to protect themselves from the disease and less likely to seek treatment for it. In his series syphilis occurred more frequently among the high-grade morons than among the low-grade idiots. If syphilis was the cause of feeble-mindedness one would have expected to find it oftener among the low than the high-grade defectives. This entire field was one that invited further investigation.

X-Ray Diagnosis of Bone Lesions in Hereditary and Acquired Syphilis.—Dr. Wisner R. Townsend of New York gave this lantern slide demonstration. He stated that in the diagnosis of syphilitic bone disease the *x*-ray was a help but it must not be accepted by itself as conclusive evidence of syphilitic lesion. Taken in connection with other evidence points that were pathognomonic of syphilitic bone lesion were increase in the comparative thickness of the periosteum and thickening of the medullary cavity. Of course, there were borderline cases and one must not be led astray into thinking that syphilis could be diagnosed by the *x*-ray, but it was of great value in many instances and occasionally cleared up a doubtful diagnosis. Slides were shown illustrating the differences between syphilis and such conditions as osteochondritis sarcoma, hemorrhagic osteomyelitis, septic osteolyelitis, Paget's metaplastic ostemallacia, and infectious arthritides.

Dr. Sigmund Pollitzer of New York said that naturally the dermatologist and the syphilologist saw these cases from a somewhat different viewpoint from that of the pediatrist. The skin lesions of syphilis were as perfectly characteristic in infants as in adults. In addition to the symptoms that had been mentioned was a peculiar smooth condition of the palm of the hand. Onychia did not occur as frequently as paronychia. These lesions were of great importance and sufficiently characteristic to enable one to make a diagnosis. The speaker agreed with Dr. La Fetra in regar dto Hutchinson's teeth in syphilitic children; one saw Hutchinson's teeth in only a small proportion of cases. Again one must remember that all teeth defects were not Hutchinson's teeth. Of absolute importance was the Wasserman reaction. There were many cases of mental deficiency among syphilitics, but, of course, the mental defect might be due to something else. It must also be emphasized that when a lesion occurred in a syphilitic it was not necessarily due to the syphilis. This point was determined by the results of antisyphilitic treatment. The speaker said he made it a practice to examine the entire family of a syphilitic patient and had met with some rather surprising results. In closing emphasis was again laid on the point that a positive Wassermann always meant syphilis, but a negative reaction did not necessarily mean that syphilis was not present. This test should always be made when there was the slightest suspicion of syphilis.

Dr. John F. Sinclair of Philadelphia said the papers had been very illuminating and he was especially glad to hear Dr. Townsend say what he did, that the *x*-ray must not be too fully depended upon in making a diagnosis of syphilis. Dr. Sinclair related the history of a case in which the *x*-ray picture had been misleading and was glad to hear that one of Dr. Townsend's experience had found the same thing to be true. Dr. Goddard's paper was very interesting and he felt that its influence should be carried away. It was time to put the brakes on and not to be led too far astray by the statements that came to them in reference to the variety of manifestations that had been attributed to syphilis.

Dr. T. De Witt Sherman of Buffalo expressed the opinion that Dr. Goddard's statements in reference to the relation of feeblemindedness to syphilis were very

enlightening. He had met the question very fairly and squarely and had given them a line of thought that was very helpful.

Henry C. Baum of Syracuse called attention to one point which he said was characteristic of hereditary syphilis, and that was contracture of the biceps tendon and limitation of motion of the elbow joint. Fournier and Marshall had called attention to this symptom.

Dr. J. A. Ragone of Buffalo said that Finkelstein and his followers had called attention to a point of diagnostic value that had been overlooked, and that was that there might be bluish red spots on the soles of the feet; he had found them present quite consistently, but one had to get a little distance away from the foot to see them. Another sign was the peculiar shiny appearance of the outer portion of the soles of the feet; this glossy appearance was always diagnostic. Very few found the enlarged epitrochlear glands unless they searched very carefully, but by a careful search they could be found in very many cases.

Dr. William T. Shannahan of Sonyea said that in reference to the occurrence of syphilis in mental defectives and epileptics, he had employed the Wassermann reaction in 700 instances and it was positive in less than two per cent. of that number. In a German institution 800 tests gave about three per cent. positive. There seemed to be evidence showing that in these families there was some defective strain beside syphilis and alcohol.

Dr. John A. Fordyce of New York called attention to the resemblance of certain ulcerative conditions in syphilis and tuberculosis, and to the resemblance of lesions of Basedow's disease to those of gumma. The close resemblance of the lesions of tuberculosis and syphilis made it very difficult to distinguish between them at times.

Dr. Charles Bernstein of Rome said that some three years ago when they were not so accurate in making the Wassermann tests a recent graduate in medicine made 800 tests and found 38 per cent. of them positive. The following year 500 tests made by a more experienced worker gave only 4½ to 5 per cent. positive reactions; in these 4½ or 5 per cent. they found clinical manifestations of syphilis. Last year 300 examinations were made, and most of these belong to the 500 series, with the same results, so it appeared that in an institution with from fifteen to sixteen hundred inmates there were about 4½ or 5 per cent. that gave positive Wassermann reaction and showed clinical manifestations of the disease. More syphilitics were treated now and treated earlier than formerly, while at the same time the number of feebleminded was increasing, so it did not seem that syphilis was a very large factor in the causation of feeblemindedness, but it was often engrafted on feeblemindedness.

Dr. Herman G. Matzenger of Buffalo said that from Dr. Goddard's tables it seemed apparent that this class of feebleminded belonged to a defective type; they differed from the normal. Whether they were alcoholic, syphilitic, drug habitués, or what not, the fact was they were below par and mental defectiveness was the result. They knew a great deal about inheritance, but not much about heredity. The germ cell was the carrier of life and accidents through two or three generations and should not be spoken of as hereditary. There may be little warping for a time, but the tendency was toward the normal again. Again, nature found a way to protect herself by guarding the germ cell. The syphilitic was sterile, or the infants died, or the victim of syphilis was so unattractive as not to be sought in marriage. He could not say that syphilis had anything to do directly with feeblemindedness.

Dr. Joseph Roby of Rochester urged the necessity of checking up the inheritance in all cases of mental defectiveness or conditions where there was any suspicion of syphilis. He cited several cases in which the Wassermann test applied to the parents had given light on the diagnosis of the condition in the child, and in which, as a result, the proper treatment had led to great improvement both in mental and physical condition of the child.

(To be concluded.)

Reporting Contagious Diseases in Cincinnati.—The health department of Cincinnati has an arrangement with the post-office in that city whereby unstamped contagious-disease report cards mailed by physicians will be forwarded to the office of the department, the postage being paid out of a fund deposited for that purpose with the postmaster.

NEW YORK ACADEMY OF MEDICINE.

Special Meeting, Held April 20, 1915.

The President, Dr. Walter B. James, in the Chair.

This meeting was held for the purpose of urging that the Quarantine Station of the Port of New York, now in the hands of the New York State Government, be transferred to the United States Public Health Service. The present conditions in Europe make this step especially important at this time.

Dr. Walter B. James, in his introductory remarks, said that a distinguished contemporary philosopher of France had said that there was nothing so stable in a people as the fundamental groundwork of its thoughts, and this he supposed might help to explain the apathy of the general public towards preventive medicine. During all the many thousands of years when men had lived together a community life and until within comparatively recent times, preventive medicine did not exist. Disease, especially epidemic disease, was viewed as a scourge or punishment sent by some higher power. Resignation and patient submission were the only conditions that made life tolerable, so that these qualities came to be regarded as the highest virtue. With the discovery of the cause of disease all of the real mystery of it vanished and even today they had remedies, effective preventive remedies, for the multitude of maladies and especially of the communicable and epidemic diseases, so that now the same patient submission, the same resignation that for thousands of years were the highest virtue, had come to be crimes and it was perfectly fair to say today that for any community, and especially any public authorities in a community, to sit quietly under the scourge of an epidemic was a crime against humanity. Nevertheless, so stable was this fundamental groundwork of people's thoughts that they still found them apathetic, still harking back to resignation and submission, still applying the methods of two or five thousand years ago to the entirely changed conditions of today. Within a few days one branch of their State Legislature had passed a bill which indicated that they were in this state of mind. One of the wisest State health laws ever enacted created an admirable health board for the State of New York a little over a year ago. Within a few days a bill had been proposed which very materially curtailed the powers of the health council excepting in times of epidemic. Note the serious menace done in the proposition to check the public health activities until the epidemic had begun. Was not this a harking back to medieval times? The other proposed changes too would be distinctly steps backward. For more than a quarter of a century the New York Academy of Medicine had openly and publicly advocated the transfer of the Quarantine Station of the Port of New York to the national government. The reasons for this step, and they seemed to them to be more than adequate reasons, were given in the resolution, of which many of them had seen copies. The Academy of Medicine had maintained its position steadfastly and without change during all of these years. The Academy of Medicine desired to make it clearly understood that it had only words of praise for the manner in which the present health officer of the port had conducted his department. They made no criticism of the conscientiousness and efficiency of the present administration, nor indeed of that of the health officer who immediately preceded him, and the State had been lucky in the possession of these two public servants. In the past, however, they had seen administrations of this office which were not above criticism and where the political conditions that they were now desirous of seeing eliminated acted to seriously interfere with the operations of this important office. As long as the responsibility rested where it now rested they felt that there must be great uncertainty as to how the office would be administered under future administrations. Many other public bodies had joined the Academy of Medicine in this effort. Most of them were still with them, and many were represented tonight. One of the associations, however, which for over twenty years had stood shoulder to shoulder with them in their efforts to have the country's quarantine put on the best possible scientific basis, had seen fit to reverse its views of two decades ago, and that without the development of a single new fact, without the production of one single new argument. Its home was a temple tinged about with glistening marble columns, and when one entered its halls his eyes were dazed with the glare of all the polished stones of Holy Writ. This homely little build-

ing was insignificant compared to it, but here they did not change their views without some logical reason, some new facts, and they did not subordinate the health, the lives of the men, women, and children of the United States to the supposed, and as they believed, the wrongly supposed interests of the commerce of the city.

Last night an event took place which seemed to him to have a more far-reaching significance than had been generally appreciated, although he believed it was announced in today's papers. The Republican Club passed a resolution endorsing the position taken by the New York Academy of Medicine and recommended the quarantine transfer. Did not this suggest that the day was not far off when, in matters of public health at any rate, political consideration would be subordinated to the immediate public good? Here they had a prominent and important Republican organization recommending that a lucrative and important office with much patronage be taken out of the hands of a Republican State administration and be put into the hands of a Democratic national administration. Perhaps some day they would see commercial organizations taking the same broad view of the public good. There were two reasons for urging this change today. First, the fact that in their National Public Health Service they had what they believed to be, what they knew to be, the most capable and effective piece of machinery in the world for defending the people from communicable disease conveyed from other nations; and, second, because the melancholy state of affairs in Europe had for many months led the physicians to believe that with the advent of warm weather and especially with the coming to their shores of European immigrants, the danger of infectious disease would be greater than they had ever known them. At this meeting they had invited to speak only men who had a first-hand knowledge of their subject matter. One, Mr. Henry James, Jr., who would describe the existing conditions in Servia, had returned only a few days ago from an official tour of inspection of the Balkan States. Another, Dr. William C. Woodward of Washington, Health Officer of the District of Columbia, who would speak on quarantine, had occupied his present responsible position for over twenty years and was recognized as a practical authority on public health and preventive medicine. And finally, to present the constitutional aspects of the subject, they had invited ex-President Taft, than whom no man living had a broader view of this aspect of the subject, and who was particularly fitted to speak for the ability of the National Government to manage all the Quarantine Stations of the country, for it was under his administration that the Public Health Service reached its present high degree of efficiency and became what they believed to be the most perfect organization existing in the world today for the administration and enforcement of public health measures.

Dr. James said he had received letters approving of the effort to place the quarantine under the Public Health Service from 388 individuals, including physicians, surgeons and health officers throughout New York and other States, and representatives of many organizations. A few of these letters he read, among which was one from Surgeon General William C. Gorgas.

The resolutions which the Academy of Medicine had presented to the Legislature were as follows:

Whereas, of all the ports of this country New York ranks first as a receiving station for foreign goods and immigration, as well as a distributing center for the entire country; and,

Whereas, the Federal Government controls all the service incident to the administration of the Port of New York with the single exception of the quarantine, which is logically a part of the immigration service; and,

Whereas, the United States as a party to international quarantine agreements cannot guarantee their uniform observance unless all quarantine stations are under Federal control; and,

Whereas, all the ports of this country, with the exception of Baltimore and New York, for the reasons above cited have already ceded their quarantine functions wholly or in part to the Federal Government. Therefore be it

Resolved, that the economical and efficient administration of the quarantine service, and, above all, the safeguarding of the public health demand the transfer of the quarantine station of the port of New York from the State to the National Government; and be it further

Resolved, that the Government of the State of New York be and hereby is respectfully and earnestly urged to take immediate steps to secure such transfer.

The Present Health Conditions in Europe and Their Relations to This Country in the Coming Months.—Dr. HENRY JAMES, JR., described conditions as he had but recently seen them. He said that as the inevitable result of the war people were forced to live in a changed environment, and that these unusual conditions naturally favored epidemics. Conditions were much worse in Servia than elsewhere. Typhus, typhoid and relapsing fever were at present epidemic to an alarming extent in Servia; with the coming of warm weather cholera would probably appear. As yet these diseases had not invaded the armies in Austria, or the more northerly countries of Europe, but with the coming of warm weather there was every probability that they would do so. With the Austrian invasion of Servia more than 800,000 civilians were swept back into Servia and were forced to live in the most primitive conditions. The City of Nish had had its ordinary population increased from 25,000 to two or three times that number, and people were living and sleeping in railroad stations, restaurants, stables and other places under conditions which made it impossible to stop the spread of infection. If the Austrians should invade Servia they would carry back these infections with them. That these infections might appear at our doors was not a vague possibility but a real danger and one that we must be prepared to meet in the near future. When they left the plague ridden district of Servia it was with the feeling that everybody there was doomed.

The Menace of Inadequate Quarantine, and What an Efficient Quarantine Means to the Entire Country.—Mr. WILLIAM C. WOODWARD in presenting this phase of the subject, said that more than one quarter of a century ago, on April 27, 1859, there convened in the City of New York, at the old College of Physicians and Surgeons, the third annual National Quarantine and Sanitary Convention. After a careful survey of the situation this body put itself on record as being convinced that hope of bettering the conditions of that time lay only in the enactment of uniform State quarantine laws, and took action to bring about the enactment of such laws. Since that time quarantine has been made practically uniform in all the maritime commonwealths, new and old. There were four reasons why quarantine at the Port of New York should be made a part of the national quarantine system: First, because of its relation to the foreign affairs of the United States; second, because of its relations to the domestic affairs of the United States; third, because of its relation to the domestic affairs of the State of New York, and, fourth, because of the administrative affairs of the quarantine itself. The admission and exclusion of citizens of foreign countries and of merchandise were governed by the principles of international law, by the terms of treaties and by Federal statutes, and the enforcement of these laws lay essentially with the Federal Government and not with the State. A State might exclude from its territorial jurisdiction any person or thing that would jeopardize the health of its citizens, notwithstanding international law, treaty or statute, but just such efforts on the part of an individual State to substitute its judgment for the other States and for the United States were the things that strained our relations with foreign nations, and the harmonious relations between Federal and State officers. There was for the entire country one law for incoming immigrants, one law for customs, one law to insure the safety of navigation along our coasts, while for the exclusion of diseases, which of all things were no respecters of state lines, there might be possibly as many laws and as many establishments for their enforcement as there were commonwealths in the Union. That this was recognized in New York State was shown by the fact that in its administration of the Quarantine Station it relied for the efficiency of its service to a considerable extent upon information concerning foreign ports on the foreign service of the Federal Public Health Service for guidance in these matters, realizing that the cost of such a service would be prohibitive, and that legal obstacles would stand in the way. From the standpoint of domestic affairs, the quarantine port at New York should be under the Federal service, since a large number of persons and a large quantity of goods passing through this port are destined to other commonwealths. Other states could if they wished establish

their own inspection service against persons and things coming from abroad, even though their entry had been approved by the officers of the State of New York, but such a course would interfere with commerce in such a way as practically to prevent such a course. These other states relied upon the efficiency of the service maintained by the State of New York, but they had no voice in the control of its operation. Persistence in maintaining its own quarantine station, merely for the protection of the State of New York, rendered it inexpedient to establish a branch of the Federal service to which states in the interior were entitled. Were the question of a national quarantine to come before such states, there could be no doubt but that they would prefer to have this station in the hands of the Federal Government. Again, there was no reason why the State of New York should assume the responsibility of safeguarding the health of the United States and it appeared unfair to the State that it should have to make up deficiency in the cost of its quarantine service out of the general revenue of the State. From an administrative standpoint, the Federal Government was far better able to maintain an efficient quarantine service at the Port of New York than was the State itself. This was said without any reflection on the ability with which affairs of the New York service had been conducted. An efficient quarantine service demanded an organization sufficient to cope with emergencies. A sudden emergency might require an increase in the capacity of the establishment of 20, 50, possibly 100 per cent. within a few days or weeks, and this increase would have to be immediately efficient. The State could not reasonably provide such an elasticity of service, but the Federal service could readily adapt itself to such an emergency by assembling men and equipment from other parts of the country, where an ultimate increase could be made at a time when no serious need existed. The Federal Service would have an added advantage in the matter of appeals. The ranking officer of the port should have ample authority, but the ablest officers might at times want advice with respect to the passing of a vessel and its passengers, cargo, and crew in a doubtful case. It was easy to hold such a vessel, but modern quarantine sought to interfere as little as possible with the movements of persons and merchandise, and the efficient officer could in a case of doubt seek advice of his superior officer. Interested masters and owners of vessels and cargoes should have some appeal from decisions of the quarantine officer and in order to make such an appeal of value it should be directed to someone as far as possible removed from the influence of local prejudice and excitement, one whose position was not jeopardized by local politics, and one who had the training and experience that fitted him to act intelligently. Where other than in the Public Health Service could such men be found? Distance was no objection to the effective administration of the service, for California, Oregon, and Washington were efficiently administered from Washington, and if this could be done certainly the administration of the Port of New York would present no difficulties on that score. Of the many states that had discontinued their quarantine services and relied wholly upon the United States Government for protection, none had sought to reverse their policy in this respect. Bigness was no reason for refusing to make this transfer. It appeared that of the traffic passing through the Port of New York the larger percentage was destined to go beyond the limits of the city and of the State of New York than was the case in other ports, and if this was true then the country at large had a greater proportionate interest in the maintenance of quarantine at the Port of New York than it had at other ports. Finally, the fact should not be lost sight of in the event of a transfer of the quarantine to the Federal Government that the State still had the power through its sanitary officers to call a special conference of State and National Public Health officers to enable the State officers to bring pressure upon the Public Health Service to administer the quarantine at the Port of New York in a manner acceptable to the sanitary officers of this State. In closing Dr. Woodward declared that if there was anything that rendered such a transfer inexpedient he had failed to discover it.

Relation of the National Government to Quarantine and Other Public Health Agencies.—Hon. WILLIAM HOWARD TAFT, Ex-President of the United States, delivered this address, in which he stated that his service in the Philippines had brought him into close contact with the work of the Public Health Service under conditions calculated to show their ability to deal with many trying emergencies. While war was to be deplored one had to recognize that it had been productive of some good. The Spanish-American War had been productive of great good in that it brought the American profession of medicine into contact with tropical diseases through the Army, Navy and Marine Hospital services. From the time that the United States entered Cuba until the present, American medicine made more progress than it had in the preceding one hundred years. Mr. Taft spoke of the work of Walter Reid, Jesse Lazear and William C. Gorgas in ridding Cuba and Panama of yellow fever and malaria and of that of Victor C. Heiser, a Richard Strong in China and the Philippines. During his experience in the Philippines he had seen them deal effectively with smallpox, beriberi, cholera, amebic dysentery, bubonic plague and leprosy. He described somewhat in detail the conditions before and after vaccination against smallpox was made compulsory in the Philippines and said that it was hard to understand how any one could be opposed to vaccination in the face of evidence like that. He related that the late Professor Lounsbury of Yale once said to him that the most remarkable thing he knew of was the astounding capacity of the undergraduate mind to resist the acquisition of knowledge, and to those dealing with the problems of public health the capacity of the popular mind to resist the indubitable proof of facts must seem equally amazing. In addition to the splendid work done in Cuba, Panama, and the Philippines, it might be recalled that a few years ago, when there was an outbreak of yellow fever in Guayaquil, Dr. Terry, of the United States Public Health Service, was called in to clean up that city, and later a representative of the Service had shown most remarkable results in dealing with hookworm in Porto Rico. During the Spanish-American War there were 120,000 men in the Army and 20,000 cases of typhoid fever, with a mortality of 7 per cent. In the year 1912-13 an army of 18,000 men was sent to the Mexican border. These men had been treated with anti-typhoid vaccine and there was only one case of typhoid fever; that occurred in a man who had not been vaccinated. With all these facts in mind it was very evident that a Public Health Service that could do all these things could also manage the Port of New York. The Federal Government had in the Army, Navy and Public Health Service a corps of medical men who in point of ability to investigate disease, in point of ability and experience in preventing disease, and in point of numbers, was equal to any medical corps in the world. The National Government had every facility for dealing with disease. It had its agents in every dangerous port in the world to make reports on health conditions. The Federal Government now conducted fifty quarantine stations in this country, practically all excepting the one in New York. Mr. Taft declared the New York Health Department and Health Law was good, the best in the United States, and he had no intention of criticising it, and he hoped the bills that at present threatened its efficiency would be defeated. Yet, the quarantine was a national question since it had an intimate relation to foreign and interstate commerce. It naturally came under the province of the Federal Government, but was one field in which the State might act until Congress spoke. The contention that quarantine was a state matter and that Federal control was unconstitutional was as absurd as the claims of the anti-vaccination cranks. Under the present law, even if the State wished to continue to conduct the quarantine, the Federal Government could step in and assume control; it had the right to purchase the station. Such a transfer, say at $2,000,000, would probably not be unwelcome to the State Treasury, though he was not in a position to say whether the United States Treasury was in a position to pay. The objection had been raised that the Federal Public Health Service was not adequate to conduct the quarantine at the Port of New York. In reply to this it might be said that they were conducting stations in other large cities successfully, and mere size was no impediment to proper administration of such a service. Others again deprecated the rigid uniformity of the Federal regulations. There need be no fear on this score as variation was made in the regulations to meet local conditions. Some one else claimed that the Federal regulations did not include beriberi. The Federal regulations were such that they could be made

to include this disease as well as others. Again, it had been argued that the Federal Government could not interfere in the coastwise trade. This was wrong; the Federal Government could extend its authority to the coastwise trade just as to interstate commerce. Once more, there were some who feared that there would be a lack of personal responsibility on the part of Federal officers for particular localities. This, too, was a fallacy. There was, in fact, a greater sense of responsibility on the part of the men in the Federal Service, because politics were wholly eliminated; the places of the men in this service were not subject to change of administration. The Federal officers had no local interests at stake, were not influenced by local opinion, and had no object to attain by the concealment of actual conditions. In this connection Mr. Taft reviewed the history of the epidemic of bubonic plague in California, where the policy of concealment led to the calling in of the Federal Public Health Service with the result that they had been chasing ground squirrels ever since. There was no question but that the quarantine at the Port of New York could be conducted far more effectively and economically under the same head and government with the Customs and Immigration Bureaus. The administration of the quarantine at the Port of New York was a matter which directly concerned the entire country. It was true that New York was the largest port in the United States and that New York City was an important part of the United States, but it was not the whole country. This was where the New York Chamber of Commerce probably made its mistake. While most of the immigrants and a large amount of merchandise arrived here, they did not remain, but were distributed to the entire country. With the State administration of quarantine there was a division of authority that was not desirable. The Federal Government had made treaties with foreign nations involving questions of quarantine and should logically be in possession of the instruments by which those treaties were to be enforced. They had been told that with the close of the war they would be threatened with typhus fever and other infectious diseases. When they faced the world to meet these conditions it should be with a national and not a State system of quarantine. The transfer of the New York Quarantine Station might not be as simple a matter as had been supposed and hence there was all the more reason for agitation at the present time.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

THE LIMITATION OF OFFSPRING. By WILLIAM J. ROBINSON, M.D. Published by The Critic and Guide Co., New York City. Price, $1.00; 245 pages.

TWO PAPERS ON PUBLIC SANITATION, AND THE SINGLE TAX. By Surgeon-General WILLIAM C. GORGAS, United States Army, and Professor LEWIS J. JOHNSON, Harvard University. Published by Joseph Fels Fund of America, Cincinnati, Ohio. Price, 3 cents; 23 pages.

DIE NICHTGONORRHOISCHE URETHRITIS BEIM MANNE. By Prof. Dr. C. ADRIAN. Published by Carl Marhold Verlagsbuchhandlung, in Halle, a. S. Preis, M. 1.80; 62 pages.

THE ASSOCIATED OUT-PATIENT CLINICS OF THE CITY OF NEW YORK. Second Annual Report, 1914.

PATHOLOGICAL TECHNIQUE. By MALLORY & WRIGHT. Published by W. B. Saunders Co. Sixth edition, revised and enlarged. Octavo of 536 pages with 174 illustrations. Philadelphia and London: W. Cloth; price, $3.00.

THE CLINICS OF JOHN B. MURPHY, M.D. At Mercy Hospital, Chicago. Published by W. B. Saunders Company. Volume LX; Number 11 (April, 1915). Octavo of 197 pages; 47 illustrations. Philadelphia and London. Published bi-monthly. Price, per year, paper, $8.00; cloth, $12.00.

TWENTY-FIRST ANNUAL REPORTS CRAIG COLONY FOR EPILEPTICS. Published by J. B. Lyon; 194 pages.

Therapeutic Hints.

Treatment of Sore and Fissured Nipples.—Bardet recommends the following ointment:

℞ Menthol,
Stovaine, āā 0.5 gram.
Zinc oxide, 5 grams.
Tincture of benzoin.
Vaseline, āā 10 grams.
Cocoa butter, 30 grams.
Essence of roses, 2 drops.
"Formulaire des Nouveaux Remèdes."

Treatment of the Dysphagia of Laryngeal Tuberculosis.—Lermoyez recommends insufflation of the larynx with the following:

℞ Morphine hydrochloride.
Milk sugar, āā 2 grams.
Powdered gum arabic, 2 grams.

Of this mixture 5 centigrams are to be insufflated each time.—*Paris Médical.*

Treatment of Tabetic Pains.—Mueller is said to recommend the following:

℞ Thiosinamine, 1 gram.
Glycerin, 1 gram.
Sodium salicylate, 2 grams.
Sterile distilled water, 10 cubic centimeters.

M. Sig.: One cubic centimeter to be injected intramuscularly daily or on alternate days.—*Riforma Medica.*

Treatment of Dysentery in the Army.—A. Robin describes a method of treatment which is said to be an old one and which has demonstrated its efficacy in the Balkan campaigns. There is administered the following:

℞ Pulverized kaolin, 94 parts.
Gum arabic, 5 parts.
Gum tragacanth, 1 part.

This is mixed with care after the gums have been pulverized and is kept in a firmly covered metal box. The dose is a tablespoonful mixed with a little water. As much as 200 grams of the powder may be taken in the course of the day.—*Bulletin Général de Thérapeutique.*

Alcoholic Stimulation in Typhoid Fever.—A. F. Plicque notes that alcohol is not as well borne in typhoid fever as in pneumonia, nevertheless it is useful in combating the adynamia and sustaining the heart. The following "wine-lemonade" may be given:

℞ Red wine, 250 grams.
Syrup of citric acid, 100 grams.
Distilled or boiled water, 750 grams.
Journal de Médecine et de Chirurgie.

Treatment of Gastric Vertigo.—Robin is accredited with the following formula:

℞ Calcined magnesia, 0.3 gram.
Prepared chalk.
Sodium bicarbonate, āā 0.2 gram.
Powdered nux vomica, 0.03 gram.
Powdered belladonna root, 0.02 gram.

M. ft. pulv. To be taken immediately after each meal.—*Riforma Medica.*

Local Applications of Neosalvarsan in Vincent's Angina.—Renaux points out that Zilz, Netter, and Aehard recommend the use locally of a ten per cent. solution of neosalvarsan in glycerin. This solution does not deteriorate for a long time; it is neither caustic nor painful; and it may be applied to the ulcers three times daily. The parts should previously be cleansed with physiological salt solution. —"Thèse de Paris."

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 21.
Whole No. 2324.

New York, May 22, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

FREUD FROM A SURGEON'S VIEWPOINT.*

By ROBERT T. MORRIS, M.D.,

NEW YORK.

PROFESSOR OF SURGERY AT THE NEW YORK POST GRADUATE MEDICAL SCHOOL AND HOSPITAL.

What is a dream? Stir a paddle about in the sea at night, and observe the flashes of light from so-called phosphorescent animal forms. That apparently represents the nature of a dream. The paddle for a dream is often a toxin, and the flashing particles are emanations from a group of brain cells that have been stirred into activity. In the flashing of sea animals we occasionally outline perfectly the form of a jellyfish. In a dream we occasionally see objects very distinctly.

The Mohammedan answers the question why we dream by saying that it is the will of God. That suffices. Higher up in the intellectual scale the Christian also says that we dream by the will of God, but in science we may take the question like all others directly back to the three physical entities for a beginning. Everything on earth we say is due to vibrations of energy, matter, and the ether. Matter in one form constitutes that group of brain cells belonging to the subjective mind. Let us imagine that these cells which are engaged with the subjective mind keep up a sort of constant harmonious humming while the objective mind vibrations strike a different chord. These brain cell movements when combined during the day are expressed in the music of thought. At night vibrations of the normal objective mind subside altogether, while those of the normal subjective mind continue in rhythmic motion like the heart muscle. Microbe toxin sets the cells which are devoted to the objective mind to vibrating in disbarmony whenever it causes partial awakening. The subjective mind responds, and disturbed memory then goes to humming, "remembering" in dreams many things that never occurred. It likewise anticipates in dreams many things that will never come to pass. During sleep the objective mind refuses to respond normally to the poisoned cell players, but cells of the subjective mind may respond in the form of dreams.

Dreams appear to result chiefly from toxic irritation of brain cells of the subliminal mind set, if we are to base our idea upon the frequency with which dreams are known to follow upon toxic impression. An unusual noise or a distended hollow viscus will also act like toxin by arousing partial brain action during sleep. Nightmare develops from toxic impression so distinctly that some individuals know just what particular food will cause nightmare.

Sleep is probably due to an automatic arrangement between the body cells. When the nerve cells expend their energy granules down to a certain point special hormones are then secreted, and messages are sent out from the chromaffin cells of the sympathetic ganglia, instructing all of the body cells to change their rate of vibration. Then we have sleep. A toxin or an unusual external impression breaking in during sleep plays upon these cells, and sets them to vibrating irregularly,—giving us dreams. Sleep is probably arranged for automatically very much as the water level in a boiler is regulated by automatic devices. When the neuricity granules of nerve cells get down to a certain level hormones are then poured out in messages which are sent to nerve cells of the whole body. Neuricity is so nearly allied to electricity that we may look upon sleep as a sort of automatic electric compensation process which is conducted by hormones.

The Freudian theory of the significance of dreams is not so cleverly drawn as are some of the Shakespeare-Baconian ciphers. Freud's theory is everywhere clouded by elusiveness and diffusiveness of statement. So far as most of us have been able to take testimony, there is no essential difference between day dreams and night dreams. We use the same materials from the conscious and subconscious mind in both cases, but night dreams are more of a jumble because we are pretty busy with sleep at that time and cannot lay our ideas out very straight. Dream wishes and wide awake wishes are also similar in character, and the tests which Freud applies for discovering hidden wishes in dreams if applied to normal waking consciousness would yield practically similar results. The working materials are about the same in both cases, variation being expressed in terms of quantity rather than in terms of kind. The dream has no special function, so far as Freud has given proof. The dream, some of us believe, is nothing more than a third rate psychic process, and would not occur at all excepting for abnormal stirring of brain cells. There is the closest sort of relationship between our dream consciousness and our wide awake consciousness. The complex of memories and thoughts, conscious and subconscious, in a most intricate weaving, appearing by day or by night as the case may be, gives opportunity for any one who is at all clever, to construct a cipher which will mislead all who do not walk with a testing stick. Freud, on the whole, is of great value when serving as a warning against the present day tendency to extreme specialization in study. He seems to have lost the sense of logical values, and plays the role of special pleader upon doubtful hypotheses. He minimizes or disregards unfavor-

*Advance pages from a book entitled "To-morrow's Topics," to be published by Doubleday Page & Company, New York.

able evidence instead of placing it in the structure, as would be done by men who make valid scientific advance. He builds monstrous and revolting structures upon a basis of shifting sand with the alertness of a paranoiac, using his obsession of sex as a rolling stone in the foundation.

Freud asserts that each person's memory, if allowed to wander freely, may usually be counted upon to furnish the information which the examiner wants. If that method fails the improved plan of Jung is employed. In the latter method the examiner makes use of word associations to remind a victim of what he should divulge. If the wandering mind and the prompting of Jung both fail, recourse is then had to a study of the dreams of the victim.

Proper analysis of the real meaning of dreams is said to require the services of an expert, and I quite agree to that proposition. We are told that the science of dreams is so rich in meaning that no dream carries its full or true significance on its face. Each sign has to be translated by a master in this new study, or else we common folks who have to drag along somehow would see nothing in it. When the Freuds are reminded that most dreams have no sexual features whatsoever, but present only a jumble of ordinary impressions, they reply that these are symbols. The various animals which are seen in dreams are said to be symbolic for the animal passions. Rapidly moving trains, or running waters typify hurrying emotions, they tell us. In dreams the lake and the bare landscape are simply elements of a picture language as well defined as the hieroglyphics of the Egyptians to the Freudian mind. We are seriously informed that apparent data have to be absolutely reversed at times in order to be rightly understood. My response to all this would be that the symbols are quite as well defined as are the features of plants which were used according to the doctrine of signatures. No more, no less! Making a parallel then to the doctrine of signatures the Freudian might say with his advanced idea—"A pinnate leaf may not look much like a liver but if one is broad minded enough he will clearly understand that it looks like a liver badly out of order, and had it not been for sex in parents there never would have been any leaf or liver." The old adherents of the doctrine of signatures stopped far short of this, and saw only the features of plants which symbolized parts of the body, or which suggested disease through some physical resemblance. The Freuds are more fanciful than the old adherents of the doctrine of signatures because they say it is not even necessary to have anything so plain as a plant signature in a dream. "Experts can find a symbol for the signature if the signature itself happens to be missing." A dream book that I once bought from an old darkey contained no more superstition than the dream theory of the Freuds, and it has the merit at least of stopping short of reversal of apparent data, for that indeed is the last straw.

Freud ascribes great value to dreams, and studies the "manifest dream content" and the "latent dream content" in order to find the meaning of a dream. A person who has no dreams is consequently left out of consideration. The form of a dream varies with the kind of toxin or kind of external impression. Thus a dream from indigestible sausage (colon bacilli?) would be different from that of indigestible beans (capsulated bacilli?),—would be different from one following too much use of alcohol,—would be different from the dreams caused through irritation of sympathetic ganglia by over-distended hollow viscera,—would be different from stirring of cells of the subjective mind by the first turn of the objective mind just before awakening. If my understanding of Freud's theory is correct, one would have to experience all of these five different kinds of dreams in order to bring out five different instances of repressed memory of five occasions of being sexually shocked in childhood.

When Towser, lying before the fireplace, whines in his sleep, growls, wags his tail, or awakens suddenly and looks about for the rabbit, perhaps, which he has seen in his sleep, I wonder what early sexual aggression has disturbed the poor dog. Is the rabbit symbolic of a shock received by the pup?

Freud constructs a metaphysical theory after the fashion that was characteristic of German method in the early half of the nineteenth century (Schilling-Hahnemann). He gives evidence of a morbid tendency to over-emphasize the potency of erotic influence in all of our experience, and the results of this preconception lead him into disgusting explanations. He insists that practically all dream wishes have origin in early sexual aggressions. What can be more morbid than his explanation of dreams which picture the death of beloved parents. He fails to use the dream as a proof that the dreamer wishes a parent dead at the present moment, but his theory concludes that the dreamer had wished a parent dead at some time in childhood. The antagonism of children to parents who punish them is made to explain some of these death dreams, but Freud wishes to account for the larger proportion of them on the basis of infantile erotic influences. "The man dreams of the death of his beloved father because in childhood he had felt sexual attraction toward his mother and has wished for the death of his father, who was his effectual rival." According to this idea the explanation can apply only to dreams in which the dead parent is of the same sex as the dreamer, and Freud forgets to explain how it is that dreams quite as frequently refer to parents of the opposite sex.

Freud and Breuer had a case of hysteria in which the patient fancied, or perhaps actually did detect a cause for self reproach. This had led, like other emotional disturbances, to the development of hysteria in that particular case. Confession led to the sort of recovery that might have occurred at a Roman Catholic confessional. Freud however tried to construct a system upon this case as a basis. He assumed that various obsessions, hysterical and others, had their origin in some sexual aggression of childhood. Obsessions, he says, are evolved from suppression of the memory of reproaches having sexual origin. In other words, memory of the sexual action being repulsive, is suppressed.

Let us say that Freud or Jung can take a given case of hysteria, or a given criminal, and by laborious and tedious analysis make an interesting association of concealed facts and hidden characteristics of the mind in these two particular individuals. Very well, how about the next case, and the one after that, and another one? Ah, there's the rub. The failures are not recorded by Freud and by Jung, because these failures are uninteresting to them. *Ergo*, their success is interesting as a sort of curiosity, in the cases in which it really occurs. Their successes cannot be reported as representing principles for support of a system unless general

application can be made, and unless failures are carefully recorded and reported. They must account for psychoses, hysteria particularly, in a class of patients who have never been aware of any sexual aggression, in fact, who consider any sexual experience as luck rather than as shock. Then there are the feeble-minded, who have various psychoses, and who probably have not been more impressed by early experience than by experiences of the moment. The psychoses in all these people have to be accounted for by Freud, or his system fails and belongs among the curiosities, like the fat man at the circus or the woman bearded.

Let us consider the case of Simple Sam, whom I have known during his entire life time in a certain village. He is feeble-minded, but manages to keep occupied at various jobs, excepting when some occasion like election or a fire leads to the development of hysteria. Sexual experiences of various sorts have dated from his childhood, but all of these he has looked upon as luck rather than as shock. Now if we are to leave out Towser and Simple Sam because they do not quite fit into the Freudian theory, where are we to stop leaving out instances in a system which must be like a wheel? A wheel cannot bear weight when even two spokes and the corresponding part of the felloe are missing. It is simply a plaything for the boys, looking very much like a wheel if the missing part is immersed deeply in mud (deep sexual idea). When such vital parts of a "system" are missing it has to be carried as "an abstract wheel in the head." Freud states that he found individual forms of hysteria to disappear whenever he aroused in the patient a memory of some sexual event which was causal in relation to development of symptoms, and when the patient gave verbal explanation for the emotion. He calls his treatment a catharsis of repressed emotions. He later retreated from his first position of belief in an aggression dating from childhood, and now places it at some time after puberty, but projected back into childhood. That indicates to my mind the instability of his basis, which is still more unstable if we consider the thousands of men and women with psychoses who have never suffered any feeling of shame from childhood to adult life either with or without cause for shame. Many of the feeble-minded have looked upon any sexual experience as a natural event rather than as aggression, and yet they present psychoses. What is to be done in order to bring unshocked cases under the Freudian theory? The method of treatment may remain to play a small role in providing means for treating a few people who happen to be proper subjects. These people are still subjects for pity, both before and after treatment. It leaves the larger number of patients with psychoses to be treated after the manner of the doctor whom it is said always gave a patient fits if he did not know what the right diagnosis was, because he knew how to cure fits. Freud thinks that motives of shame have resulted in repression of the consciousness of certain experiences, which then became subconscious. He traces the cause of repression inevitably into the field of sexuality, and makes this embrace not only shame, but also parental and filial affection, and all sex experiences and perversions. His contention is that the motive for repression having been discovered the patient can then reestablish a normal mental attitude toward the circumstance. Its train of symbols is supposed to disappear.

In psychanalysis both physician and patient assume an expectant attitude of mind. The doctor believes, and the patient is involuntarily led to believe, that a cure of the phobia will follow when a sexual "trauma or repression" has been revealed. The more revolting an incident which is unearthed the greater his power to cure. Freud requests the patient to allow herself to drift aimlessly in her communication with him, and to speak of everything that comes into her mind. She is not to suppress any thought or idea on the ground that an idea happens to be shameful or painful.

The very statement of this wish on the part of a physician would at once suggest to the mind of almost any woman the idea of concentrating attention upon some shameful or painful experience as meaning just what he was after. Among patients of hysterical temperament (and perhaps others) the desire to please or to surprise the doctor would certainly at times lead to the giving of misinformation, or in any event to disproportionate statement. Such statements when seized upon by the doctor would be dove-tailed into his preconceived notion, and he would then by suggestion lead the patient according to his personal hypnotic or suggestive ability.

The methods of Freud do not have the merit of "at least being harmless." We are beginning to hear of many cases of distressing mental perturbation on the part of patients who were subjected to unsuccessful attempts at extracting a confession about unfamiliar subjects. Suffering of an indignity is a phenomenon which is inseparable from the mental sex mauling of practically every individual who is subjected to Freudian search.

Nothing is said about shame and upheaval of the emotions as a final result of the treatment. How about that? The Freudian method may suggest sexual occurrences which never occurred at all. One of my patients said to me that what she had told the psychanalyst was not true at all, and she did not know why she told him such things. Freud suggests to his patients what he wants to get, and then gets it, therefore his method does not differ essentially from other suggestive methods. Just why a patient should be able to reestablish a normal mental attitude and to go forth rejoicing after a true confession or after a misstatement of fact suggested by the doctor, is to be explained on one ground only. It is to be explained on the ground of continued suggestion of the idea of rejoicing, and this idea will be good so long as it holds out. In this respect the Freudian system is not different from Christian Science. In the one case the system of suggestion is artificially constructed upon a hypothetical basis of sex. In the other cases—Christian Science—the method of suggestion is also artificially constructed and maintained, but upon a hypothetical basis of mind. According to the monistic unity doctrine Christian Science would give better results than the Freudian treatment, because mind is more deeply fundamental than sex. It includes consideration of First Cause, while sex is nothing more than a convenience belonging to some of the later plans of First Cause. Freud takes the mind no further back than to sex, whereas Christian Science takes it all the way back to First Cause. Freud then is more superficial than Christian Science. The more deeply fundamental the origin of function, the higher may we construct a building of logic, because of the deeper and stronger base. My observation of the practical re-

sults of Freudian treatment justifies the idea of this deeper base being the safer and stronger. Christian Science people are far happier than the Freudian products as a whole, as I have observed them. Both classes of patients however carry the manner and presence of people who are under the influence of suggestion from a source which lies outside of their own wills.

Before many years have passed we shall be developed to a point where people are taught to avoid acquiring one morbid condition in the hope of overcoming the effects of another morbid condition. At the present time Christian Science, Freud, alcohol, and caffeine are all alike in the sense that they relieve the stress of one morbid condition by introducing another morbid condition in its place, the latter being more agreeable. It is a matter of alternative only. Christian Science is milder in application, and agreeable to a greater number of people than is Freud. Caffeine is milder in its influence, and agreeable to a greater number of people than is alcohol; *ergo*, in the absence of a satisfactory hygienic alternative for morbid conditions I would prescribe for psychotic patients, tea and Christian Science, rather than alcohol and Freud. Under a proper system of eugenics which is to be developed, and is even now developing rapidly, we shall have fewer and fewer people with morbid conditions which require such alternatives for securing comfort.

All of this sick-head pother has been taken up seriously because of the natural attraction of men toward the sound of a brass band of deep thinking. Men in their egotism naturally like to keep step to this, without observing that the drum major himself is often walking backward. It may perhaps seem out of place for a surgeon to devote so much attention to the subject of Freud, but the latter represents, in the field of medicine, an influence which is directly opposed to the new scientific methods of today. The contrast makes him as large a figure as Satan in opposition to the Angel of Light. He represents the worst feature that we have had to combat in that progress in medicine which was first made by surgeons.

His system, like philosophy, represents educational conviction rather than scientific method. Upon observing the men who have become interested in Freud I note that he is much more attractive to those who have taken a course in arts at college than to those who took a course in science.

A system of this sort is attractive to those who are commonly known as learned men, and men who are proud of that distinction. The scientist knows better than to allow himself to be classified as a learned man if he can avoid it. There are too many things which the learned man knows that are not so. The scientist abhors being called "learned."

The psychanalysts believe that complex conditions of modern life make it more and more difficult for people to handle their fundamental instincts. If the nature and effect of fundamental instincts can be shown, people are then supposed to be enabled to manage these instincts more intelligently. A surgeon would assume, however, that a lame man having been shown why he was lame would walk no better than before, unless he continued to be supported by a crutch. When the psychanalyst lets go of the head of somebody who has become badly mixed up in the application of his instincts the surgeon believes that such an individual will soon be in trouble again. Another long and tedious pull at his head is then in prospect, unless the physiologist takes charge and obliges that individual to oxidize his toxins to a degree which allows his physiology to return to the point at which his instincts can go around and around as smoothly as the wheels of a watch. The confessional does not allow a man's head to go to destruction after the rendering of temporary aid; but the Freuds let it go when the patient's money gives out. At the confessional I presume no one ever attempts to mislead the priest, but one of my patients who had been treated by the method of psychanalysis said that she told the doctor a great many things that were not true because he seemed so eager to have her say what she did that it was not in her heart to disappoint him.

Psychanalysis claims to be the application of Darwinism to the psychic sphere (obverse of organic evolution); but Darwin collected facts and slowly came to conclusions, while Freud and Breuer began with a conclusion and then proceeded to add suitable facts for purposes of support, discarding unsuitable facts. This is the worst crime that is known to science, because it purloins the very essentials of art. It is the menace of a wolf in the covering of a sheep.

We shall hear much less of Freud a few years from now, although he has captivated the imagination of some of our psychiatrists at the present moment. His system has been constructed very much like the Marxian socialism by building a store house and then putting into it only such things as he wants.

The Freudian system is founded upon a basis of suggestion which affects both patient and practitioner unfavorably in the end. Incidentally in the course of development of the system much information of value has been gained—as exemplified in certain side studies by Brill. Information which was previously unknown is apt to be gained whenever we start to make new observation, even from a faulty basis. It was when trying to hybridize oaks with chestnuts that I accidentally made an observation which engaged the attention of biologists in all parts of the world. The fact that parthenogenesis occurred in trees of the organic rank of the Fagaceae was not anticipated, and might not have been discovered in the present century had I not been at work in a wrong way while attempting to collect facts bearing upon another question altogether. From osteopathy, which is based upon misconception and fraud, many facts of value have been incidentally collected. From Christian Science, based upon ideas of a paranoiac, much of substantial value has been applied in the way of treatment.

One of my inventions consisted in arranging a series of magnets in a box for the purpose of diverting magnetite from other forms of sand on the seashore. This apparatus pulled out a lot of iron, but the plant was not practical because the cost of power for moving and clearing the magnets was too great. In the same way, the Freudian system, osteopathy, Christian Science, or any fad, when swept over millions of people will pull out thousands who adhere to it for awhile. In the end such systems are not found to be quite worth their operating expenses, although something of good comes from all of them. The regular medical profession learned the use of lobelia from the Indians; from a shoemaker the operation for vesical calculus; from a postmaster the method for sounding Eusta-

chian tubes, from a monk how to use antimony. It draws to itself practical knowledge from all possible sources.

When the Freudian theory first began to attract my attention, in order to see how it would work out practically I referred clinical cases to different men who were making a study of the subject, but perceived at once that a poor man without means would have to be rather careful about going crazy. An attempt was made to obtain treatment by psychanalysis for one of my colleagues, a very dear friend, who had developed a psychosis. Doctors are supposed not to charge each other for services, and on this basis I could not find any Freudian who cared to take charge of my friend's case. Doctors, therefore, belong in that class of people who must think twice before developing a psychosis. There is one notable characteristic that runs pretty generally through all peculiar systems in medicine: they incidentally leave the poor out of account. Any system in medicine will fail, no matter how silly it may be, unless it takes charge of the poor. Freud does not do that, but furnishes the stimulus of a good business enterprise—I will not say by intention.

A psychiatrist who pins his faith to the Freud method of psychanalysis and psychotherapy might be charged with noting the commercial value of the method, because it seems to be carried out chiefly upon people who have sufficient means to pay for the valuable time of skilled physicians. I would not seriously ascribe any such sordid motive to interest in the subject, yet the incidental fact is a bit catchy —particularly when we consider this feature in relation to osteopathy and Christian Science.

Two post-impressionist psychiatrists, Freud and Jung, are at the present moment quarrelling over the question if the neurotic is "transfixed" to a certain period in his early infancy. Freud holds that the neurotic is dependent upon his infantile past, and the morbid psychic conflicts of later life develop through the powerful influence of that past. Restoration of health can occur only when the libido (Freud's vital energy—desire—any form of inherent force) becomes detached from the subconscious infantile fixation. Jung asks why there should be fixation of the libido to former infantile fantasies anyway. He thinks that the etiological element of the neurosis does not consist of the mere existence of infantile fantasies, but must be contained in the so-called fixation. He raises the question if the intensity of an Oedipus complex or of an Electra complex is really derived from fixation or from regression? When two men are thus engaged in struggle for possession of a single will-o'-the-wisp, let us hold our breaths and trust that the one who finally secures it will leave it to charity, for that is where the whole question rightfully belongs.

In selected cases the methods of Freud and Jung, like those of Du Bois, and the isolation-persuasion scheme of Déjerine, undoubtedly have a certain practical value, but all of these methods belong to the era of superstition. They serve a purpose, just as Calvinism serves a purpose, until such time as we may come into a full and free understanding of the chemical and physical nature of mental states. The Freudians, not content with analyzing real characters, try to extend their range of analysis to characters in imaginative literature. From the classics they construct such formulæ as the "Oedipus Complex" and the "Electra Complex." They try to show that the mental mechanisms of unconscious repression and of mental conflicts are the same for hysteria in actual patients as they are for fictitious creations, like the mental disease of Hamlet and Lady Macbeth. If anything more is needed for placing the views of the Freudians among metaphysical obsessions, they will no doubt furnish more. If Hamlet and Lady Macbeth, who did not exist, had unconscious repressions which also did not exist, the Freudians easily trace the history of these characters back to some sexual shock by a scientific method—which also does not exist, if we are still to place confidence in anything so old-fashioned as *reductio ad absurdum*.

Perhaps we may call the adherents of Freud the Froids, taking the name from "fraud," and the Greek "eidos." This is a mule word to be sure, wholly intolerable to word makers, but the mule is a very useful animal. The Froids are not frauds, because they really take themselves very seriously, but by adding the eidos we have a very good appellation. Supposing that the Froids were to tell us that the moon is made of green cheese. Green cheese at least is what one must have in mind when looking at the moon if he is broadminded enough. This use of the expression "broadmindedness" occurs frequently in their writings, and seems to be a sort of hidden appeal which they feel it necessary to make. They appeal also to the sympathies like the Christian Scientists, by asking—if there is much suffering from psychoses in the world, why not let a new method have a fair trial? They ask if they have not observed some new facts. Yes, one who looks at the moon and thinks it to be green cheese will note migratory birds passing. The mere fact that astronomers were looking toward the sky allowed them incidentally to make new notes relating to migration of the Limicolidæ.

The same powers which commonly allow a victim to recover from any one of various diseases after running the gantlet of drugs, allows him to recover after application of the Froid system. According to the Froids, nervous invalidism is largely a sign that the sufferers suffer because they cling unwittingly to modes of thought and feeling which belong to childhood stages of development. My assumption as a surgeon is more matter of fact, and I prefer to believe that modes of thought and feeling depend upon physical cell construction. Physical cell construction depends upon inherited tendencies, and upon response to normal or morbid products of metabolism. Metaphysical medicine, like the system of Freud, must be considered as a sort of art applied by mental experts.

All art must so vary with the personality of the artist, that we can never have any satisfactory artistic method in practice unless it is upon that basis of science which allows all men equally to apply it, when they have comprehended its data and its conclusions. Those who attempt healing upon a fanciful basis, like Freudism, would be classified as impostors were it not for the saving grace of the word "delusion." One may find characteristic articles by Froids in the *American Practitioner* for December, 1912, and in the *Transactions of the Harvey Society* for 1911. One is written by a teacher at Johns Hopkins and the other by a teacher at Harvard Medical School. The fact that teachers are allowed to write and speak upon this subject at two institutions of such high character is a good example of the value of freedom in teaching. The more important the man happens to be the more clearly his delusion is outlined.

The Freudians have made a few real discoveries,

but this is often done by men who do not half believe in any given quest. When men simply have their minds opened toward any cause and begin to look about they are pretty sure to find something surprising. This is illustrated by an experience which is related of two of my friends who were in such a hurry to leave the boathouse and get to fishing that one of them forgot to remove his necktie in which was a valuable diamond pin. After fishing all day with good success, it was suddenly discovered that the diamond pin was missing. It was believed to have been lost overboard during the excitement of landing some one of the fish. There was a question if some one of the fish in the vicinity seeing a bright object falling into the water had not swallowed it, and if that particular fish had been captured later. In a sort of half-hearted hope the two fishermen set about opening all of the bass and pickerel in the boat, and, when the very last bass was opened, there was the pin in a crack between two boards in the bottom of the boat under the bass. Suppose now, that while searching in the wrong way for the pin, the fishermen had incidentally run across a new cestoid entozoon which had not previously been known to belong to *Micropterus salmoides*. Furthermore, the fish had incidentally been prepared for the table, thus avoiding a discussion with the cook, and that is something worth while. Consequently, the result of their labors was not profitless. The result of labors of the Freudians will not be profitless, even though all of these metaphysicians wander far away from any such scientific procedure as hunting for and removing a real physical cause for symptoms. Metaphysics belongs to the era of superstition, while in medicine we have really progressed to the era of analysis, and are approaching the synthetic era. It is too late a day for medical subjects to be treated from the metaphysical standpoint. Surgery and bacteriology have done too much team work in getting the medical profession away from superstition, following the object teaching of Virchow, Liberator!

The Freudians would give metaphysical position (superstitious) to a psychosis like dementia praecox for instance, holding it to represent a conflict taking place in the mind; but the surgeon or bacteriologist would place the symptoms upon a purely physical basis. They might assume that microbe toxins were injuring the cells of certain ductless glands in such a way as to allow their internal secretion to escape directly into the circulation, and these, or the antibodies which they call out, were producing an impression which deprived cerebral lipoids of their oxygen carrying power—leading to the symptoms of dementia praecox.

Psychanalysts believe that in regression of function belonging to psychoses they find analogy to the retardations of development occurring in the structural part of organic life. Involution of the appendix vermiformis would be represented by some homologous psychic involution, according to the Freudian point of view. The surgeon, on the other hand, holds that psychoses depend upon structural retardations of development or maintenance. Curiously enough, certain phases of mental action which occur in connection with involution of the appendix really do seem to represent psychic involution (regression); but my own explanation would show a direct cause and effect relationship between the two conditions, rather than a coincidental or homologous relationship. Thus—in the course of involution of the appendix, fibroid replacement of lymph structure occurs. This fibroid tissue proceeds to contract like all hyperplastic connective tissue, incidentally pinching and irritating any nerve filaments which are entrapped. These irritated nerve filaments excite the sympathetic ganglia of the abdomen. Excited sympathetic ganglia fail to conduct proper secretion on the part of ductless glands, and we then have deranged hormone secretion. Deranged hormone secretion means impaired efficiency of the adjustment of function and of subsequent metabolism of toxins (microbic or proteolytic, or both). Toxins in the circulation have the effect of sensitizing protoplasm abnormally. Abnormally sensitized protoplasm is hampered when engaged in making the structures of physical brain cells. Structure of physical brain cells is so closely related to function of physical brain cells that our patient may now present symptoms of hysteria for instance, with features that the psychanalyst would classify as involutional psychic. The psychanalyst would not trace the evolutional psychic feature back to fibroid degeneration of the appendix, thus following a clearly marked physical clinical path step by step. He would metaphysically attempt a tracing of psychic features back to a primitive instinctive mechanism which had not become properly developed in that particular individual.

When carrying the subject into practical application, I have brought to an end very many psychic "regressions" by removing involuted appendices. Even the dreams were then stopped or changed in character. Every link in concatenation could be readily followed straight from the appendix to the psyche in these cases. The psychanalyst carrying the subject into practical application, might also have brought to an end the psychic regressions in some of these cases. He would have done it through the aid of suggestion, but most of his patients would not have remained permanently well, a tendency to relapse always remaining after treatment by suggestion. Patients would have reverted to their former morbid condition after awhile, for the reason that the fundamental cause for disturbance (the fibroid appendix) remained. If certain patients with psychic regression can be cured of that symptom through removal of their regressive appendices, how many of these Freudian patients may be better helped by physical methods than by metaphysical methods? The question of proportion in this matter is very important for the public, right now—daily—no time to be lost.

The psychanalyst believes that psycho-neuroses represent a moral conflict, in which contents of the patient's conscious mind are desperately struggling with contents of his unconscious mind. At least one surgeon believes that psycho-neuroses represent a physical conflict rather than a moral one. He believes that normal contents of the patient's physical brain cells are desperately struggling with abnormal contents of those very same physical brain cells—abnormal contents having made forcible entrance. Here, indeed, do we find a parting of the ways between psychanalyst and surgeon. We both relieve many of our patients so far as symptoms go. This is an everyday experience, and not a speculative proposition. One of us helps in one way, the other helps in another way. Which set of patients will best remain cured? This is a practical sort of question which will be asked by the general practitioner. He is the man who will want to know the best thing for his patients, and he is the judge who will settle the question. What has the common

sense doctor to say on the subject at the present moment?

If I understand Freud, he believes that psychoses have one common origin, and they may all be traced back to primitive normal sex instinct. If I understand Sidis, he also believes that the psychoses have one common origin and may all be traced back to primitive normal fear instinct. When two philosophers like Freud and Sidis start off on a race, but running in opposite directions, who wishes to lay a wager on the results of the race? Both men will get back to the original starting point eventually if they run far enough. (All the way around the world! Wouldn't that discourage you?) Having reached the starting point again, Freud and Sidis and the physiologist can all start off again side by side in a hare-and-hound race after the microbe. This time there will be fair probability of all three getting to a common goal quickly. The philosophers will use the largest number of words for cheering each other along, and the physiologist will use the largest number of instruments of precision for detecting tracks along the route. He will get to the goal first.

Philosophers start out with an obvious fact and push it along ahead of them, rolling it up with everything that will stick, until the mass becomes so large that the path is obscured. They keep right on rolling after the path is obscured and tumble off the brink into infinity.

According to Freud's school, psychic alienations mean repression of actual experiences, and the method of restoring comfort is similar to that of the Roman Catholic Church in its confessional. The Roman Catholic confessional antedates Freud's treatment. We have often found in medicine that empirical methods were useful in practice in advance of scientific explanation.

When first reading Freud I became very much engaged with his ideas, but when English translations appeared a different point of view developed. Reading the ideas from a surgeon's standpoint rather than from that of a psychiatrist, allowed me to escape being caught in the cogwheels of familiar terms which might hang to the traditions of a psychiatrist and drag him along into trouble.

Style often gives the measure for a lock step that leads one straight into the prison gate in literature. A man is likely to follow Swinburne where he might not wish to go, in lock step with captivating style. When I first took up Freud in the German his style was so scientific that I quite went with it, not realizing that it was a lock step and that *bona fide* science was running free in another direction altogether. When one has been trained to scientific reading it is somewhat difficult to escape from the dangers of a style like that of Freud, and I will excuse some of the psychiatrists who have followed him into a mental prison.

The style of many psychanalysts is quite hypnotic, and one is obliged to shake himself occasionally and say "Out!" when reading their literature. It is a style characteristic of a writer who has a misconception for which he is trying to prove premises by strenuous effort. When training was being given by my early teachers, if any fact seemed weak, we students were asked to put aside everything else—the entire theory if necessary—until positive or negative testimony could be obtained for bracing that fact.

Psychiatry as a whole must first go over to psychology and to bacteriology before it can be revamped and returned as a science. If it fails to stand the test, the psychologist and the bacteriologist will take away its foundations and use them for their own purposes. Psychology has already begun to do this by taking charge of the feeble-minded. Bacteriology has already begun to do it by showing the microbe influence upon certain abnormal forms of mental depression. It will be the fault of the psychiatrists if they allow their underpinnings to be stolen. It was the fault of the botanists to allow bacteriologists to run off with their biggest foundation stone, and hew it to their own liking. Tradition is a nice warm cap, but it comes down over the eyes unless we are on guard against that accident.

What is fanciful and unpractical on Monday is accepted by the critics on Tuesday and exceeded by the critics on Wednesday.

In psychic pathology we must always remember that function and structure are so closely related to each other that we cannot well study the one without a knowledge of the other. Until we know more of the natural or morbid brain action in relation to structural changes which are taking place in the physical brain cells under normal influences and under toxic influences, the time will not have arrived for a satisfactory basis for psychic therapy. The psychiatrists at present have to work arbitrarily from symptoms. This is particularly unfortunate, for it carries us back with a feeling of distress over the nomenclature and speculation of old psychology. It is regrettable because psychiatrists and psychologists are largely of the intellectual group among physicians, and in this group there is always a deadly tendency to do mental stunts in speculative philosophy. In the field of psychotherapy we may look for as much sonorous high class confusion during the next few years as we had in psychology twenty odd years ago—more confusion, in fact.

Scientific normal psychology at the present time has so little real relation to psychotherapy that we only add to the confusion by trying to adjust phenomena of morbid mental processes to fit our knowledge of normal processes. We must await the coming knowledge of changes in physical brain cell structure while protoplasm is being built up and broken down under both normal and morbid conditions, before a satisfactory basic ground can be found for psychanalysis or psychotherapy.

Under present conditions if we overhear two psychiatrists discussing the views of an absent third one, we shall hear something quite shocking. They will say contemptuously, "What does he know about psychanalysis or psychotherapy?" If we overhear the third one speaking with a fourth, and the first two are under discussion, the same comments will be made. Thanks for that much comfort at least!

While the older psychiatrists classified patients on the basis of symptoms, and the younger generation of psychiatrists are making involved construction with unknown factors, it seems to me safer to keep *un pied à terre* by holding that morbid structural arrangement of cell plasm of the physical brain leads to a corresponding expression of mental symptoms. Knowing already the nature of influence of many kinds of toxins upon many kinds of physical cells we may at least place psychoses on a sort of basis that is satisfactory to modern reasoning methods of the surgeon.

Psychiatrists group together symptoms belonging to psychoses of the human mind and then proceed

to build downward to classifications, very much as the religious philosophers assign a metaphysical place to God and then build downward with their creeds.

THE DIAGNOSIS AND TREATMENT OF CANCER OF THE STOMACH;

WITH A SUGGESTION AS TO POSSIBLE RACIAL TREATMENT OF CANCER.*

By JEROME MEYERS, M.D.,
ALBANY, N. Y.

THE positive diagnosis of cancer of the stomach is often difficult, not only in incipient cases, but also in advanced ones. Not infrequently the symptoms are vague and indeterminate, but preceding conditions are so similar to cancer that, after even the most conscientious physical examinations and chemical and microscopical analyses, great diagnostic reservation holds whether we are concerned with a benign condition, a beginning malignant process, or a developed carcinoma. And, moreover, to preface any discussion of gastric cancer diagnosis it must be said that the reliability and sureness of diagnosis depends largely on the skill, experience, and analytic judgment of the examiner, and that, unless the case be one of far advanced disease, the diagnosis can neither safely nor unquestionably be made on one symptom or on one day, but on related important findings that may demand many examinations of one sort or another, or direct inspection of the stomach through abdominal incision.

We may consider the symptoms and findings important in the diagnosis under three great heads: (1) Historical, (2) Gastric, (3) Paragastric.

1. The historical manifestations are such as we gain from the study of the life history of the patient, the comparative study of a long series of cases with carefully detailed history as given by Rudolf Schmidt (Bösartige Neubildungen) and from a knowledge of the pathology and growth of cancer. From such sources we may divide the histories of gastric cancer cases into three very important and significant groups.

(*a*) Those who have been perfectly well all their lives, have suffered little in the way of infectious diseases, and have never shown any prolonged or marked symptoms of digestive disorders. On the contrary they have always been in florid health and have been large eaters and drinkers. These at the dangerous or cancer age, 40-50-60, are suddenly attacked by what they term indigestion, which, however, against all treatment, has persisted or grown more severe. We may term this the sthenic or fulminating type of cancer of the stomach.

(*b*) Those who have been characterized by constitutional inferiority all their lives, have had many of the diseases of childhood, often showing signs of active or old quiescent tuberculosis, afflicted much with dyspeptic symptoms of the ptotic type. These constitute what we may call the congenital asthenic or gradual type.

(*c*) Those who over months or years have exhibited symptoms of gastric ulcer that at the cancer age adds to its ordinary symptoms loss of appetite, greater weakness, or diminishing gastric acidity. This we may name the ulcerous or secondary type.

*Read before the Albany County Medical Society, January 12, 1915.

The proper valuation of these preliminary symptoms is of highest importance in diagnosis, and particularly in the incipient cases, for there is little question that many of these cases showing these vague initial danger signals masquerade as indigestion, gastritis, catarrh, nervous indigestion, are quieted for the day by a scale of pepsin or a pinch of charcoal, when a proper recognition and interpretation might lead to early diagnosis and possible salvation of the patient. The public should be told again and again of the early suspicious signs of the malady, warned against self-medication across the drug counter with patent medicines that hide symptoms, but bring again and again the ignorant or unheeding sufferer to his grave, and impressed that unless early diagnosis is attained, the mortality is 100 per cent.

2. The gastric manifestations are those which result from the growth of the cancer in the walls of the stomach, causing more or less striking subjective and objective signs, according to the location and type of the neoplasm.

Of importance is, first, the disturbance in motor or mechanical function. Early cancer of the pylorus may cause little subjective disturbance in the exit of food, there being no gross vomiting, but merely eructations of gas or sour fluid with perhaps an odor of hydrogen sulphide, or a sensation of rumbling about the pylorus. It should be borne in mind that growths in the cardia may at times give symptoms of apparent obstruction of the pylorus. If the growth is distant from the pylorus, and does not seriously compromise the lumen of the stomach, or if the growth involve the walls without constricting the ostia, we may have no vomiting in the early stages, or in even the late scenes of carcinoma; so vomiting is not necessary for the diagnosis. This is to be emphasized, for it is a deep belief among the people that without vomiting there can be no cancer of the stomach, a belief which undoubtedly delays medical attendance, and which tends to cast question at the physician's diagnosis, and so hinder and defer surgical intervention. If the pylorus is markedly blocked there follows dilatation with more or less periodic vomiting, ballooning of the stomach, and visible waves of peristalsis or even antiperistalsis.

Naturally a growth at the cardia encroaching on the esophagus will lead to vomiting soon after eating or periodic vomiting of undigested food with alkaline mucoid fluid or bile stained material. One should never fail to ask a patient if there is any disturbance in swallowing, for he often fails to tell of dysphagia, so that growths, especially early ones, at or near the cardia, are overlooked. The time of the swallowing sounds should always be noted in any suspicious case.

Pain accompanying the growth and obstruction is a variable quantity which in some cases, especially about the pylorus, may be moderately marked early in the disease, particularly if there be spasm and hyperperistalsis, but it can disappear when the stomach begins to dilate. Pain is often absent, or becomes severe only in the later stages—a matter of great diagnostic importance, for just as pain is unnecessary for the diagnosis of uterine or mammary cancer, so pain is not a postulate in the diagnosis of gastric cancer. Just as soon as the popular fallacy that pain must always accompany cancer is dispelled, so soon will earlier diagnosis of cancer of the stomach be possible.

The tumor may be palpable, it may not be; in the early stages it very probably will not be, and when it is situated on the posterior surface of the stomach, when adherent to or beneath inferior surface of the liver, when high toward the cardia under the left ribs, it may deny itself to the sense of touch. It should be borne in mind that the whole stomach wall may be involved so that we palpate a firm organ or, in cirrhotic forms of growth a greatly shrunken viscus. Examination of the patient on the back, on the abdomen, in the right and left positions, and standing may yield a tumor that through diminutive size or deep position is otherwise secreted. One should always know just where the stomach is located and realize that even if he feel a tumor below the umbilicus it may be part of a ptotic stomach, in which case the tumor may be very movable. Of large diagnostic value is the evidence of muscular rigidity or slight tenderness to palpation in place of a tumor, especially in growths of the posterior wall. At times a systolic murmur, not due to the aorta, may be heard over a tumor or a site of suspicion.

Besides the motor disturbances, secretory ones are of importance in diagnosis. The absence or diminution of hydrochloric acid, taken with other symptoms, speaks for cancer, but should never alone constitute ground for the assumption of cancer; and, what is of more importance, the finding of a lack of hydrochloric acid in the cancer age should instantly arouse the suspicion of cancer, and should make us obstinately adhere to cancer until by proper examination we decide otherwise. A patient at the dangerous age with any anomaly of gastric digestion should be held guilty of cancer until proved innocent. The degree of HCl must vary with the age of the cancer and must differ with the type of onset, whether it is sthenic, asthenic, or ulcerous, so that the presence, or absence or diminution of HCl is in itself no proof of existence or absence of cancer. Many individuals have relative or absolute loss of hydrochloric acid as in achylia gastrica, pernicious anemia, and gall-bladder disturbances, often with no gastric discomfort over long periods. The diminution of HCl with lactic acid bacilli denotes gross obstruction, usually pyloric, and means almost always more or less advanced cancer. But the amount of hydrochloric acid may be normal or increased, there may be stasis with sarcinæ, and still cancer be present. But neither lactic acid bacilli, nor lactic acid, nor sarcinæ are necessary for the diagnosis. They may never be present, if the growth does not compromise the lumen of the stomach, so that the bald statement that lactic acid and lactic acid bacilli are found in cancer of the stomach is not true, and may be very misleading. Furthermore, they have no diagnostic value if found only in small numbers or quantity. The degree of acidity or the presence of extraneous acids is then not conclusive of cancer in the examination of the test breakfast, particularly in early cases without palpable tumor.

The most important finding in the stomach contents is blood. All malignant neoplasms tend to necrose and bleed, some more, some less, and herein often lies the key to the ultimate door of positive diagnosis. Without the presence of blood at some time, in either the stomach or the stool, the diagnosis of gastric cancer is impossible. Its presence together with suspicious onset at the cancer age, or with a tumor, or with diminished HCl, or found constantly in the stool with mere weakness in the old is highly suspicious, and if we can exclude old ulcer with tumor formation, syphilis of the stomach which may simulate all forms of cancer, gastritis anacida hemorrhagica due to gall-bladder or appendical disease, or cirrhosis hepatis, or other local or general disease, the diagnosis of cancer is very sure. The presence of tryptophan in the stomach contents may occur at times in positive cases, but in my experience has not been very reliable. Flagellates and amebæ may be seen, especially in carcinoma of the fundus, and while not pathognomonic, are important findings.

An *x*-ray examination of the stomach may clinch a diagnosis, but cannot establish a case of cancer by itself. It is valuable especially if the tumor be situated near the antrum or the pylorus. Fluoroscopic examination renders good service in some cases by showing interference with peristalsis and possibly antiperistalsis, denoting infiltration of the gastric wall. The *x*-ray is also of use when we cannot otherwise determine the exact position of the stomach, or if it is not advisable to pass a stomach tube. It cannot be relied upon to diagnosticate carcinoma; it may yield anatomical findings which must be interpreted in the light of other symptoms and tests.

3. The paragastric manifestations constitute those found secondary to the local growth; in other organs, in the lymphatic system, and in the blood. These symptoms are usually late ones, and often of value only in the school of differential diagnosis. Enlargement of the liver from metastases should always be sought. Secondary growth in the pouch of Douglas, felt for by rectal examination, may be one of the earliest implantations. Superficial involvement about the umbilicus may be early. Pleurisy or atelectasis at the base of the left lung may be found with high left-sided growths. Enlargement of the left supraclavicular glands points to retroperitoneal involvement. A moderate daily rise in temperature may occur, especially in the medullary forms that tend to ulcerate, so that unexplained fever at the cancer age should be held suspicious. The emaciation, cachexia, and weakness are of no great deciding value, as they occur late, and may be surprisingly absent at times. There may be edema, particularly about the ankles, but the red blood cells are not always markedly reduced, and may in obstructive cases run quite high. Constipation may be an early symptom and an important one, and should be fully considered. The blood serum may contain antibodies or antiferments through which confirmative evidence of carcinoma may be gained. Such substances are the basis of the antitryptic index test of Brieger and the Abderhalden test for carcinoma. The writer has had personal experience with the former only, and in the few cases in which he has applied it, has found it to tally with the clinical symptoms and findings.

From the foregoing we may deduce these conclusions regarding the diagnosis of gastric cancer:

(1) Never diagnose cancer on a single symptom.

(2) Suspect cancer in everyone who complains of gastric disturbance and prove otherwise.

(3) Do not exclude cancer because of absence of tumor.

(4) Do not exclude cancer because of absence of vomiting.

(5) Do not exclude cancer because of absence of pain.

(6) Do not exclude cancer because of absence of anorexia.

(7) Do not exclude cancer because of absence of lactic acid bacilli or lactic acid.

(8) Do not exclude cancer because of early age.

(9) Do not exclude cancer because of normal or increased HCl.

(10) Remember that blood in the stomach or stool is the most important symptom in the diagnosis of gastric cancer.

(11) Hold suspect of cancer all cases that continue to show blood in the stomach or stool after proper treatment.

(12) Hold suspect all those who show gastric disorders at the cancer age whether of sudden onset, old standing, or preceded by ulcer symptoms.

(13) Hold suspect those who fail to get relief from proper treatment.

(14) Consider syphilis in all cases of tumor. The tumor may be gumma. It is well to do a Wassermann reaction in all cases whether surely cancer or not.

The treatment of cancer of the stomach in those who can not or will not undergo some surgical procedure is largely terminal therapeutics. If neither of the openings is affected, there may be little to do, the patient may be able to take liquid, semi-solid, and even solid food, and may even gain in weight. If there is obstruction at the cardia, the case is far more difficult, due to the difficulty of food entering the stomach, with consequent dilatation of the esophagus with irritation and vomiting. A very careful liquid diet of high caloric value is indicated, one that shall not irritate but soothe by its demulcent action. The best articles are thin cereal decoctions or gruels, milk, milk and flour soups, raw eggs, cream, and olive oil. These may pass the obstruction, have a high food value, and tend to overcome any muscular spasm that may be abetting the organic stricture. Cleaning out the esophagus with the stomach pump and leaving in 2 or 3 oz. of olive oil may be of more value than the passing of sounds which are apt to injure the tissues and increase spasm. I have recently, in a case of esophageal dilatation in which the patient could not take the ordinary stomach tube, used the duodenal pump. It caused the patient very little discomfort and acted much like a siphon tube. Sips of diluted hydrogen peroxide may be swallowed in the hope that it will enlarge the passage by dissolving the necrotic tissue of the growth, thus giving a clearer and larger passage. Atropine may be given subcutaneously to allay spasm. With the growth at the pylorus, the indication is to prevent the large accumulation in the stomach of food, saliva and gastric secretions with the subsequent distress and vomiting. To this end food in small quantities and of small size must be prescribed; milk, cream, raw egg, milk, cream and flour soups, malted preparations, beef-juice, thin cereals and gruels, possibly finely chopped meats, hash. Besides gastric lavage at varying intervals depending on the degree of stasis and the severity of the symptoms may be necessary. In all these cases HCl, condurango, nux vomica, pepsin, pancreatin, and like substances may be employed to aid digestion. Gastrointestinal antiseptics, such as resorcinol or menthol, may be used to depress bacterial action. And in all cases the last resort, morphine, may become imperative to alleviate pain and procure rest and sleep for the afflicted patient.

Of biological treatment of cancer there are two methods, passive immunization by the injection of antisera, and active immunization by vaccines composed of cancer tissue or embryonal tissues. The latter method has proved the more hopeful, but even here the comparatively few apparent successes have been questioned. Such treatment might be instituted in gastric cancer, but should not defer operation, if there is hope of cure by excision.

There is a wider field of treatment than that of the individual, and that is of the race. Cancer is a peculiar affection of the human family in that in the preponderance of cases it attacks at an age when child-producing and child-bearing are not frequent. Other diseases occur in the earlier life of man and woman, so that if there are any antibodies or special resistance passed from the parents to the children, the offspring may benefit in the way of immunity to disease, and thus the race is guarded. This is not so in cancer, for even if the host of cancer does elaborate any antibodies against his or her disease, yet through age or shortened life he or she does not transmit to any descendants. And it may be for this reason that cancer is on the increase because we have more people in the world to-day only a few of whom can possibly be the sons or daughters of cancer fathers or mothers. If the cancer patients could produce or bear children there might come a time, perhaps very distant, when the human being would develop more resistance against cancer than he now possesses. As it is now, cancer cases serve no general purpose of immunization. If this view seems vague and to have little bearing on treatment, it should be remembered that with all our research and knowledge of cancer we have nothing like a specific treatment for internal cancer, and that in the application of such a biological eugenic principle may be some future ray of hope.

In the face of a situation so serious and baffling it would seem advisable to urge men and women with cancer to produce children before they die. If they be not married it would be well for the State to sanction and provide for marriage so that all cancer material could be employed to produce children who might be immune through transmitted resistance. If time should show that there was a possibility of such immunization in the human race, it would not be many centuries before most of the earth's population might be direct descendants of cancer patients.

206 State Street.

REPORT OF A CASE OF CONJUGAL SYPHILIS, WITH CONCLUSIONS.*

By EDWARD LIVINGSTON HUNT, M. D.,

NEW YORK.

NEUROLOGIST TO ST. LUKE'S, THE CITY HOSPITAL, LINCOLN HOSPITAL, NEW YORK CITY HOME FOR THE AGED, THE WORKHOUSE AND PENITENTIARY.

Conjugal syphilis is of common occurrence. The literature of France and Belgium is especially prolific on the subject, as is evidenced by the reports of Fournier, Stillman, and Raulin. The experience of most observers points to the fact that in conjugal syphilis the tendency is preeminently toward involvement of the nervous system. Many cases have been recorded of marital tabes and marital paresis, and marital cerebrospinal syphilis. This may, of course, arise from concealment, faulty diagnosis, or ineffectual treatment.

In passing, it may be of interest to note, that Fournier, in regard to the infection of women,

*Read before the Alumni Association of the City Hospital, on February 17, 1915.

always reached the same conclusion, namely that out of every hundred syphilitic women who had been infected sexually, eighty were immoral and twenty were married to men whom he found to be syphilitic, and again that twenty years ago cases of conjugal syphilis, in which one of the parties developed general paresis, were cited to call attention to the close connection that was then thought to exist between general paresis and syphilis.

The case which I am about to tell you of occurred in two old people, who had been married for thirty years. They had raised a large family, and had prospered. It was not until toward their sixtieth year that any symptoms of ill health developed. It was the wife who first displayed symptoms, although I am now satisfied, from a careful study of the situation, that the husband was the offender. These two old people, once they had become ill, began to lose very rapidly. This was especially true as regards their mental deterioration. The husband became confused, irritable, unreasonable, and at times violent; the wife depressed, suspicious, and surly. He showed no physical signs, she very marked ones. The case, as it was presented to me, was as follows:

In 1910, Mrs. A., sixty-three years old, complained of stiffness in the legs, unsteadiness on her feet, difficulty in walking, and great mental depression. She had no interest in anything, refused to go anywhere, feared that she was ruined, disliked meeting people, and became irritable, unmanageable, and surly.

The physical examination showed unequal pupils, Romberg, a slightly ataxic gait, and absent knee-jerks. No cardia. There was no history of either alcohol or syphilis, and no suspicion of either. Her husband was perfectly well. The Wassermann test was negative. She was seen by several consultants here, who agreed that the diagnosis was probably a combined system disease, the cause of which was unknown. It did not seem advisable to give any mercury, at that time salvarsan was not generally used, and the symptoms which seemed to call most for treatment were the mental ones. Accordingly, the patient was placed in a sanatorium, with a good nurse, and given tonic treatment, irrigation, and baths. She improved very considerably in both physical and mental symptoms, so that it was generally conceded that the course of events had confirmed the diagnosis.

Three years later, in 1913, her husband, to whom she had been married for thirty years, had a slight stroke, followed by considerable and progressive mental impairment. From having been a very active and remarkable business man, he became childish, egotistic, self-centered, irritable, and somewhat demented. He could walk with difficulty, lost control of his sphincters and then displayed mental symptoms suggestive of Korsakoff's psychosis. He became disoriented, confused, and fabricated. There was no history of either alcohol or syphilis. The physical examination was absolutely negative. The Wassermann test on him proved negative. The urine showed from two to five degrees of sugar. The diagnosis appeared to be diabetes, plus arteriosclerosis. It was decided to try the luetin test. This gave at the end of seven days a positive reaction, that is, there appeared over the infected area two small red papules. The diagnosis was then made, one of syphilitic dementia. A lumbar puncture revealed a positive Wassermann, a positive globulin, and twenty-two cells. This patient was at once given hypodermics of the salicylate of mercury and intravenous doses of neosalvarsan, 0.4, 0.5 to 0.6 gram each. The improvement began almost immediately and continued slowly but steadily for over a year. He regained control of the sphincters, was able to walk, the sugar in the urine disappeared and the mental condition returned to almost normal. Another Wassermann on the blood was made after the initial dose of neosalvarsan. This one was positive.

In June, 1913 Mrs. A., was then sent for, and another Wassermann was made on her. This proved to be indeterminate. A lumbar puncture was made: there were twenty-one cells. The reaction was positive to the Wassermann and to the butyric acid tests.

It was then decided to place her on antispecific treatment. She was given hypodermics of the salicylate of mercury every week for four months, beginning with one-half a grain, and increasing up to one grain. To this were added a good nurse, country life, and tonic treatment. She improved very steadily, the depression lifted, the peculiar form of mental aberration abated, the walking grew better, and she became stronger. At the end of four months, not sooner, she was given four doses of neosalvarsan intravenously. The first dose was 0.45 gram, the remaining three 0.6. These doses were administered two weeks apart.

She was then allowed to go home, and all treatment was suspended. At the end of two months, that is, in February, 1914, another lumbar puncture was made. This time the cell count was eight, the butyric acid test for globulin was negative, and the Wassermann test was indeterminate. The treatment of both mercury and neosalvarsan was then continued for another four months, with continued improvement.

As we can now look back on these cases with these complete records over a period of four years, it is possible to make a definite and comprehensive diagnosis. The husband was, of course, infected several years previous. He, in turn, infected his wife. The form which the poison assumed in him was that of a specific endarteritis, terminating in a syphilitic dementia. Added to this there was a syphilitic pancreatitis. The case of the wife was one of taboparesis.

These two people are now about 50 per cent. better than they were. The treatment has been pushed very steadily; it has consisted of hypodermics of the salicylate of mercury, from $\frac{3}{4}$ to $1\frac{1}{2}$ grains, given weekly for three weeks, and then intravenous doses of 0.5 gram of neosalvarsan. Every three months the antispecific treatment has been stopped for a few weeks, and the patient has been given tonics. These cases are reported for various reasons. They teach the following facts:

(1) The importance of the *cerebrospinal fluid examination* as a routine measure in every neurological case. Had it been made at once in the case of the husband and wife, it would have made clear the diagnosis.

(2) The value of luetin. It was the luetin test which first made certain the diagnosis of syphilis.

(3) The importance and aid of a provocative dose of salvarsan. It was following the first dose of salvarsan that the blood Wassermann became positive in the case of the husband.

(4) The various forms in which the syphilitic poison may attack the system.

(5) The uncertainty of the Wassermann test when applied only to the blood.

(6) The value of combined treatment of mercury and salvarsan.

(7) The value of the intravenous form of administration of salvarsan.

(8) The very advanced age at which both of these patients were affected.

(9) The fact that reliance should not be placed upon the report of a single laboratory. No doubt in one of these two cases, if not in both, had two or three laboratories made the Wassermann test, a positive reaction would have been returned.

(10) The fact that all sugar in the urine is not of diabetic origin.

(11) The fact that the original source of infection became affected later than the second person.

(12) The absence of an aortitis in either case.

(13) The marked improvement which appeared in each of these cases, in spite of their advanced age.

41 East Sixty-third Street.

THE ALOPECIAS.*

By LOUIS B. MOUNT, M.D.,

ALBANY, N. Y.

THE term alopecia was well known to the ancients, for Celsus made use of the word to denote any form of baldness, no matter what the cause might be. He probably coined the word from the Greek ἀλώπηξ, which means a fox, because foxes often have bald spots on their coats.

The great advances made in both clinical and microscopic study, notably in the last century, have made possible the differentiation of the following types of alopecia: (1) Alopecia congenita; (2) Alopecia prematura, Alopecia senilis; (3) Alopecia seborrhoeica; (4) Alopecia areata; (5) Alopecia mycotica; (6) Alopecia symptomatica.

Alopecia congenita needs but little description. As the term implies, it is an arrested or faulty development of the hair-producing apparatus. The child is born with remnants of fetal hair which soon drops out, or he is born without any covering at all for his scalp. This condition may be permanent, or after several months or years there may be a growth of hair, at first light in color, almost pigment free, and very fine, but as time goes on it becomes stronger, more numerous and pigmented.

As alopecia congenita is looked upon as an anomaly of formation, alopecia senilis might almost be called a physiological process because it occurs to a greater or lesser extent in nearly all old people. This form of baldness is remarkable because of its symmetry, whether occurring on the vertex so as to produce a tonsure like that of a priest, or whether limited to the frontal region, or so extensive as to involve nearly the entire calvarium, leaving a fringe of hairs at the occiput and temples. The distinctive feature is the entire absence of any pathological process clinically. It is possible that the reason for its being so much more common in men than in women may be ascribed to the difference in the head dress worn by the two sexes. The time of its occurrence depends upon the individual, his inherited tendencies, and the life he has led.

When this same picture occurs in those who have not attained advanced years, it is called alopecia prematura, and the old German saying, "Die Glatzenbesitzer haben sich die Haare wegamuesiert," holds good in many cases. It is often excesses at the shrines of Venus and Bacchus that are at the bottom of their trouble. True alopecia prematura, that is the type in which clinically no pathological process can be found, is not a common condition. Careful investigation will usually show that the premature loss of hair is due to some demonstrable cause, and this leads to a study of the commonest of such causes, namely, seborrhea.

By this term there is meant an overabundant secretion of skin fat from the sebaceous glands or, according to Unna, from the sweat glands. This view of the process does not correspond with its pathology, because it is not a mere functional disturbance, but rather a slowly progressive inflammatory condition. Alopecia seborrheica occurs in different forms, in the main two, one a diffuse chronic slowly progressive, and the other, acute or subacute and circumscribed. Of the latter but very little is known, so it is of the former only, *i.e.* of the chronic type that mention shall be made.

Seborrhea of the scalp may be either oily or dry. The first named manifests itself by a hypersecretion of fluid fat, oiling the hairs in superabundance and giving them a very fatty glistening appearance. Since the secretion of fat by the skin varies not only in those of different complexion but also in different members of the same race who are of the same complexion and who have the same habits of life, it is very difficult to state just where the line should be drawn between normal and pathological. Aid is here given by the occurrence of seborrheic affections on the forehead, face or other parts of the body, and by an increased loss of hair. This seborrhea oleosa is usually the precursor of the dry form, a sign of which is the mealy bran-like scales shed in a fine shower on the affected individual's clothing and popularly called dandruff.

Investigation of the scalp brings to light a covering of small grayish white scales which can be scraped away easily with the finger nails. The thickness of the covering varies according to the intensity of the process (for it is an epidermal catarrh) and the cleanliness of the individual. To avoid errors inquiry should always be made as to how and when the scalp was last washed.

If during the early stage of the affection the scales are removed there is found an almost normal appearing scalp. Subjective symptoms are, as a rule, not very troublesome—a little itching and feeling of tension, and yet in some cases the itching may be so great that the scalp is covered with scratch marks. Non-observance of this first stage is the usual thing because of the almost entire lack of subjective symptoms, and the great frequency of the so-called innocuous dandruff. The individual first seeks the aid of the physician after the barbers and hair dressers have had their fling at it, and at a time when the loss of hair has become noticeable. Upon being told that the dandruff is at the bottom of the affection the patient generally replies, "Why, doctor, the dandruff can't have anything to do with it because I've had it so long and it is only recently that my hair has been coming out in bunches." That's just the story, for from the almost insidous onset until the loss of hair becomes noticeable there is a lapse of at least many months, usually several years.

How can it be determined whether the loss of hair is greater than the production? Thanks to Pohl-Pinkus it is not such a difficult affair. His teaching is that a diminution in the length of the hair precedes the increased loss. So if in the woman's combings of several days more than one-quarter of the hairs are less than six inches long a pathological process is at work. In men the information is gained by noting whether the ends of the falling hairs are pointed or blunt. If blunt they are so because of the barber's scissors and denote a normal loss; but if more than one-quarter are pointed, there is a pathological loss.

Now to return to the course of the disease again. The amount of hair becomes less and less, especially so at the frontoparietal regions and at the vertex. The scalp shows through its thin hairy covering more and more, and when this stage of affairs is reached it is not long before the individual presents the complete bald head of alopecia seborrheica.

Another relatively common affection producing

*Read before the Albany County Medical Society, November, 1914.

circumscribed loss of hair is that known as alopecia areata. Upon a scalp, to all intents perfectly healthy clinically, there suddenly appears a bald spot of about the size of a ten-cent piece, and either round or oval in outline. At the borders of the patch, if it is extending, the hairs can be pulled out easily, and when these are examined under a low power lens they show atrophied spear point-like ends, the so-called exclaimation point hairs of Crocker. The area may enlarge either slowly or quickly and always by peripheral extension. New patches may form and coalescence take place, producing large bald areas, dead white in color, and with a convex margin. Sometimes it happens that the disease is so extensive that every hair of the head is lost, giving a clinical picture termed alopecia areata capitis totalis. There is no scaring, no redness, no scaling, no swelling; in fact, nothing pathological can be seen except the circumscribed loss of hair.

In the course of a few weeks, as a rule, the bald areas become covered with a fine growth of non-pigmented, lanugo-like hairs, several crops of which grow and fall before hair of normal color, size, and strength is produced. Occasionally the return of hair may be delayed for years, but does finally make its appearance in the vast majority of cases. The more years under forty the individsal is the better the prognosis.

As to the etiology of the disease there has been and still is much controversy. The camp is divided into the neurotics and the parasitics. In support of the former is the work of Max Joseph and others who found that by injuring or removing the second cervical ganglion in cats a patchy baldness ensued, and also the fact that several cases are on record where, in human beings, following injury to the upper cervical ganglion, a condition exactly like alopecia areata has resulted. The parasitics, mainly the French, uphold their side of the controversy with the statement that many epidemics have been observed where there were numbers of people using toilet utensils in common, as in the army barracks in France. The oval or round shape and the increase in size of each patch by peripheral growth might speak for the presence of a parasite, but up to the present time no microscopic finding has stood the test.

This leads to a consideration of the forms of alopecia known as mycotic and produced by vegetable organisms. These are two in number, ringworm and favus, and inasmuch as the cause of the latter was the first to be discovered, it is no more than just that it should be given priority in description.

Schoenlein in the year 1839 announced the discovery of a fungus in favus, and in recognition of his labor Remak named it the Achorion of Schoenlein. The fungus is found in the root sheaths, bulbs, and shafts of the hairy filaments near the scalp. The quickest method of ascertaining its presence is to macerate, for about five minutes, crusts and hairs with a 10 per cent. solution of caustic potash on a glass slide, cover with a cover slip, and examine with a quarter or sixth objective. The intricate masses of spores and mycelium, if present, can readily be seen in great quantity.

Favus is most rare in the native born; its greatest prevalence is in Poland, France, and Scotland. The disease is contagious because the parasite producing it is capable of transmission from man to man, as also from animals to man, and vice versa. The usual course is from mice to cats, and from cats to man. Its presence in an immigrant is cause enough for deportation.

When the anchorion grows on the scalp it gives rise to the formation of the characteristic favus scutla, which are sulphur colored, rounded, cup-shaped crusts, depressed in their centers where the hairs pierce them, and seemingly imbedded into the skin. They can be loosened easily from the corneous layer which covers them and drawn out over the hairs which go through their centers.

The development of these characteristic elements can be easily studied by thoroughly cleansing an affected scalp. In a few days there appear on a more or less reddened scaly area very small yellow points around the follicle openings. These points resemble pustules very much, but are quickly differentiated from such by their solid formation. Later on there takes place a confluence of elements with the formation of friable masses. The scalp now possesses the never failing, characteristic mousey odor of favus.

The hairs in an affected area are not broken off as in ringworm, but they differ from the normal hairs around in their stiff, lusterless, faded appearance.

After the disease has been present for quite some time scars make their bow on the scene. These are due in part to the pressure of the scutula, and in part to the inflammatory processes. The scars are depressed, white, and hairless, becoming larger and larger as more destruction takes place, until finally in an untreated case a cure results when nearly all the follices have been invaded, giving the picture of an almost completely scarred scalp, with here and there a few sprigs of hair standing.

Ringworm has been a much juggled word for centuries. It was used to denote any cutaneous affection in which the lesions were arranged in rings. Ambroise Paré tells us that in France the word teigne, corresponding to the English word ringworm, was used by the vulgar to designate any disease in which "the scalp looks ragged and red, as if gnawed by the moths that eat up garments." It was not until the middle of the nineteenth century that a hard and fast line was drawn around the affection we now speak of as ringworm.

In 1842 Gruby presented to the Academy of Sciences a paper "On a species of contagious mentagra resulting from the growth of a new cryptogram in the roots of the hairs of the beard in man." In it he says, "The microscopic examination of the hair shows that all its dermic portion is surrounded by cryptograms forming a vegetable layer between the sheath and the hair itself, in such a manner that the hair is contained in a sheath exclusively formed of cryptograms like a finger in a glove. They take origin in the hair follicles and in the cells of which its sheath is composed, and they pass upwards to envelope the portion of the hair situated in the skin." This description corresponds to the fungus now known as the trichophyton megalosporon, or large spored.

In 1843 he presented to the same academy an other paper entitled "Researches on the Nature, Seat, and Development of Porrigo Decalvans or Phytoalopecia." He describes porrigo decalvans as "An affection characterized by rounded patches covered with white scurf and small, grayish scales

with falling out of the hair." He furthermore says, "Microscopic examination shows that the hairs are surrounded by a vegetable covering to a distance of one to three millimeters above the level of their exit from the skin. This sheath is formed by cryptograms felted together so as to make a sheath around each hair. The spores are generally rounded, sometimes oval, and measure from 1 1000 to 5 1000 of a millimeter in diameter." To this species of fungus Gruby gave the name of *Microsporon audouini.*

Sabouraud, in our day, has done more work on this subject than any other living man, and yet, notwithstanding the long list of species of the trichophyton that he has cultivated, there need be but two of them mentioned from the clinicians' standpoint, the two described by Gruby in 1842 and 1843.

Ringworm of the scalp is essentially a disease of childhood, but may rarely be seen in an adult. The majority of cases occur in the second half of the first decade of life and sex shows no difference to the liability of infection.

In the small-spored type the initial lesion, seldom if ever noticed, is a small red papule situated about the orifice of a hair follicle. The papule enlarges in all directions and forms a round or oval patch with a scaly surface and a slightly raised edge. From other points of infection other patches may form, varying in size from a quarter of an inch to several inches in diameter. The patches are studded with dry withered stumps of broken hairs, giving the appearance of a field of stubble. Close inspection will show that the hair stumps are not glossy; they are thickened and have a whitened look due to the parasitic sheath surrounding them. The hairs are loosened and can be removed painlessly with great ease. The thickening is due to infiltration with the fungus, which, in its growth, pushes asunder the epithelial cells of which the shaft is built.

The large-spored fungus causes but a small proportion of the cases and the affection is much milder than that produced by the microsporon. The stumps of the hairs have no white sheath and commonly break off at a level with the skin.

Microscopic examination of the hairs, after maceration with caustic potash solution, shows, in the small spored type, the fungus on the outside of the hair in the form of spores arranged in the fashion of a mosaic surrounding the shaft, and inside the hair in the form of mycelial threads. In the large spored variety, the spores are arranged in chains, and the mycelium is short and regularly jointed.

Symptomatic alopecia is a frequent accompaniment of diseases which also attack the skin of the hairy head, like psoriasis, ichthyosis, lichen planus, pityriasis rubra pilaris, and the exfoliative dermatites. Simple inflammatory processes like erysipelas may be followed by loss of hair. Over growths, especially atheromata, there may be no hair. In the vast majority of the above cited conditions the alopecia is only a temporary one. Acne necrotica, atrophic folliculitis, scleroderma, lupus erythematosus, idiopathic skin atrophy, tuberculous, syphilitic, and leprous infiltrations healing with a scar, as well as all ulcerative processes produce permanent loss of hair.

Symptomatic alopecia may accompany or follow the so-called internal diseases which affect the whole organism, like scarlet, measles, typhoid, syphilis, influenza, tuberculosis, acute rheumatic fever, myxedema, chronic mercurial and arsenical poisoning, chlorosis and all anemic conditions. The loss of hair in these states may be merely a symptom of the general under-nourishment, or may be the result of a toxemia acting on the hair papillæ. A brilliant example of the latter is myxedema, for when the detoxicating effect of the thyroid substance fed to those so afflicted begins to exert its action, there is a new growth of hair which remains only as long as the medication is continued.

206 State Street.

THE ROLE OF THE PHYSICIAN IN INDUSTRIAL MEDICAL INSURANCE.

By A. C. BURNHAM, M.D.,

NEW YORK.

Notwithstanding the fact that legislative activity during recent years has led to the enactment of compensation laws by the Federal Government and twenty-four States, and that in most States the medical care of the injured employee is considered a part of the compensation award, it is still true that the average physician has little or no knowledge of the basis and principles of this type of insurance.

Insurance for medical attendance and hospital care is already applicable to a large percentage of the industrial population of the United States and, as it rests upon a sound basis, it may be expected rapidly to extend itself during the next few years. It consequently behooves the members of the medical profession to inform themselves on this important branch of medical economics.

The State control of compulsory accident insurance was inaugurated in Germany in 1884 and since that time has reached a remarkable development in that country as well as having spread to practically every country in Europe. The strongest argument advanced for its being is that shortened lives and maimed limbs due to injuries are just as much expenses of production as are fire losses and broken machinery. From this it is but a short and easy step to the argument that human disability is as much an overhead expense as is machinery repair and that an industry should pay the medical expenses and a living wage to every employee disabled through sickness just as they are obliged to repair worn out machinery and sharpen dulled tools. However, sickness insurance, while fully developed in Germany and some other European countries, has yet to be introduced in America and the discussion here will be confined to the care of accident disability alone.

In such a discussion several principles of compulsory insurance against accident should be borne in mind. In the first place, as is well recognized, this form of legislation is based on the theory of partial reparation and of a division of the loss arising from accidents. The loss is to be shared by the industry (and of course in the end by the ultimate consumer) and by the employee. Instead of employers being liable, as previously, only in those cases where negligence could be imputed to them, they are now obliged to indemnify victims of accidents in every case. This works as a hardship on the employee who is injured through no fault of his own, while on the other hand, the employee who is injured because of his own carelessness or disobedience receives partial compensation for his loss

in earning power instead of receiving no redress at all as was formally the custom.

To overcome the fact that the employee never receives full compensation for his loss, the better type of laws provide that the injured workman shall receive his compensation with a minimum of formality and an absence of friction which was always present in the attempts to secure redress under the old liability laws. It is evident that if the workman were to receive the full amount of his loss or to derive a pecuniary profit from his injury, it would instantly place a premium upon injury, and, in many cases, this would lead to simulation, in some cases even to self-inflicted injuries. The accident insurance laws were therefore intended to be only partially reparative and were not intended to act as a charity or as a gratuity to the injured workman. It is distinctly not intended to make amends for disfigurement or mutilation, but merely to compensate in part for the loss of the earning power of the individual. The medical attendant should not be swayed by sentiment, but should endeavor to put the injured employee into the condition best suited to his individual employment in the shortest possible time. Under this interpretation of the law it is evident that operations for removal of cicatrices for cosmetic purposes have no place in the treatment of cases under the various insurance laws, unless at the same time the removal would tend to increase the earning power of the individual. Thus it becomes clear that a disfiguring scar on the face might be enough to injure the usefulness of one employee, while to the other it would be of no consequence, as far as his earning power was concerned.

The law is not properly conceived as a class law; it is not intended as a means of equalizing the monetary differences between the rich employer and the poor employee and the broadminded physician should not look upon it as merely a method of taxing the rich employer for the benefit of himself and his patient. The physician should realize that it is merely an accident that he bears such an important part in the carrying out the terms of the law. The law was not intended as an aid to the physician, but it speaks well for the profession that he is considered a necessity in the satisfactory execution of most of the laws of this type.

The physician who undertakes the treatment of compensation cases should bear in mind that he is one of the three parties to a contract. The contract which he has entered into is to cure the injured workman and to get him back to work as soon as possible, without prejudice to his health or earning power. The parties to the contract are: (1) the injured employee; (2) the physician, and (3) the employer (indirectly, the State and society in general). It must be remembered that in the end the compensation received by the employee, and the pay for the physician's services comes out of the pocket of the consumer, and that, if a workman is allowed to simulate an injury, it is not the insurance company or the employer but the general public who pay the bill.

Few physicians seem to comprehend this idea of social medical insurance. Disregarding the cases of distinct fraud and malingering, of which there have been many under the various acts, there are still cases where the attending physician seems to have lost sight of the fact that he is working for the State and that his indifference or carelessness is causing society an unnecessary expense.

Physicians frequently allow patients to send in disability reports for a much longer period than necessary, merely because the patient requests it; and patients are often allowed to remain away from work for weeks when their only complaint is a slight pain or tenderness at the point of injury. The treatment of the Colles' fracture is a case in point. It is well recognized that a moderate use of the hand after four to six weeks is usually advantageous after a fracture about the wrist, and yet physicians have reported a complete disability of ten, twelve, or fourteen weeks after such an accident, the patient being allowed to continue treatment for slight tenderness about the joint although he would undoubtedly recover more quickly if at work. Another abuse of the law is that physicians keep their patients coming to the office during office hours and thus preventing the patient's return to work when, as a matter of fact, the treatment could be done as well at another time so that the workman would be free to report for duty. This sacrifice to the convenience of the physician amounts in the aggregate to many thousands of dollars annually.

There have been volumes written upon the abuse of the medical benefits in Germany and other European countries; and, apparently as a result of compensation laws, there have arisen a vast number of new complaints, most of them in the domain of neurology, consisting of various types of "traumatic hysteria" and "traumatic neurasthenia," all of which may be expected to make their appearance in America during the next few years.

Granted that the State undertakes the medical care of industrial workers, what means has it at its command to secure the attendance of the physician upon the injured workman?

The medical attendance may be secured in three ways: (1) By contract, (*a*) Yearly contract, (*b*) Per capita contract; (2) By unlimited choice of physicians; (3) By limited choice of physicians.

Contract services may be secured by the State in one of two different ways. The State may employ a number of full time physicians who will give their services exclusively to the treatment of injured workmen. This is the method in general use in the army and navy and would probably, if carefully planned and kept free from politics, give the workman fairly satisfactory medical attention. It would theoretically include specialists in eye, ear, nose and throat, etc., and probably give workmen in the larger industrial centers a high grade of service. In the smaller towns, however, it would be expensive and often difficult to obtain. Moreover, it would not attract the highest class of practitioners, and it would tend to cause friction between the State surgeons and the medical profession in general. Another type of medical contract is mentioned only to be condemned. This consists in the contract between the State and the physician to give medical attention at so much per capita per annum. This is ordinarily accomplished by allowing the physicians to bid and usually results in a very low per capita payment leading to those abuses which are seen so frequently in the lodge practice contracts of New York City. A modified plan of this sort was instituted in England, and led to a great deal of dissatisfaction.

The second plan for treatment of injured employees is that known as "unlimited choice." By this is meant that the patient has the privilege of choosing any physician he pleases and allowing him

to take care of his injury. Patients soon learn to go to the physician who will magnify the injuries and thus increase the period of disability and enlarge the award. The physician who is conscientious and tries to get his patients back to work as soon as possible soon notices that he has less and less opportunity to care for cases of this type. The policy of unlimited choice of physicians has been instituted by France and has led to almost inconceivable abuses. The following is extracted from an article by H. G. Villard in the New York *Evening Post*, April 12, 1913. In speaking of the establishment of private clinics in Paris he says, "Usually these were started by young and unscrupulous doctors with little standing or practice and indifferent to the established rules of medical ethics. As the Accident Insurance law made the employers responsible for all medical costs and fees, these practitioners foresaw that, once assured of a clientage, their path to fortune was secure. Accordingly, while self-advertising is deemed highly unprofessional in the best French medical circles, the owners of these private clinics have not hesitated to use the most flamboyant and often dishonest methods to attract to their establishments workmen who have been injured in the course of their employment. Drummers and agents are posted and employed near important workshops, whose duty it is to steer injured workmen to, and to extol the merits of these clinics. The clinics themselves are painted in gaudy colors, flaring advertisements are posted in conspicuous places, circulars are sent out and handbills distributed among the working classes. Dressing of wounds, massage, electrical, radium, and mechano-therapeutical treatments are offered. Attention is also called to the fact that attached to the clinic is a legal bureau which will procure the maximum indemnity allowed by law and attend to all formalities prescribed for the procuring of the same. Certain of the clinics have even gone a step further and now bestow a five franc piece on an injured employee when he first presents himself and allow him a daily stipend ranging from one-half to two francs a day so long as he is under treatment. With such inducements held out to them, it is not surprising that the workmen, when injured, flock to these private accident clinics. In Paris, more than half of all accident cases are treated in them.

"The bad results of the provision in the French Accident Insurance law granting to the injured workman the right to select his own physician are thus apparent. The individual practitioner does not benefit, for he finds no accident cases coming to him for treatment. The workmen are demoralized, for they have been taught not to regard an injury or disability as a misfortune, but as a means of making something out of their employers. Hence their readiness to travel even a distance of fifty miles from their places of injury to the clinic that holds out the most inducements. The employers and insurance companies are fleeced at every possible turn, and a heavy burden imposed on French industry in the shape of increased premium rates."

The third manner of supplying medical care is by means of the limited choice of physicians. This method allows the workman to choose his physician from among certain accredited physicians and he usually chooses the physician whose office is most accessible to his residence or place of employment, depending on whether he is, or is not, able to perform some part of his customary labor.

The New York State Compensation Law provides that the employer shall provide satisfactory medical attention and that if this is not supplied the employee may secure his own physician and the employer is responsible for a reasonable charge for medical attention, the only criterion being the financial status of the patient, the law requiring that the physician treating the patient shall take the financial standing of the patient into consideration and modify his bill accordingly. This section of the New York law has already caused considerable dissatisfaction among a large number of physicians.

Many employers have been extremely liberal in the interpretation of this portion of the law and have allowed the injured workman free choice of physicians and this has already led to many of the abuses seen under the French law. Unnecessary calls have been made and enormous bills have been presented for minor injuries. These abuses have been increasing and will no doubt continue to increase as the limits of the law are better understood. It is obvious to most fair minded physicians that it is difficult for the State Commission, which in New York has broad jurisdiction, to determine in every case just how many visits and how much treatment is necessary in a given case. In the end they must make their charges upon what seems reasonable and fair compensation in the case under consideration.

If the medical profession intends to meet its responsibilities it will do all in its power to aid in the suppression of such abuses. If this is not done the cost of medical attendance will rise so rapidly that the State will, of necessity, be obliged to limit the choice of physicians who work under the act to those who have special qualifications and who show themselves willing and able to perform satisfactory services for a reasonable fee.

Under the present law in New York this can be done in one of three ways: Employers may contract for medical services either on a salary basis or upon a fee schedule, or the State may require that only a certain panel of physicians may receive compensation for the care of workmen injured under the meaning of the act. This will be accomplished by the simple method of increasing the insurance premium to those employers who insist on allowing the workmen free choice.

That the extra cost in cases of free choice is a considerable one is shown by the following table showing the average cost of medical attendance in accidents involving temporary disability in France from 1901 to 1911. The law allowing free choice of physicians went into effect in 1905.

Year	Francs	Year	Francs
1901	12.95	1907	17.25
1902	14.	1908	18.30
1903	14.50	1909	19.55
1904	14.80	1910	20.44
1905	15.20	1911	21.58
1906	15.90		

This is an increase of over fifty per cent. in six years. In New York such an increase would cause an extra tax upon industry of approximately $2,000,000* per year and, if the experience of France is any criterion, without a corresponding benefit

*It should be understood that this is merely a rough estimate and is based mainly upon the fact that the State Fund appropiated about $400,000 for the medical expenses for the first six months.

either to the injured workman or the honest physician.

It is, consequently, of extreme importance that each physician who may be called upon to treat patients under the terms of industrial insurance laws should acquaint himself not merely with the legal requirements and probable monetary advantages, but also with the broad economic principles upon which such laws are based and endeavor to make the execution of the medical regulations agree with the spirit and purposes of the principles upon which compensation laws are based.

140 West Seventy-Ninth Street.

HEMATURIA.

By CHARLES J. DRUECK, M.D.,

CHICAGO.

Hematuria (the presence of blood corpuscles in the urine) is always pathological and appears in a number of different conditions. The blood may come from any part of the urinary tract and, while the determination of its source is sometimes easy, at other times it is difficult, if not impossible. Frequently the physician is pinned down by the patient or his friends for a definite diagnosis, and where this differs from what has been previously offered by some other medical man, it disturbs the confidence of the patient. An example of this I shall cite later of a child who had hematuria for about a year which had been said to be due to kidney disease. When I diagnosed cancer of the kidney the family were very skeptical and it was only after the mother felt the tumor that she gained confidence in my judgment.

The character of the blood in the urine and its time of appearance, whether clotted or diffused, profuse or scant, and its relation to the act of urination differ and indicate somewhat the part of the urinary tract involved. The chemical reaction of the urine also affects the color (acid urine is dark red, while alkaline urine containing the same amount of blood will be bright in color). Of course, if the amount of blood is small it may not materially influence the color of the urine. The albumin test will, however, show even very small traces of blood.

Guyon (White and Martin) divides the causes of hematuria into trauma, congestion, inflammation, organic disease, and foreign bodies. Sometimes the pathology seems hardly sufficient to create the disturbance in the case at hand. The amount of blood in the urine is variable. If slight, it may not show macroscopically, but if profuse the urine appears bloody. The microscope is always necessary to verify the clinical picture. If the urine contains pus as well as blood, the blood will be found in the sediment, leaving the liquid part of the urine uncolored.

The more dilute the urine is the less rapidly will the blood clot, but the more rapidly will it diffuse and dissolve. Blood clots in the urine have little diagnostic significance except the long, thin, cylindrical ones. These resemble earth worms in appearance and are formed in the ureter. Short cylindrical clots have no significance. The color of the clots varies from yellowish red to thick, heavy, dark red. The fibrin clots closely resemble broken pieces of cancer tissue.

We will divide the sources of hemorrhage into (1) kidney including the ureter, (2) bladder, and (3) urethra. Enumerate the causes in each division, and see what diffenential picture we can draw.

Kidney.—It has been said that renal hemorrhage is more protracted than the bleeding of the bladder or urethra, but that is uncertain. In all diseases of the urinary tract the periods of bleeding are more frequent and intense as the disease advances.

(a) Chronic diffuse inflammation of the kidney has no hemorrhage.

(b) In the following conditions the hemorrhage is slight and subsides as the other symptoms are relieved; acute parenchymatous nephritis (this is frequently the result or accompaniment of variola or scarlet fever); amyloid degeneration, abscess embolism, hydatids, purpura hemorrhagica, and phlebitis (uterine or crural).

(3) This group in which the hemorrhage is profuse and obstinate includes cystic disease of the kidney, chronic interstitial nephritis (here the hemorrhage frequently alternates with hemorrhage from mucous membranes), malignant disease (hemorrhage here is brought on by slight or undiscernible cause; it is made worse by exercise, but is not much relieved by rest). Guyon says that the hemorrhage of kidney tumor is intermittent. It will stop and then suddenly reappear, the variations occurring frequently. Sometimes the ureter is blocked with a clot and the urine is clear for few hours, then the clot is suddenly released and the hematuria reappears. The presence of renal casts shows positively that the blood is from the kidney. Tuberculosis of the kidney shows an intermittent hematuria which is brought on by exertion, but the urine contains pus and débris which remain in suspension and do not tend to settle out. Pain is also present but is variable, sometimes, however, amounting to a true renal colic. The hematuria of renal calculus is excited by the slightest muscular strain or violence, such as under normal conditions would not cause any disturbance. The bleeding is promptly relieved by rest in bed. There is always more or less pain and renal colic which is reflected from the lumbar region in various directions. The pain of renal colic is quickly relieved by rest in bed, but not the pain of tuberculosis or tumor.

(d) Drugs may also cause hematuria; such are turpentine, carbolic acid, cantharides, and mercury. It must also be remembered that senna and rhubarb cause the same reddish-brown color of the urine simulating hemorrhage.

(e) Trauma.—In severe injuries and malignant disease the blood may be bright red and the hematuria may appear to be terminal. In trauma the location and character of the injury will determine somewhat the source of the blood, *i.e.* a kick in the back followed by hematuria would suggest a contused or lacerated kidney, while a blow on the abdomen and particularly in the hypogastric region would indicate a ruptured bladder.

A heavy dragging sensation due to the renal congestion sometimes precedes hemorrhage from these parts or an attack of renal colic may appear. These pains do not occur with hemorrhage from the bladder or urethra.

Bladder.—Associated with bladder lesions that cause hemorrhage we usually find cystitis and alkaline urine, and if so the mucopus and phosphates so cloud the urine as to alter its appearance and prevent the easy detection of blood. When the urine is ammoniacal the hemoglobin is frequently dissolved out of the corpuscles and the cells are then called shadows. These are sometimes confusing when found in the urine. They appear as small

bodies or rings the size of red cells and have no nucleus.

(a) The hematuria of vesical calculus is terminal and the blood is fresh. The hemorrhage is moderate unless prostatic disease complicates. (b) Prostate cystitis and (c) vesical tuberculosis also have slight terminal hematuria and in this symptom closely resemble stone. (d) Polypi of the bladder and (e) fibrous tumors usually show slight or moderate hemorrhage, but (f) villous growths bleed profusely and the blood forms a reddish-brown sediment. A vesical tumor so long as it is not near the bladder neck may not show any other symptom except hemorrhage and is not palpable in its early stage and thus the hemorrhage is frequently considered renal. Of course, if the colic or some other localizing symptom appears that will determine the course of the bleeding. (g) Varicose veins of the neck of the bladder sometimes rupture and cause quite a sharp free hemorrhage.

A cystoscopic examination must be made in all doubtful cases of hematuria. When the hemorrhage comes from the bladder we have besides the visible blood, frequent micturition, and pain in all inflammatory, obstructive, or traumatic cases. A bimanual examination will frequently detect changes in the bladder wall or prostate or the presence of a tumor. Vesical tumors ultimately necessitate catheterization and then cystitis is soon added to the clinical picture. When the blood is diffused throughout the urine and the last urine contains a quantity of pure bright blood it is probably vesical or prostatic bleeding.

Urethra.—Hemorrhage from the urethra usually precedes the flow of urine and also recurs between the acts of urination, but if it does not it may be squeezed out by stroking the urethra.

(a) Acute gonorrhea, a mild hemorrhage may occur in any case.

(b) Acute posterior urethritis presents only terminal hematuria.

(c) Chancre within the urethra sometimes causes hemorrhage that may be obstinate and recurrent.

(d) Neoplasms and injuries to the urethra sometimes cause a hemorrhage that may be alarming.

In any case of hematuria the signs and symptoms other than those of the urine itself must be considered, because the trouble may be outside of the urinary system. Blood appearing at the beginning of urination (initial hematuria), the later urine being clear, must come from the urethra. If the bleeding is from the prostatic urethra, it may flow into the bladder and in this condition the last urine is often almost pure blood (terminal hematuria).

Treatment.—The great number of causes of hematuria divide themselves into those that must be treated therapeutically and those that can be arrested mechanically. During the bleeding, rest in bed, liquid diet of buttermilk, and diluting drinks to lessen the tendency to coagulation, and the production of a soft free stool. Drugs by the mouth are of doubtful value. Guyon gives turpentine, three drops every four hours for 6 or 8 doses. Ergot in full doses is also recommended; oil of erigeron and gallic acid have also been used. Any of these may be of value in moderate and persistent hemorrhage. In sudden profuse bleeding that threatens to exsanguinate the patient a full dose of morphine to quiet the restlessness and anxiety may be given. Next empty the bladder with a catheter or suction pump as needed and then irrigate with hot antiseptic solution of silver nitrate 1:2,000 or hydratis one ounce to the pint. After this the catheter should be held in the bladder until the bleeding ceases.

If this does not control the bleeding a perineal cystotomy should be performed, all clots removed and a drainage tube inserted. This must be done under the most rigid asepsis because the bladder is very liable to infection after the hemorrhage and particularly so in cases of tuberculosis or neoplasms. Prostatic hemorrhage is often relieved by opium suppositories in the rectum and by suprapubic compresses.

I wish to report a couple of cases that may be of interest at this time.

Case I.—C. H., a boy 12 years old. Four years previously he was vaccinated and from that his parents date his trouble. About two years afterward he suffered a hematuria of slight amount every couple of days for about a month. During this time, the parents say, he appeared otherwise healthy. For the next year he had occasional hematuria, but most of the time the urine was normal. There is no record of the urine at this time except the parents' statement. For about a year new blood has appeared constantly in the urine and has increased in amount until recently it was nearly always present and in large amounts. The urine at best is heavy and smoky brown in color (at times it seems to be largely blood). As his mother says, "it is pure blood that runs from him." During the first year of this boy's illness no positive diagnosis could be made. About six months ago a tumor of the right kidney became palpable and continued to enlarge until it nearly filled the right side of the abdomen. The boy suffered very little pain, only a dragging sensation in the region of the kidney, but grew waxy and anemic. The features were distorted by the anasarca. The boy cut his hand while playing with a knife and although the cut was one and one-half inches long and one-half inch deep it bled no more than a scratch. After his death we did a partial post mortem examination and found the right kidney about the size of a cocoanut and somewhat the same shape. It was soft and boggy, quite friable, and easily crumbled under the fingers. The pelvis of the kidney was filled with a granulating mass, but there was no blood or blood clots. I was surprised at not finding clots or free blood in the pelvis of the kidney and very little on section of the growth. The liver was small and did not present any apparent secondary growths. All of the abdominal organs were very pale. Death was really due to exsanguination. No examination was made of the chest as the parents objected. I was not permitted to take out the tumor, but a section of a small piece showed it to be a sarcoma.

During the time this boy was under my care I went through the whole list of drugs supposed to be good for hematuria, but none had any effect on him.

Case II—Mrs. A. had been a nurse. Following the birth of a baby she was troubled with paresis of the neck of the bladder which persisted after she was up and about. She insisted on catheterizing herself. Later she developed a sharp cystitis with stone formation. Every couple of days she voided bits of calcium phosphate and as these pieces broke away there was considerable free hemorrhage. Sometimes this hematuria would accompany only one urination and again be quite free. In this way it was intermittent but persistent and blood corpuscles could be found in the urine at all times. Of course it had a gradually exsanguinating effect.

I made a vesicovaginal opening and found the mucous membrane sheeted over with this stone deposit beneath which the surface was ulcerated and granulating. Under local treatment and drainage she soon recovered.

Case III—About three years previously I had operated upon this man, 37 years old, for hemorrhoids. They were internal and so extensive that I removed considerable mucous membrane. The result was very satisfactory as far as the operation was concerned and the man has had no other rectal inconvenience since. When the bowels moved first after the operation (on the fourth day) he had quite a terminal hematuria, and ever since then whenever the bowels are constipated and the movements accompanied with straining there is danger of this hematuria. There are no other symptoms of anything. The hematuria is always terminal and persists for the next few urinations. Sometimes it is

quite sharp. It may recur in a couple of days or he may go months without a sign. During the interval there frequently is no blood in the urine. He frequently passes three or four months without any trouble, and once went eight months. The trouble is always brought on by constipation. He is caused so little trouble that he objects to a cystoscopic examination and I have never made one. I believe this is a case of varicosed veins about the neck of the bladder or the prostatic urethra due to my operation upon the middle and superior hemorrhoidal veins when I removed the piles.

438 East Forty-Sixth Street.

THE HOMOGRADE THERMOMETER.

By F. E. ASPINWALL, M.D.,

LA GRANGE, KY.

In the Homograde Thermometer the normal blood heat at or near the surface of the body where sensation mostly exists is the unit of value, and every degree in the scale equals 1 per cent. of that unit. The scale begins with 0 at the freezing point, 270 represents the boiling point of water, and 100 the normal blood heat within the radius of sensation. Figures from 0 upward are placed to the left of the tube; below 0 to the right of the tube. In the clinical thermometer the figures from 100 upward are on the left side of the tube, and from 100 downward on the right side of the tube, 100 being on both sides. This arrangement of the figures not only makes a beautiful thermometer, but facilitates the reading of the record and lessens the liability to error.

Animal heat is correctly expressed in degrees above freezing, for an organism whose temperature is at or below the freezing point can manifest no life. In the Homograde scale 100 represents the human normal and all variations therefrom are expressed in percentages of that normal. This gives a clearer conception of these variations than can otherwise be obtained. Thus 100° H. represents the full normal surface or near surface heat when as far as temperature is concerned there should be perfect comfort; 95° H. expresses 95 per cent. of that heat, a 5 per cent. deficiency; 105° H. expresses a 5 per cent. increase of heat, a moderate and usually not dangerous fever, while 110° H. expresses a 10 per cent. increase of heat, which is high and proportionately dangerous. These figures are thus seen to be remarkably expressive. They are so appropriate that they are not likely to be forgotten. I will state here that I have observed an even 100° H. in the mouth, in the axilla, and even in the palm of the hand when there was full flush of heat and perfect health. Also 105° H. in one-day fever of childhood. It is understood that in health there is often a loss of several degrees Homograde in the surface heat, but any material increase above 100° H. is certainly fever.

Contrast the above figures with those of the Fahrenheit thermometer. The latter are wholly arbitrary, inexpressive, and actually misleading. Thus 102° F. gives little conception of the temperature expressed. Changed to its Homograde equivalent, 105° H., its value is instantly understood. So throughout the scale the Fahrenheit figures fail really to express the temperatures for which they stand, and the value of a Fahrenheit degree is not apparent. Thus 50° F. is not 50 per cent. of anything. In fact, the figure is very misleading, it having been recommended as a medium bath temperature, while its equivalent, 27° H., shows it to be only 27 per cent. of the animal heat, much too low a temperature for a full water bath. The temperature expressed by 50° H. is probably what the writer above referred to had in mind when he wrote "50° F." The Fahrenheit figures misled him. The Homograde figures never mislead. They always appropriately express the temperatures for which they stand. Of the Homograde thermometer it may be truly said: Once used no other will satisfy.

To change Fahrenheit figures to Homograde find the exact number of degrees above or below freezing and increase that number one-half. The result will be the Homograde equivalent. Throughout the Homograde scale there are exactly 3 degrees instead of 2 degrees in the Fahrenheit scale. The shorter degrees of the Homograde thermometer necessitate a less frequent use of fractions.

Medicolegal Notes.

Hypothetical Questions—Effect of Morphine.—In an action for personal injuries it was held that a question asked a physician calling for his opinion as to the mental capacity of a person to transact business on a given day because on preceding days morphine had been administered to him, must state the amount of morphine administered, the method, and times of administering, to enable the physician to determine the effect thereof. —Brown v. Ann Arbor R. Co., Michigan Supreme Court, 140 N. W. 1031.

Consideration for Deed from Patient to Physician.—A deed was made to the grantor's physician in consideration of his agreement to make certain payments of money and to care for the grantor during the rest of her life. In an action by the grantor's administration to have the deed set aside it was held that it was supported by a sufficient and adequate consideration in the absence of fraud, though the grantor died shortly afterwards, and the benefits received by her as a result of the contract were therefore small in comparison with the value of the property conveyed, it not appearing that her early death was expected when the deed was executed.—Silveria v. Alexander, (Cal.) 144 Pac. 303.

Using False Certificate. — The Washington Statute, Rem. & Bal. Code, §8401, provides that every person filing for record or attempting to file for record a certificate issued by the board of medical examiners to another, falsely claiming himself to be the person named in the certificate, or falsely claiming himself to be the person entitled to the same, shall be guilty of a felony. It is held that the filing for record, or attempting to file for record, is a necessary ingredient of the offense, and an information merely charging false personation, in that the accused did wilfully, etc., claim himself to be the person named in and entitled to a certain license to practice medicine, issued to L. and duly and regularly filed by him, when in fact the defendant was not the person named in the certificate, and was not entitled to practise medicine in the State, but failing to allege any attempt on his part to file the certificate, did not state an offense.—State v. Stanley, Washington Supreme Court, 144 Pac. 689.

Expert Opinion Based on Experience. — Physicians were examined as medical experts in a personal injury case, and detailed the facts ascertained by their examinations of the plaintiff, and were then asked: "From your examination, . . . basing your answer on your experience as a medical man and the facts that you have detailed to this jury that you found existed," etc. It was held that this question was not objectionable in so far as it requested the expert to base his opinion on experience as well as on the facts testified to; the word "experience" implying skill, facility, or practical wisdom gained by personal knowledge, feeling, and action, and also the course or process by which one attains knowledge or wisdom and being frequently used as their equivalent.—Chicago I. & L. Ry. Co. v. Gorman, Indiana Appellate Court, 106 N. E. 897.

Privileged Communications — Physician's Record. — Under Wisconsin St. 1913, §4075, relative to privileged testimony, it is held that the record made by the physician who had been treating the deceased prior to the accident causing his death, was properly excluded, in an action for damages, when offered in evidence on the question of the probable duration of deceased's life, but for the accident.—Mahegan v. Faber, Wisconsin Supreme Court, 149 N. W. 397.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 22, 1915.

EPILEPSY FROM MANY ANGLES.

THERE are few diseases about which so many theories have been evolved as epilepsy. From a retrospect of recent literature alone one may glean a number of the most diverse hypotheses. These may be referred to as the metabolic, the bacterial, the vascular, and the psychic theories of epilepsy.

The exponent of the metabolic theory is S. Kozlowski (*Zeitschrift für klinische Medizin*, Vol. 79, Nos. 3 and 4), who found in the urine in eleven cases of this condition an amount of neutral sulphur seven times as great before the attack as after. This relationship is reversed if the diet is restricted to milk. The exciting factor in epilepsy is attributed to oxyprotein acids formed in the organism as metabolic products of meat and disappearing under a milk or vegetable diet. The periodicity of the epileptic attacks is explained on the basis of a periodically increased excitability of the nervous system, either congenital or acquired.

C. A. L. Reed (*Southern California Practitioner*, March, 1915) advances the view that epilepsy is the result of a specific infection from the intestinal canal. The unknown microorganism is supposed to be a bacillus of gas-forming series, residing first in the duodenum and finally in the colon, and favored in its growth by intestinal stasis resulting from mechanical conditions. The possible rôle of the *Treponema pallidum* in the genesis of epilepsy has been investigated by Petzsch (*Psychiatrish-neurologische Wochenschrift*, Vol. 15, No. 52), who found a negative Wassermann reaction in the cerebrospinal fluid in forty-three cases. In forty-two of these the lymphocytes were not increased, and in one were only slightly increased. The Nonne-Apelt reaction was always negative. A weakly positive Wassermann reaction was obtained with the blood serum in one case; in all the rest it was negative. Upon the basis of this investigation one is apparently justified in denying any possible relationship between lues and epilepsy.

In favor of the view that epilepsy is of infective origin may be cited the studies undertaken by Gerhard Müller (*Sommers Klinik für psychischen und nervösen Krankheiten*, Vol. 8, 1913, No. 3), as to the behavior of the leucocytes in this disease. He found that the attack is accompanied by a general hyperleucocytosis, with a relative increase in the small lymphocytes, the large mononuclears, and the transitional forms, and a relative decrease in the polymorphonuclear cells. The leucocytosis begins several days before the attack and disappears rapidly after the attack.

The vascular theory of epilepsy is favored by I. Bram (*New York Medical Journal*, March 20, 1915), who believes that this disease is the result of an abnormally high intracranial pressure, associated with a sudden increase in the general blood pressure. Venesection is recommended as the method of choice in the treatment of an attack, and the administration of the iodides or of thyroid extract is advised as a supplementary measure.

The influence of the Freudian teachings has naturally extended to this disease. An elaborate thesis based upon these teachings has been framed by L. Pierce Clark (*New York Medical Journal*, March 6, 1915), who finds in the epileptic individual an immature psychosexual phase of emotional development. There are early libidinous fixations on the father or mother (as revealed by psychoanalysis), and "the fit is essentially a libidinous outlet or striving of the unconscious forces, which, though widely variant, yet possess many of the characteristics of the dream language and motive; all the epileptic manifestations are in harmony with each other, flow out of the disease, and are reciprocal and comparable as a whole." Defective metabolism, constipation, mucocolitis, and autointoxication are considered as contributing and existing factors.

From a survey of the above theories, which does not include all that have been advanced within recent years, one is impressed by the fact that almost all of the exponents of these theories seek to incorporate as subsidiary or supplementary factors the essential elements of other theories. The problem is not a simple one. The inference is suggested that epilepsy is based upon a number of morbid conditions, each of which may play a variable rôle, acting a leading part in one case and a minor part in another. The mathematical conception of disease as the function of a number of variables is perceived here as in other domains of medicine.

VACCINE IN THE PREVENTION OF COMPLICATIONS AND RELAPSES IN TYPHOID.

THE value of the prophylactic inoculations of typhoid vaccine is no longer open to question. Its value as a therapeutic agent when the disease has once gained a foothold has, however, been much discussed and opinion is still divided as to its efficacy. In some series of cases the results have been remarkably good, as to both the low mortality percentage and the comparative freedom from severe complications and relapses. Thus Callison (*Am. Jour. of the Med. Sciences*, Sept., 1912) found that in 423 cases, including 38 of his own, where sufficient dosage had been employed, the mortality was but 5.4 per cent. and relapses 6.5 per cent.; whereas in 975 cases at Bellevue and Allied Hospitals for the years 1908-1911 inclusive, treated by usual methods without vaccine, Coleman, who collected the statistics, found a death rate of 16 per cent., hemorrhages in 13 per cent., and relapses in 20 per cent. Callison's

conclusions were that vaccine treatment in typhoid fever will reduce the percentage of deaths and lessen the number of relapses; that complications are less frequent in vaccine treated cases and the original attack seems to be shortened in some cases; and that to give the best possible results vaccine treatment should be instituted as early as it is possible to make the diagnosis, before the patient is exhausted and complications intervene.

A recent meeting of the Rouen Medical Society (British Royal Army Medical Corps) at Stationary Hospital No. 11 (reported in the *Lancet*, March 20, 1915) was devoted to a very instructive discussion of typhoid and considerable attention was paid to the subject of vaccines. Colonel Sir Bertrand Dawson believes vaccines are valuable if used with caution, but inoculation must be commenced early and the vaccine given in large doses—750 million should be given, instead of the usual 200 million with gradual increase to 500 million. He has not found harm to result from the larger doses, and prefers the heterogenous rather than the autogenous vaccine. Colonel Sir William Leishman also prefers the regular army vaccine. Lieut. Wiltshire reported that army vaccine had been used in the treatment of 45 cases at Hospital No. 12 with good effects in 24. Major Smallman considered that the value of vaccine treatment had been amply proven and referred to a series of 235 cases treated in South Africa, some by autogenous and some by heterogenous vaccines, with very low mortality. None of the speakers definitely questioned the value of vaccine treatment in lessening mortality.

Turning to another phase of the subject, Armstrong (*Surg. Gyn. and Obst.*, Sept., 1914), in a paper read before the Clinical Congress of Surgeons of North America, at London, states that recent figures embracing 9713 cases collected in England, Canada, and the United States show that more than one-third of the deaths from typhoid fever are due to perforation. Since the complications are largely responsible for the mortality in this disease, and since the mortality in large series of vaccine-treated cases is far below the average, it seems evident that Callison was right in his conclusion that complications are less frequent in vaccine-treated cases.

After vaccine treatment, as well as spontaneous recoveries, many relapses have been noted. Recently Professor V. Pensuti, who has long been an exponent of vaccine therapy, has reported in *Il Policlinico* a further series of 69 cases treated by vaccines, and a series of 31 cases in which vaccines were used with the idea of determining whether repeated doses, beyond the usual period in which they have been employed, would prevent relapses. In these 31 cases, after having given vaccine in accordance with the usual plan and to a degree which he believed to be sufficient for the cure of the disease, he repeated for some time a daily small dose of vaccine and kept the patients under observation as long as possible after the cessation of fever to notice whether relapses took place. The doses employed were 12,500,000 daily in all cases except those of two small children (aged 5 and 7 respectively), where the daily dose was 6,000,000. These injections were given for 11 to 25 days; the cases were observed for about three weeks after the subsidence of the initial attack, and in none of the cases was there a relapse, though in some there were occasional slight elevations of temperature of four to six hours' duration. Since heretofore relapses have been noted in various statistics in from 6 to 25 per cent. of the cases, it seems quite probable that the prolonged usage of small doses of vaccine could alone have been responsible for the striking absence of relapses in Pensuti's series of 31 consecutive cases.

In view of the enthusiasm for vaccine treatment expressed by so many of those who have had to handle considerable numbers of typhoid patients under the especially hard conditions imposed by war, it seems strange that vaccine treatment as well as prophylaxis has not had a more extensive and impartial trial in our own country. Those who may be stimulated, through consideration of the above facts, to use the method should remember: First, that the earlier the treatment is instituted apparently the greater is its specific action; second, that the dosage should be fairly large from the outset; and third, that the use of the vaccine in nowise contraindicates such other therapeutic measures as the practitioner is accustomed to employ.

WOMAN SUFFRAGE AND THE BIOLOGICAL DIFFERENCE IN THE SEXES.

It may be recalled that a little more than a year ago, so distinguished a scientist and physician as Sir Almroth E. Wright came forth with a diatribe against giving the right to vote to women in his book, "The Unexpurgated Case against Woman Suffrage." He says that the woman voter would be pernicious to the State because she could not back her vote by physical force and also because she has intellectual defects. If the first reason given in his remarkable declaration be true, then a man who is physically unfit is unfit for the franchise. If physical force is to be the only qualification for the right to vote, then of course a very narrow materialistic viewpoint is taken and many of the powers and abilities of women are lost sight of. The second, or additional reason given, namely, that woman has intellectual defects, is satisfactorily explained by Sir Almroth where he tells how woman's mind works entirely differently from man's. It was unfortunate that he called defects what are a different mode of thought and a different way of arriving at a conclusion. He says "Woman is almost without a moral sense in the matter of choosing or engaging herself to political assistance with the view to influencing votes"; and "the suffrage movement has resulted from an excess of female population." This statement is not wholly warranted, if the history and inspiration of the suffrage movement are taken into account.

Here in this country, in the year 1847, a noteworthy event took place, the real beginning of the woman's movement—a woman, Dr. Elizabeth Blackwell, was admitted to the study of medicine. It was not to meet a merely sentimental need that she strove to open the profession of medicine to women, nor was it for the satisfaction of her own

curiosity. Thoughts of ailments and the study of the body filled her with disgust. It was for intellectual and moral satisfaction that she made the struggle. She said, "I soon felt the want of a more engrossing pursuit than the study of music, German, and metaphysics and the ordinary interests that social life presented." This remarkable woman was graduated in 1849, and as she was a leader or pioneer in so many movements, both here and in England, where she later returned to live that we can but briefly mention some of them. In 1848 the Female Medical Educational Society was formed with a view of overcoming the violent opposition to women studying medicine. At the outbreak of the Civil War she founded the National Sanitary Association which played such a large part in providing trained nurses for our army hospitals and putting the profession of nursing on a high plane. She anticipated modern developments by organizing the services of sanitary visitors in the slums of New York. In 1857 she established the New York Infirmary for Women and Children. In 1865 she founded the Woman's Medical College. This first medical college for women was exceptional; it was a pioneer in doing away with the lecture system, in establishing a graded course, and in inviting outsiders, that is members of the faculties of other medical colleges, to conduct its examinations. It had a unique ending; it voluntarily closed its doors as soon as Cornell University offered its better facilities to women for the study of medicine. Dr. Blackwell was a member of the Vigilance Committee who headed off the many attempts made after the Civil War to introduce the European system of State regulation of vice in New York. Today there are but few European cities that have police regulation of vice and their more enlightened citizens are making efforts to get rid of measures which serve only to add more evils to vice and to commercialize it. When Dr. Blackwell felt called upon to oppose State regulation in that she saw its attendant evils, she at first shrank, because of modesty, from doing what she felt to be her duty. She consulted one of the trustees of her college, a Quaker, and he said, "Thee do what thy conscience bids thee."

From this time on Dr. Elizabeth Blackwell, her sister, Dr. Emily Blackwell, and all the other remarkable women that came under her influence moved forward as leaders in work that had never been taken up by men. Higher education for women, suppression of vice, training of nurses, social service work, moral education for children, sex hygiene, teaching of hygiene and sanitation, health education—all of these endeavors were taken up by women who got their inspiration from scientific knowledge. This knowledge moved them, that is it caused a response in them that man seemed incapable of. It was woman's heart and sympathy that pointed the way to the broader social application of medical knowledge for the benefit of humanity. And all this was accomplished without the franchise.

The argument as to whether woman is man's equal is foolish. Woman is different; her characteristics are equivalent in importance to those of man; they are not defects; they fill out the defects in the intellectual and moral make-up of man. Dr. Blackwell went to London and helped to start the woman suffrage movement, and she brought it more enduring inspiration than Dr. Wright seems to understand. She knew about the blindness of new born infants which is caused by gonorrhea; she knew about the ravages syphilis plays with children; she knew about the diseases some innocent wives acquire from their immoral husbands; she understood the social evil. She wanted women to get the vote because she thought, incorrectly we believe, that they might thus overcome many abuses that man had not yet succeeded in abolishing. She recognized that woman was mentally, temperamentally, and biologically different from man. She never made any claim that woman was mentally the same as man. In her "Human Element in Sex" she wrote: "No careful observer can fail to remark the larger porportionate amount of thought and feeling as compared with the total vital force of the individual, which we find given by women to all that concerns the subject of sex. Words spoken, slight courtesies rendered, excite a more permanent interest in women. That which may be the mere passing thought or action of the man, at once forgotten by him, obliterated by a thousand other intellectual or practical interests in his life, often makes a quite undue impression upon the woman. Incidents are thought of, over and over again, and are supposed to mean much more than they do mean. A romance or a scandal, a tale of true or false love will always excite interest, where business, politics, science, or philosophy, will fall upon deaf ears. All that concerns the mental aspect of sex, the special attraction which draws one sex towards the other, is exhibited in greater proportionate force by women, is more steady and enduring, and occupies a larger amount of their thought and interest." One wonders whether, when woman descends to man's sphere and strives with him on the stump and at the polls, this description will still hold good and whether she will not barter the charm of her sex for the ballot. Of course, if she insists upon the suffrage she will get it, for she always gets what she wants, but when she can achieve so much and bring about such great reforms by the simple but enormous power of persuasion, why should she reach for man's coarser weapons.

THE SUPPLY OF RADIUM IN AMERICA.

A CERTAIN amount of confusion appears to exist with regard to the radium supply in this country, though the general idea is that the supply is inadequate. In *Radium* for March is a paper by Dr. Charles Viol who discusses the situation as to radium in this country. He makes and quotes statements which go to show that—(1) The present production of radium in the United States is more than adequate to supply the demand in the country. (2) The selling price of radium is not exorbitant, and the prospects are that the price will rise in time rather than fall. (3) The United States Bureau of Mines has given no proof whatever that the process for radium extraction said to have been devised by

the experts in that Department is at all successful in working up on a large scale the low grade carnotite ore which is at present the visible source of supply in the country. (4) Should the Government authorize the Bureau of Mines to go into the radium business on the scale contemplated in the acts under consideration, private parties and hospitals would not be able to secure such radium at any price until the National Radium Institute and the Government hospitals had been supplied, and to secure such radium would involve waiting about five years. (5) Should the Bureau of Mines be authorized to undertake to produce radium, the result would be practically to establish a monopoly of radium for therapeutic purposes for years to come, since the Government hospitals may each treat only ten patients who are not Government employees.

The therapeutic value of radium, although perhaps somewhat overestimated, has been conclusively proven and therefore the question of an adequate supply at a cost within the means of members of the medical profession is important. At the present time, the cost is prohibitive in all parts of the world to many physicians who would otherwise use it in treatment. This state of affairs is unfortunate and any scheme which would tend to make radium cheaper would be to the benefit of all. Whether then a monopoly of the radium supply, which the writer in *Radium* argues would be brought about by the plans said to be conceived by the Government, would result in increasing the supply and cheapening the cost is a moot point. The writer whom we have quoted thinks it would not have this effect and his opinion is entitled to respect, but the whole matter requires to be thoroughly threshed out, and the Government side heard, before a final judgment is given.

RECENT CONCEPTIONS OF UREMIA.

It has long been surmised that instead of a single condition, uremia, there are uremias; or if not that, one true uremia and several pseudouremias. In true uremia there is a notably high percentage of residual nitrogen in the blood, with general asthenia and dyspeptic disorders. Convulsions are not necessarily present, and are a secondary phenomenon. True uremia is a retention phenomenon. Eclampsia occurring in a nephritic subject does not represent a true uremia, nor does a soporous condition in high tension subjects of advanced years. A nephritic may have serial convulsions, yet be without dyspepsia. These patients usually have tubular nephritis.

These statements were made by Strauss at the United Berlin Medical Societies, session of March 17 (*Muenchener medizinische Wochenschrift*, March 30). In discussion Rosenberg reported on his analysis of 150 cases of nephritis, with following results: there are three types of uremia, to wit: azotemia (the true retention form), with weakness, apathy, narrow pupils, etc.; convulsions without azotemia, with elevation of pressure in the lumbar cord; and finally the uremia found in red granular atrophy. Leschke stated that true uremia could easily be recognized by the increased nitrogen content in the blood and cerebrospinal fluid. Uremia (convulsive) of tubular nephritis is preceded by delayed elimination, instead of absence, in the ferrocyanide test. The vascular, arteriosclerotic, small red kidney type may be recognized by the theocin test, for no diuresis is produced as in the normal kidney. Further, theocin has some therapeutic efficacy if its use is continued.

PLAGUE.

Owing to the European war and to other reasons bubonic plague is now widespread over the face of the globe. According to Dr. W. C. Rucker, Assistant-Surgeon General, United States Public Health Service, writing in *Public Health Reports* for April 16, it exists in California, Seattle, and New Orleans. It has just broken out afresh in Cuba, and in South America the disease was reported only a short time since in Brazil, Ecuador, and Peru. In fact, as said before, the malady is more or less prevalent throughout the world. Plague being essentially a ship borne disease, it is consequently a menace to this country by the medium of its ports. Further, plague is a rat borne disease, and as rats are numerous on ships, the only sure protection against its spread lies in adequate rat proofing. Moreover rats must be excluded and starved. This latter object may be accomplished by poisoning and trapping. If by trapping, the captured rodents should be subjected to a laboratory examination, for by this means it is possible to determine whether or not they are plague-infected and, should any prove so, to take such measures as will prevent the plague from spreading to human beings. This, too, is the most efficient mode of detecting the presence of plague in any seaport, for no seaport can truthfully say it has no plague until a careful survey has been made of its rodent population. But that this scheme may be readily effective it must be done thoroughly by experts. Plague is at the present time world wide. Under existing conditions in Europe and Asia it is likely to spread, and is therefore a menace to every port of the United States. If proper and efficient steps are taken to prevent its ingress into this country the menace will come to naught, but these measures must be applied with scientific zeal to be of avail. This furnishes one more argument in favor of the nationalization of all quarantines, for sanitary surveys of this sort can of course be more effectively carried out if they are conducted according to a definite plan and under one responsible and capable head.

The Antialcohol Society of Munich Physicians.

A perusal of the transactions of this society at its session on January 25 last (*Muenchener medizinische Wochenschrift*, February 8), might, we fear, cause our own zealots, medical and lay, to accuse it of lukewarmness, if not of actual betrayal of their cause. The Munich physicians might even be accused of "going easy" with the hard drinking Bavarians. For while the propaganda of the two countries agree closely in most respects, we find among the Munich type certain leanings toward common sense and away from fanaticism. Thus alcohol is not so much played up as a destructive tissue poison; it is a subverter of discipline, a demoralizing agent. This old and unanswerable

argument has been of late years sidetracked by the chemical poisoning argument. The Munich idea is not so much to attempt to frighten men into sobriety as to appeal to their reason. The occasional references to moderation and caution in the use of alcohol, in sickness as in health, have a strict psychological foundation, for they do not arouse that enmity and resistance which would follow counsels to absolute abstinence; at the same time one reads between the lines that abstinence is the approved course. A large volume of good, sound, sensible advice is given with the aim of securing a nonalcoholic status. There is no extenuation or defence of the use of alcohol; and aspects of the cause, which although of minor importance, nevertheless lead to infinite bickerings, are left out of consideration. No one for a moment can doubt that the Munich physicians are very much in earnest in their attitude in the crusade against alcohol, and one must admire the absence of intemperance which marks their efforts.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—Report of the Treasurer of Contributions received during the week ending May 15, 1915:

Dr. Franklin B. Miller, Pittsburgh, Pa.	$25.00
Dr. N. S. Jarvis, Captain U. S. A., New York, N. Y.	15.00
Dr. Charles G. R. Jennings, Elmira, N. Y.	23.00
Dr. H. E. Jenkins, P. A. Surgeon, U. S. N., Port Royal, S. C.	5.00
Dr. Luther G. Paul, Boston, Mass.	5.00
Dr. M. C. Smith, Lynn, Mass.	5.00
Arkansas Medical Society, Little Rock, Ark.	50.00
Dr. Charles Henderson Miller, Chicago, Ill.	10.00
Receipts for the week ending May 15th	$140.00
Previously reported receipts	6,720.50
Total receipts	$6,860.50
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20	$3,575.00
1,309 Standard boxes of food at $2.30	3,010.70
Total disbursements	6,585.70
Balance	$274.80

American Association for Promoting Hygiene and Public Baths.—A very successful meeting of this association (the fourth annual session) was held in this city on Tuesday, Wednesday, and Thursday of last week under the presidency of Dr. Simon Baruch. The day sessions were held in the City Hall and an evening session on Tuesday at the Academy of Medicine. Dr. Baruch, in his presidential address, spoke in praise of the efforts of the Allies in the present war to restrict the abuse of alcohol; he said much good would result from the antinarcotic laws in this country and uttered a note of warning against the danger of contracting a drug habit at the soda fountain or through the use of patent medicines; and he urged that public health administration be taken out of the control of politicians, citing the wonderful results of such action in the Canal Zone, and criticising the retention of political supremacy in the quarantine at this port which should be transferred to the efficient control of the U. S. Public Health Service. A large number of papers were read by sanitarians and physicians. The next annual meeting will be held in Baltimore.

Award of the Osiris Prize.—The Osiris prize, amounting to 183,000 francs ($36,600) because no award was made in 1912, has been awarded chiefly for discoveries in medicine, according to an announcement by the French Institute. Dr. Chantemesse and Dr. Vidal will divide $10,000, while an equal amount will go to Dr. Vincent, in recognition of their discoveries in vaccine. Twelve thousand dollars is given to various ambulances and the remainder is placed in reserve.

Transfer of the Boston Quarantine.—On June 1 the U. S. Public Health Service will take charge of the Boston quarantine station on Gallups Island. The property has been leased to the Federal Government for a year at a rental of one dollar, and when Congress meets in December provision will be made for the purchase of the quarantine plant.

Special Trains for San Francisco.—Dr. J. Rawson Pennington, Chairman of the Committee on Transportation of the A. M. A., announces that there will be three special tours carrying physicians to the annual meeting in San Francisco in June. These are: (1) The Gregory tours, including round trip railroad and Pullman fares, seven days in San Francisco hotel, admission to the Exposition, and various trips in and around San Francisco; fare $141 from Chicago, $135 from St. Louis. (2) The McCann special train from New York to San Francisco and return, leaving June 16, stopping at Glacier National Park and other places on the way home, five days hotel room in San Francisco, meals en route, and all expenses except meals in San Francisco; for $280.70. (3) Pennsylvania Railroad tours, the first leaving New York June 11, arriving in San Francisco in time for the Pan-American Medical Congress; the second leaving June 16, arriving in San Francisco June 20; fares, including only round trip railroad ticket and Pullman double berth on special train to San Francisco, $128.40 from New York.

State Medical Boards.—The South Carolina Board of Medical Examiners, elected at the recent meeting of the State Society, consists of Dr. T. Taylor, Charleston; Dr. John Lyon, Greenwood; Dr. E. W. Pressley, Clover; Dr. J. J. Watson, Columbia.

At a meeting of the Utah State Board of Medical Examiners on April 9 the board was reorganized, all the old officers being reelected. They are: *President*, Dr. D. D. C. Budge, Logan; *Vice-President*, Dr. F. W. Taylor, Provo; *Secretary and Treasurer*, Dr. G. F. Harding, Salt Lake. The other members of the board are: Dr. Clarence Snow, Salt Lake; Dr. C. L. Olson, Murray; Dr. F. Straup, Bingham; Dr. C. F. Osgood, Ogden; Dr. A. P. Higgs, Ogden, and Dr. W. M. Stookey, Salt Lake City

Alumni Association, Medical Department, University of Buffalo.—The fortieth annual reunion of this Association will be held on Tuesday to Friday, June 1-5, 1915. The class and fraternity reunion will take place on June 1 and scientific sessions will be held on June 2 and 3. The graduating exercises of all the departments of the University will occur at the Teck Theater on Friday morning, June 4.

The American Proctologic Society will hold its seventeenth annual meeting in San Francisco on June 21 and 22, 1915, under the presidency of Dr. Louis J. Krouse of Cincinnati. The secretary is Dr. Alfred J. Zobel, 518 Shreve Building, San Francisco.

A meeting of physicians and social workers will take place on Wednesday, May 26, at the New York Academy of Medicine to discuss the State law dealing with giving information about the prevention of conception. Dr. A. Jacobi will preside and among the speakers will be Dr. William J. Robinson, Dr. Ira S. Wile, Dr. S. A. Knopf, and Dr. Lydia De Vilbiss.

New York City's Death Rate.—There were 1,609 deaths and a death rate of 14.46 reported during the week ending May 8, as against 1,607 deaths and a rate of 15.01 for the corresponding week of 1914, an increase of two deaths and a decrease in the rate of .55 of a point, which is equivalent to a relative decrase of 61 deaths.

Typhus Fever in Germany.—The American Ambassador in Berlin states that typhus fever exists in ten of the German prison camps in which Russian, British, and Indian prisoners are confined.

Another Sanitary Party for Serbia.—A group of fourteen physicians, students from the Massachusetts Institute of Technology, and sanitary engineers, organized by Prof. W. T. Sedgwick, sailed from this city on the *Athenia* on May 15, on the way to Serbia. They were sent at the request of Dr. Strong, the chief physician of the American Red Cross party now in that country.

Serbia Calls for Health Workers.—The Health Department announces on the authority of the American Red Cross that the Serbian Government is anxious to obtain 150 men to assist in the campaign against typhus fever and other diseases in that country. The men desired should be either young physicians, sanitary inspectors, fourth year medical students, or others specially trained in public health work. The pay is stated to be $175 a month, to be paid by the Serbian Government, with expenses to and from Serbia. With the present information it is uncertain whether the living expenses in Serbia are to be paid by the Government of that country or not. The period of employment is likely to be four months or more. It is probable that appointees will have to leave for Serbia within three or four weeks.

Order Blanks for Narcotic Drugs.—The New York State Commissioner of Health, acting under authority granted by the Legislature, has approved the order blanks required by the Federal (Harrison) law of December 17, 1914; and it will therefore be unnecessary in future to use the Boylan law blanks, if the Federal order blanks are used instead

Examination for Admission to the Medical Corps, U. S. Navy.—The next examination will take place on or about July 6, 1915. Applications, accompanied by the necessary letters or certificates, should reach the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., not later than June 26, 1915. A candidate for appointment in the Medical Corps of the Navy must be a citizen of the United States, between 21 and 30 years of age, and a graduate of a reputable school of medicine. The application must be in the handwriting of the applicant, and must be accompanied by the following certificates: (*a*) Letters or certificates from two or more persons of good repute, testifying from personal knowledge to good habits and moral character. (*b*) A certificate to the effect that the applicant is a citizen of the United States. (*c*) Certificate of preliminary education: The candidate must submit a certificate of graduation from an accepted high school or an acceptable equivalent. (*d*) Certificate of medical education: This certificate should give the name of the school and the date of graduation. (*e*) If the candidate has had hospital service or special educational or professional advantages, certificates to this effect, signed by the proper authorities, should also be forwarded. The applicant will save unnecessary correspondence if he will make sure when submitting his application that the qualifications enumerated above are clearly and plainly described in his letters or certificates.

Examination for Admission to the United States Public Health Service.—Boards of commissioned medical officers will be convened to meet at the Bureau of Public Health Service, Washington, D. C., and at the Marine Hospitals of Boston, New York, Chicago, St. Louis, Louisville, New Orleans, and San Francisco on Monday, June 21, 1915, for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health Service. Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Candidates must have had one year's hospital experience or two years' professional work. Candidates also must be not less than 5 ft., 4 in., nor more than 6 ft., 2 in., in height, with relatively corresponding weights. The examinations are: (1) Physical, (2) Oral, (3) Written, and (4) Clinical. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Assistant surgeons receive $2,000, passed assistant surgeons $2,400, surgeons $3,000, senior surgeons $3,500, and assistant surgeon generals, $4,000 a year. When quarters are not provided, commutation at the rate of $30. $40. and $50 a month, according to the grade, is allowed. All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years up to 40 per cent. after twenty years' service. The tenure of office is permanent. For invitation to appear before the Board of Examiners, one may address: "Surgeon-General, Public Health Service, Washington, D. C."

United States Civil Service Examination for a Physiologist.—The United States Civil Service Commission announces an examination for physiologist in the Dairy Division, Bureau of Animal Industry, Department of Agriculture, Washington, D. C., at a salary ranging from $2,500 to $3,000 a year. The duties of this position will be to take charge of investigations in the secretion of milk and will involve a general fundamental study of the factors controlling the secretion of milk. An M.D. degree or a Ph.D. degree in physiological work, and at least four years' subsequent experience in the investigation of physiological problems, are prerequisites for consideration for this position. Applicants must be men only and must not have reached their fiftieth birthday on the date of the examination, which will be June 8. Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.

Broke His Legs to Go to War.—The Washington *Herald* relates the case of James Tood, of Saskatoon, Saskatchewan, who was rejected by a recruiting officer because he was bow-legged. A little thing like that, however, could not cool his patriotism, so he had his legs broken and reset to meet the army requirements.

Charitable Bequests.—By the will of the late Mrs. Ada R. Kimball of Philadelphia the sum of $500 is bequeathed to the Oncologic Hospital of that city.

By the will of the late William J. Power of Philadelphia the sum of $5,000 is bequeathed to St. Joseph's Hospital for the endowment of a free bed, $1,000 to St. Vincent's Home and Maternity Hospital, $500 to St. Mary's Hospital, and $500 to St. Agnes Hospital.

By the will of the late Frederick A. Doyle of Philadelphia a contingent bequest of $3,000 is made to St. Vincent's Home and Maternity Hospital.

By the will of the late Chauncey H. Brush of Philadelphia the following bequests become operative by reason of the recent death of his widow: Chestnut Hill Hospital, $52,000; St. Christopher's Hospital for Children, Germantown Dispensary and Hospital, Philadelphia Polyclinic Hospital, College for Graduates in Medicine, Pennsylvania Hospital for the Sick and Injured, Hospital of the Protestant Episcopal Church of Philadelphia, each $10,000.

By the will of the late Josephine Borie of Philadelphia the sum of $2,000 is bequeathed to the Maternity Hospital of St. Vincent's Home and a like sum to the Hospital for Consumptives at Philadelphia and White Haven.

By the will of Henry Ungrich, Jr., of White Plains the White Plains Hospital, St. Luke's Hospital, and the German Hospital and Dispensary of Manhattan and the White Plains Nursing Association receive $1,000 each.

Obituary Notes.—Dr. SHERMAN VOORHEES of Elmira, N. Y., a graduate of the College of Physicians and Surgeons, Baltimore, in 1893, ophthalmologist and otologist to the Arnot-Ogden Memorial Hospital, and a member of the American Medical Association, the New York State and Chemung County Medical Societies, the American Academy of Ophthalmology and Oto-Laryngology, the American Rhinological Society, and the Buffalo Ophthalmological Club, died at the home of his sister in Brooklyn, N. Y., as the result of injuries received in an automobile accident last July, at which time his wife was killed, on May 1, aged 48 years.

Dr. GEORGE H. STOVER of Denver, Col., a graduate of the Denver College of Medicine in 1893, professor of Roentgenology in the University of Colorado, School of Medicine, Boulder, and dean of the school, and a member of the American Medical Association, the Colorado State and Denver City and County Medical Societies, and the American Roentgen Ray Society, died suddenly from heart disease, in Baltimore, where he had gone for treatment for *x*-ray burns, on March 25, aged 44 years.

Dr. BENJAMIN F. STURGIS of Auburn, Me., a graduate of the Medical School of Maine, Portland, in 1863, an assistant surgeon in the Nineteenth Maine during the Civil War, a former member of the House of Representatives and of the Senate of Maine, a former president of the Maine Medical Association, and a member of the American Medical Society and the Androscoggin County Medical Society, and attending surgeon to the Central Maine General Hospital, died at his home, from pneumonia, after a short illness, on March 31, aged 77 years.

Dr. JOHN MUTIUS GAINES of Hagerstown, Md., a graduate of the Jefferson Medical College, Philadelphia, in 1860, died at his home, after a long illness, on March 27, aged 77 years.

Dr. CHARLES FESSENDEN NICHOLS of Boston, Mass., a graduate of Harvard University, Medical School, Boston, in 1870, died at his home in West Roxbury, of heart disease, on April 5, aged 69 years.

Dr. LEWIS E. SAFLEY of Livingston, Mont., a graduate of the University of Illinois, College of Medicine, Chicago, in 1885, died at his home, after a long illness, on March 27, aged 54 years.

Dr. SAMUEL THOMAS CUBBAGE died at Felton, Md., on April 5 at the age of 50 years. He was graduated from Jefferson Medical College in the class of 1895. He served as clerk in the Maryland House of Representatives in the session of 1913.

Dr. DONNELL HUGHES died of pneumonia at Philadelphia on April 8, at the age of 56 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1879 and he served as assistant demonstrator of surgery in his alma mater in 1880-81, and as gynecologist to the Philadelphia Hospital in 1883-84. He was a member of the Philadelphia Pediatric Society, the Philadelphia County Medical Society, and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. JUSTIN C. ELLIOTT died at Ardmore, Pa., on April 8 at the age of 88 years. He was graduated from the medical department of the University of Buffalo in the class of 1851, and he had practised his profession in the city of Buffalo for more than fifty years.

Dr. FELIX THEBAULT RIVAILLES of Wilmington, Del., a graduate of the University of Louisville, Ky., Medical Department in 1905, died at his home from pneumonia, after a prolonged illness, on April 7, aged 77 years.

Dr. ELLERY M. WING of North Anson, Me., a graduate of the Medical School of Maine, Portland, in 1879, a director of the Somerset Hospital, Skowhegan, and a member of the American Medical Association, the Maine Medical Association, and the Somerset County Medical Society, died at his home after a brief illness, on April 5, aged 59 years.

Dr. WILLIAM JOSEPH DOUGHERTY of Beverly Farms, Mass., a graduate of the Baltimore Medical College in 1907, died at his home, after a long illness, on April 6, aged 33 years.

Dr. JOHN BENNETT TYLER of Billerica, Mass., a graduate of the College of Physicians and Surgeons, New York, in 1868, died at his home, on April 5, aged 71 years.

Dr. WILLIAM H. CHRISTOPHER of London, O., a graduate of the Starling Medical College, Columbus, in 1879, a member of the Ohio State Medical Association and the Madison County Medical Society, a former president of the latter, for fifteen years a member of the London School Board, and for some years city health officer, died at his home on April 2, aged 60 years.

Dr. SANDERS L. SWYGERT of Greenwood, S. C., a graduate of the Jefferson Medical College, Philadelphia, in 1885, and a member of the South Carolina Association and the Greenwood County Medical Society, died suddenly from apoplexy while attending a meeting of the State Medical Association at Greenwood, on April 20, aged 55 years.

Dr. JOHN PARSONS of New York, for thirty-one years connected with the Department of Health of the City of New York, died at his home on April 17, aged 73 years. Dr. Parsons was graduated from the College of Physicians and Surgeons, Keokuk, Ia., in 1864, from the Northwestern University Medical School, Chicago, in 1868, and from the Bellevue Hospital Medical College, New York, in 1875, was a veteran of the Civil War and was a member of the American Medical Association and the New York State and County Medical Societies.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

WOUNDS IN THE PRESENT WAR—REPORT ON STANDARD MEAL FOR RADIOGRAPHIC EXPLORATION—TYPHOID INOCULATION—THROAT EPIDEMIC—SEWAGE DISPOSAL—MEDICAL HISTORY OF THE WAR.

LONDON, May 1.

A FORTNIGHT ago I gave you some account of Sir A. Wright's address on wound infections. Since then he has joined with Mr. Burgham, Sir W. B. Leishman and Sir Berkeley Moynihan in producing a memorandum on the subject, which, as these gentlemen are officers in the R. A. M. service, has the appearance of an official document and certainly the importance of many such. Their object is to synopsize the experience obtained in the present war and to supplement it by setting out the chief data furnished by a bacteriological study of the wounds; further, to lay down certain broad principles of treatment for the guidance of those who have not seen the conditions prevailing in this war, or at any rate only an early or a late phase in the course of these wounds. The authors announce their intention to follow up this memorandum by others on antiseptics and on vaccines as soon as they have completed certain researches thereupon. With regard to the characteristics of wounds from projectiles, they differ greatly from those met with in civil surgical practice. Passing through the flesh the projectile leaves generally a torn, rugged track, and, if it meets bone, crevices between comminuted splinters. Mostly, too, foreign substances are carried in, as shreds of clothing or parts of tissues, and then there are, too, blood clot and effused lymph. Last but not least microbes (*a*), the streptococcus invariably present, we may say, ready to set up suppuration or erysipelas, cellulitis, or septicemia; (*b*) the tetanus bacillus, which if it grows freely and elaborates enough of its toxin, causes the disease tetanus; (*c*) the *Bacillus aërogenes capsulatus* of Welch, which will generate a gas phlegmon and a gaseous gangrene.

To prevent the grave results of the anaerobic infections the memorandum lays down that the wound should be freely opened up and carefully cleansed with antiseptics; all foreign bodies, sloughs, and blood clot (as far as possible without risk of hemorrhage) being removed. Then a very wide drainage tube is to be inserted to admit air to the interior and steps taken to promote the outflow of lymph, especially in cases where there is much laceration. When war conditions prevent surgical measures or when from the nature of the wound it cannot be effectively drained nothing should be done which could favor further infection. Thus (*a*) wounds should not be sewn up after operation—it is never certain that the projectile has not carried in microbes; plugs should not be left in to hinder free discharge; wrapping up must not be airtight; mouths of drainage tubes must be kept open, and so on. (*b*) Pending opening of the wound prophylactic measures, such as antitetanus serum injections. (*c*) Injection of vaccine containing other combined microbes—that of Welch and the streptococcus. But all such methods are only ancillary to the imperfect cleansing and drainage which may for the moment be the only possible course.

A report of a sub-committee of the Medico-Chirurgical Society (electrotherapeutic section) on a standard opaque meal for radiographical examinations of the alimentary canal was presented at a meeting on April 16. It advises that the meal (either porridge or bread and milk) should be about one-half a pint in bulk, mixed with two or three ounces of barium sulphate or bismuth oxychloride; should be taken when the stomach is as empty as possible; no aperient or other medicine within 36 hours of the first examination and if the bowels have not acted on the morning of examination an enema should be given. Precise directions for preparing the meal are laid down, but one member of the committee seemed to think them unnecessary and recommended an emulsion of bismuth carbonate 4 ounces with sugar of milk and water two hours after the ordinary breakfast without purgative or enema. Dr. Hertz said barium sulphate was cheaper than the bismuth salt and just as good, as Guy's Hospital had found, and effected a saving of £50 per annum. Flavoring was mentioned, but it was thought better to leave a free hand about this, tastes differ so much. The president hoped the proposed standard would be generally accepted for the sake of comparison of results.

In the House of Commons a series of questions have been put with reference to inoculation against typhoid. They generally represent the fanatic antis but so far they do not seem to have impressed the House or the public.

The question of selling alcoholic drinks in the refreshment rooms or at the bars has also caused some vigorous expressions of differing opinions. It was declared that the consumption has been surprisingly low. An instance is quoted of two days' consumption amounting only to the cost of 4 shillings.

Violent sore throat has been epidemic of late, and very contagious. It is so frequently followed by cerebrospinal meningitis that some are talking of it as an early symptom of that disease, probably because the organism finds an excellent soil for its growth in the fauces. The contagiousness they attribute to carriers who are unconscious of their impending illness for some days after the germ has established itself or whose constitution may successfully resist its malign influence.

The Royal Commission on Sewage Disposal has issued its final report. They were appointed in May, 1898, and during the sixteen years since they have issued nine interim reports. The last seems at a first glance to give a summary of conclusions and recommendations already discussed.

It has been decided that a medical history of the war shall be published and a strong committee has been formed to write it. The president of the committee is the Director General of the Army Medical Service.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

A PERMANENT LEPROSY BOARD—CONTAGIOUS DISEASES ON AN ARMY TRANSPORT—A WATER SHORTAGE—CHAIR OF MEDICAL JURISPRUDENCE AND ETHICS IN THE UNIVERSITY—MEDICAL GRADUATIONS—PERSONAL.

MANILA, March 25, 1915.

IN view of the recent agitation regarding the care, diagnosis, and treatment of lepers and leper suspects, a permanent board to investigate and report upon these matters has been appointed by the Secretary of the Interior. It consists of Dr. J. A. John-

ston, bacteriologist of the Bureau of Science; Dr. Mercado and Dr. Ordway, with Dr. F. Calderm as chairman and Drs. Luis Guenero and Gevasio Ocampo as honorary members. The first three members are to conduct all clinical and microscopical examinations of lepers or leper suspects, and the decision of this board is to be final. If a suspected leper is found to be negative to microscopical examination he is to be isolated under the observation of this committee so long as the latter may require. When a declared leper, after a certain period of treatment, is found to be negative both clinically and microscopically, he will not be considered as cured until two years have elapsed since the date of the first negative examination, provided that all subsequent examinations were negative for leprosy. When a patient is declared to be completely cured he is to be given a certificate to that effect, but with the understanding that he is to be subject to re-examination for leprosy at any time in his residence by the committee or other authorized persons, for the continued protection of the community. All examinations of lepers and leper suspects are to be made hereafter in the San Lazaro Hospital, with materials to be supplied by the Bureau of Science. An appropriation is asked for for the construction of detention buildings for leper suspects and for separate cooking facilities for them and for declared lepers. As some abuses have developed from the authority for special cases to receive treatment in Manila, this matter is also taken up, for many lepers are anxious to remain in San Lazaro Hospital, where they can see their friends. The leper board now proposes to limit the total number of cases in San Lazaro to 100 at any one time, and will determine the cases which should be transferred to Culion. Also private physicians have heretofore been allowed to treat leper cases at San Lazaro. Hereafter, no private physician will be allowed to treat more than one case at a time—and no case will be kept at San Lazaro more than three months under treatment unless in the opinion of the board such case demonstrates improvement. All unimproved cases are to be transferred to Culion. That this board will prove an effective agent for the handling of a very troublesome problem cannot be doubted, especially since its composition thoroughly commends it to the confidence of the Filipino people.

The transport *Sherman* which recently arrived here with a large number of troops, had a choice lot of contagious disease cases aboard, including scarlet fever, measles, and mumps. Altogether 84 cases had occurred during the voyage. The passengers were isolated, over a thousand soldiers were sent to the quarantine camp at Fort McKinley, the ship was disinfected, a new crew put aboard, and the old crew sent to Mariveles quarantine for detention. The case was of particular importance as scarlet fever has never yet gained a foothold in the Islands, and experience in Cuba and other tropical places indicates that if once established its ravages would be very fatal and extensive. Measles, also, is important to exclude, for while the disease has existed here, it tends to die out and extension results chiefly from the introduction of new strains of the disease of an originally high virulence.

After suffering from the floods of last summer Manila is now suffering from a water shortage. The rainy season, while severe while it lasted, ended two months earlier than usual and the mountain streams are unusually low. The city engineer has recommended the construction of a 100,000,000-gallon reservoir, to cost about a million pesos, to tide over such periods of emergency. In the meantime water is being pumped into the mains at Santolan from the polluted Mariguina supply. It is being treated with chlorine in the proportion of 1:1,300,000, and a constabulary guard has been established as a sanitary patrol along the banks of the river to prevent its contamination as much as possible. A general appeal to householders to limit the use of water and stop watering lawns has been made.

A new chair of medical jurisprudence and ethics has been established in the medical department of the University of the Philippines, and Dr. Sixto de los Angeles, a prominent Filipino physician who is a member of the legislature and chairman of its Committee on Public Health, has been selected for the position. He has tendered his resignation as a member of the legislature. The new position pays a salary of 4,000 pesos per annum, with the right to outside practice.

Medical institutions of learning are now graduating their annual classes. The University of Santo Tomas recently conferred the degree of Doctor of Medicine on 27 candidates. The Philippine Training School for Nurses has just graduated 57 nurses, of whom 10 have announced their purpose of taking up sanitation and district nursing and of taking a post-graduate course in the school to that end. The willingness of such a number of nurses to leave Manila is very encouraging, as heretofore provincial work seemed unattractive to them.

Colonel Charles M. Gandy of the Army Medical Department, has recently reported here for duty as chief surgeon of the Philippine Department. He is an old-timer here, this being his third tour in the Islands, and he finds here many old friends.

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 6, 1915.

1. The Tuberculosis Work in Connecticut. D. R. Lyman.
2. A Rare Type of Bladder Ulcer in Women. G. L. Hunner.
3. Epididymotomy for Acute Epididymitis as an Out-Patient Procedure. A. H. Crosbie and A. Riley.
4. A Study of Leprosy. J. A. Honeij.
5. A Case of Autotransplantation of Bone for Nasal Deformity Due to Syphilis. L. Arkin.
6. Myxedema Simulating Nephritis. W. D. Reid.

2. Rare Type of Bladder Ulcer in Women.—G. L. Hunner describes a group of cases in which the lesion differs in many respects from the so-called Fenwick ulcer which has been the type heretofore designated as simple ulcer. The ulcers have been found in women, but probably also occur in men. No cause for the lesion could be learned from the history. The ulcers have all been found in the vertex or summit or free portion of the bladder, this being one important distinction from the simple solitary ulcer of Fenwick which is found on the base or fixed portion of the bladder. An important characteristic is the extremely slight mucous membrane change found in certain periods of the ulcer. While cystoscopy usually reveals only one inflammatory spot, there may be two or three granulation areas near together or somewhat separated, and operation usually reveals a more extensive area of inflammation than is appreciated by cystoscopy. The ulcer area may be easily overlooked and the attention may first be arrested by an area of dead white scar tissue. In the neighborhood of this scar-looking area one sees one or more areas of hyperemia which, on being touched with a dry cotton pledget or with the end of the speculum,

bleed and first show their character as ulcers. In other cases, or perhaps at subsequent examination on the same case, the ulcer may be well defined as a deeply red area with granulating base and with congested vessels surrounding the area. In none of these cases has an individual ulcer area been more than a half centimeter in diameter, although two or three such ulcers have at times been grouped in a larger inflammatory area. At certain examinations the central inflammatory area is found surrounded with a fairly wide area of edema. The cystoscopic picture reveals the granulation surface as on the same general level as the surrounding mucosa; in other words, one would describe these ulcers at cystoscopy as being superficial. A diagnosis of this peculiar form of bladder ulceration depends ultimately on its resistance to all ordinary forms of treatment. The best treatment is excision through a suprapubic extraperitoneal route.

3. **Epididymotomy for Acute Epididymitis.**—A. H. Crosbie and A. Riley state that epididymotomy invariably gives immediate and permanent relief of pain. There are no recurrences after operation unless there is a fresh infection. The course of the epididymitis without question is shortened, as is also the urethritis. Patients are probably less likely to be sterile. Treatment of the urethritis can be begun much earlier. The operation can be safely and successfully done in an outpatient clinic under local anesthesia.

6. **Myxedema Simulating Nephritis.**—W. D. Reid reports a case of this condition in a woman, aged sixty-nine years. The case in its final state resembled chronic nephritis mostly by the general aspect of marked edema and the small trace of albumin often present. Among the strong points aiding in the correct diagnosis were the absence of hypertrophy of the heart, of increased blood pressure, of casts or of nephritic changes in the fundi. The trophic changes in the hair, teeth, skin, and nails; the generalized edema, with but slight pitting; the erythematous patches on the cheeks, and the hebetude, deafness, changed voice, chilliness, and absence of perspiration—were all consistent with the diagnosis of myxedema. The history of severe hemorrhage after extraction of a tooth was suggestive of thyroid deficiency. The result of thyroid therapy was conclusive.

New York Medical Journal.

May 8, 1915.

1. The Radical Cure of Errors of Refraction. W. H. Bates.
2. Urinary Lithiasis. V. C. Pedersen.
3. Angina Pectoris Successfully Treated. S. Tousey.
4. The Problem of Inebriety. E. H. Williams.
5. Nephrolithiasis. G. E. Macklem.
6. Night Terrors. A. Stern.
7. The Treatment of the Sac in Inguinal Hernia. A. F. Sellenings.
8. Proper Factory Ventilation and Its Effects on the Worker. H. Laveson.
9. Cerebral Hemiplegia, a Sequela of Diphtheria. E. M. Auer.
10. A Possible New Test for Cerebrospinal Fluid. B. Lemchen.

1. **Radical Cure of Errors of Refraction.**—W. H. Bates maintains as the result of his animal experiments that the lens is not a factor in the production of accommodation. Hypermetropic refraction is always produced by a strain of two or more of the recti by electrical stimulation or advancement, and is always prevented by relaxation of these muscles by tenotomy. Myopic refraction is always produced by a strain of two obliques and is always prevented by relaxation of these muscles by tenotomy. Atropine prevents, when injected deep into the orbit, the experimental production of errors of refraction. The cause of all errors of refraction is a strain to see. The cure is accomplished by relaxation, which is secured by central fixation. The subjective symptoms of central fixation include the ability to see one part of a letter or other object better than the rest of it; maximum vision is thus obtained and the eyes feel at rest. The objective symptoms indicate no error of refraction by simultaneous retinoscopy and no corneal astigmatism by the use of the ophthalmometer, while the optic axes are parallel, with no squint or muscular insufficiencies (heterophoria). The subjective symptoms of eccentric fixation include the ability to see letters or parts of letters better outside the point regarded; the vision is always defective; monocular polyopia is frequent; and pain and fatigue are usually felt. The objective symptoms always indicate an error of refraction by simultaneous retinoscopy, usually some corneal astigmatism by the use of the ophthalmometer; the optic axes are seldom parallel, squint heterophoria, or muscular insufficiencies being present. The refraction of newborn children is not always permanent. All errors of refraction are produced by muscular action and are usually acquired. Observations of the lensless human eye indicate that the absence of the lens does not prevent the production of errors of refraction by a strain of the extrinsic muscles. The optimum is a letter or some other object which can be regarded with a minimum of strain, and when looking at such an object the patient has no error of refraction by simultaneous retinoscopy. In treatment, the author would discard glasses as soon as possible. He would educate the patient in the fundamentals and stop twitching of the eyelids by pressure on the sides of the base of the nose. Central fixation is obtained by eye training with the aid of the Snellen test card at twenty feet and by alternately practising central fixation with a dot or a fine point at twenty inches or nearer. The results are said to be good. After central fixation is obtained, all errors of refraction are cured.

5. **Nephrolithiasis.**—G. E. Macklem states that though the presence of renal calculus is most frequently noted between the ages of twenty and thirty years, it is encountered at any age, uric acid infarcts having been found in the newborn. The precipitation of salts in the urine is usually preceded by a catarrh of the renal tubes, brought about by a highly acid condition of the urine. Calculi are more frequently encountered in the right kidney than in the left, owing possibly to its being more freely movable, and stones in kidney and ureter of the same side, and stones in both kidneys and ureters are not infrequent. Pain constitutes the most prominent symptom in the average case; the severity of this pain depends upon the roughness and movability of the stone, rather than upon its size. The extent of the disease should never be graded by the lack or presence of symptoms of unusual severity, especially pain, as cases are very frequent in which the subjective symptoms are few or are replaced almost entirely by those of a reflex character, and yet an almost total destruction of the kidney may have taken place. In practically every case blood cells can be found in the urine immediately upon the cessation of the attack of colic. Cystoscopy is not indicated in this class of cases, until the diagnostician is positive that the case is not one of renal tuberculosis in which the bladder has not become involved, as it occasionally gives rise to traumatism that is sufficient to act as a predisposing cause of vesical tuberculosis where the bladder was free from involvement before the examination. The medical treatment of this condition can only be symptomatic and palliative, but should be given a fair trial unless the case becomes an emergency one.

Journal of the American Medical Association.

May 8, 1915.

1. Nutrition and Growth. L. B. Mendel.
2. The Use of Hyperemia in the Post-operative Treatment of Lesions of the Extremities and Thorax. C. E. Tennant.

3. Some Unusual Changes in the Visual Fields, the Result of Vascular Lesions in the Brain and Optic Nerves. W. C. Posey.
4. Tetanus and Antitetanic Serum, with Note on the Complications and Late Death in Tetanus. E. E. Irons.
5. Non-Tuberculous Pulmonary Suppurations. Their Medical and Surgical Relations. M. Manges.
6. The Application of the Van Slyke Aminonitrogen Determination to the Diagnosis of Cancer. O. Lowy.
7. The Necropsy as a Public Service. L. B. Wilson.
8. A Comparison of the Swift-Ellis and Modified Ravant Intraspinal Injections for Syphilis of the Nervous System. Report of Twelve Cases. L. D. Smith.
9. The Treatment of Pellagra by Autoserotherapy. E. E. Palmer and W. L. Secor.
10. The Emetine Hydrochloride Question in the Treatment of Periodontal Diseases (Pyorrhea Alveolaris). T. S. Smith.
11. Anatomic Nomenclature. A. C. Eycleshymer.
12. Case Reports of Surgery of the Spleen. E. M. Prince.
13. Lead Neuritis from Cosmetics, with Report of Two Cases. L. R. Sante.
14. Clinical Observations on the Contractility of the Heart. M. B. Leviton.
15. Angioma Racemosa of the Pia, with Epileptoid Convulsions of the Jacksonian Type. T. J. Orbison.
16. Infantile Hemiplegia. A Case with Unusual Onset and Obscure Etiology. H. W. Wright.
17. Ovarian Carcinoma in a Child Aged Eleven. Van B. Knott.
18. (1) A Folding Paper Demonstrating Case for Bacterial Cultures. (2) A Paper Inset Animal Necropsy Tray. M. R. Smirnow.
19. Retaining Clamp for a Two-Piece Transfusion Tube. B. M. Bernheim.
20. A Mouth Speculum. H. W. Woodruff.

1. Nutrition and Growth.—L. B. Mendel states that growth receives its impetus in a general way from two distinct sources: the internal factor or inherent growth impulse, and the external factor, which includes, among other agencies, the food supply. The author confines his discussion to the latter. He and T. B. Osborne studied the rôle of the individual proteins and amino-acids in growth by giving an artificial ration of what they have termed "protein-free milk." This consists of the dried residue of milk after removal of fats and proteins. It contains, aside from traces of unremoved proteins, all of the milk sugar and inorganic elements along with small amounts of incidental components, most of which remain unknown, yet evidently furnish an essential non-protein factor to the diet. On mixtures of "protein-free milk," sugar, starch, and purified fats along with selected isolated proteins, young white rats (and in some cases mice) have grown to maturity and have in turn produced young even in the third generation. The catalogue of the individual proteins with which, in suitable concentration, normal growth has been secured, at least for considerable periods of observation, if not until completed maturity, includes: proteins of animal origin—casein (milk), lactalbumin (milk), ovalbumin (hen's egg), ovovitellin (hen's egg); and proteins of vegetable origin—edestin (hemp-seed), globulin (squash-seed), excelsin (Brazil-nut), glutelin (maize), globulin (cotton-seed), glutenin (wheat), glycinin (soy-bean), cannabin (hemp-seed). Failure to induce growth has attended the trials with legumelin (soy-bean), vignin (vetch), gliadin (wheat or rye), legumin (pea), legumin (vetch), hordein (barley), conglutin (blue or yellow lupin), gelatin (horn), zein (maize), and phaseolin (white kidney bean). Both lysin and tryptophan are necessary as constructive units in growth. The author concludes that it is not unlikely—to speak conservatively—that there are at least two "determinants" in the nutrition of growth. One of these is furnished in the "protein-free milk" which insures proper maintenance even in the absence of growth. When this was fed the authors have maintained rats without growth for very long periods. Without this "determinant" (as, for example, in diets of isolated food substances containing artificial substitutes for "natural" protein-free milk) the special components of butter fat or cod-liver oil or egg fat induce only limited gains at best. Another "determinant" is furnished by these natural fats (or fractions more recently prepared therefrom by Osborne and Mendel or the saponification product of McCollum and Davis). Either determinant may become "curative."

4. Tetanus and Antitetanic Serum. — E. E. Irons notes that from animal experiments and the results in veterinary medicine it is evident that antitetanic serum will save animals in which tetanus has already developed. Clinical observations and carefully compiled statistics of tetanus in man indicate that the course of tetanus can be modified and in many instances life saved by proper use of antitetanic serum. The frequent delay in giving antitoxin, after symptoms of tetanus have appeared, the complications of sepsis in lacerated wounds, the occurrence of late death from indirect complications, and the totally inadequate methods of use of serum have served to cast doubt hitherto on the curative value of antitetanic serum. The frequently employed method of giving small doses subcutaneously every few hours and gradually increasing the dose as the symptoms advance disregards entirely the pathogenesis of the disease, is wasteful of an expensive remedy, and is usually without therapeutic result. If the patient is seen early, before fatal intoxication of the central nervous system has already occurred, prompt neutralization of all free toxin in the circulating blood by large intravenous injection, and the neutralization of a part of the toxin already in the central nervous system by intraspinal injection, combined with the judicious use of sedatives and other indicated medical and surgical measures, will save a considerable number of patients who would otherwise die.

7. The Necropsy as a Public Service.—L. B. Wilson points out that some physicians entirely lack an interest in necropsies because they are not interested in accurate vital statistics and in problems of heredity in disease, or because they do not appreciate the value of the necropsy in the correction of errors in diagnosis. Possibly some also hesitate to bring their diagnoses or operative procedures to the test of publicity in the necropsy. Most intelligent laymen will respond to the argument that they ought to know the weaknesses of the members of their own families, but this argument is frequently omitted or greatly subordinated by the physician proposing that a necropsy be made. Usually necropsies are asked for as a favor to the physician, and rarely offered as a favor to the relatives. The policy of the desirability of checking diagnoses and the results of operative procedures by the necropsy findings and of presenting to the relatives the desirability of their knowing the exact cause of death and the presence of intercurrent diseases has been followed out in the Mayo Clinic for many years. As a result, during the triennial period 1910-1912, 626 deaths, 512 necropsies were made, or 81.8 per cent.; in 1913 there were 269 deaths and 227 necropsies, or 84.4 per cent.; in 1914, 293 deaths and 258 necropsies, or 88 per cent., while to date (March 17) in 1915 there have been seventy-three deaths with seventy-three necropsies, or 100 per cent.

13. Lead Neuritis from Cosmetics. — L. R. Sante states that it has long been known that the presence of lead salts, chiefly lead carbonate, in face powder may cause every form of chronic lead poisoning, including gastroenteritis of obscure origin, jaundice with cramp-like abdominal pain, and the characteristic peripheral neuritis. The author reports two cases illustrating the last condition.

14. The Contractility of the Heart.—M. B. Leviton concludes that the contractility of the heart muscle varies within wide limits, depending on the pathological process. This can be fairly well estimated clinically and is a valuable differential and prognostic sign. The findings on auscultation and percussion vary after exercise. Heart muscle may react in three ways: in functional and early lesions the heart boundaries may on exercise return immediately to normal, bruits disappear, and

normal tones at once replace them. In moderately severe cardia) and particularly cardiorenal) cases the boundaries may return to normal, not immediately, but after rest in bed. (The heart may be enlarged and yet retain elasticity.) Should a heart respond at once, even moderately, one may expect at least better response after rest in bed. The heart remains permanently enlarged and inelastic not only after the exercise test but even on prolonged rest in bed.

The Lancet.

May 1, 1915.

1. Wound Infections and Some New Methods for the Study of the Various Factors which Come Into Consideration in Their Treatment. Sir A. E. Wright.
2. Ileus Duplex (Inflammatory Enterocolic Ileus). W. Sampson Handley.
3. Radioscopy with the 3rd French Army. A. W. Mayo-Robson. With a Note by Dr. Haret and Dr. Schlesinger.
4. Blackwater Fever. R. W. Burkitt.
5. The Theory of the Telephone Probe. R. G. Canti.
6. The Significance of Nuclear Variations of Neutrophile Leucocytes (Arneth Counts) in West Africa. J. W. Scott Macfie.
7. Facial Plastic Surgery, Laryngology, and Stomatology, in French Military Hospitals. J. Dundas Grant.

1. Wound Infections.—Sir A. E. Wright devotes his fourth and concluding contribution on this theme to the subject of vaccine therapy. The prophylactic employment of vaccines is not only the best from the theoretical viewpoint but is also the method which in practice gives the maximum of advantage. As regards the prophylactic inoculation of "antisepsis vaccines" the author believes that if used in combination with physiological drainage one may hope to stave off infection in a fairly large proportion of cases. In those forms of infection occurring in connection with projectile wounds, vaccines give exactly the same dramatic effects as in the small wounds of civil life, the only difference being that when the irruption has been beaten back one has in the case of projectile wounds still the original focus of infection to deal with, and unless one improve the condition of the wound one must always be upon guard against a renewal of the irruption. When there is in a wound quite unobstructed mechanical drainage (such, for instance, as is proved by amputation without flaps) there are from the point of view of the immunologist conditions exactly parallel to those which obtain when microbes make a first irruption into healthy tissues. In other words, one has here, and probably also where there is good physiological drainage, brought to bear upon the microbes an ample force of phagocytes in conjunction with a rapid, as the case may be, percolating or outflowing stream of lymph. As a consequence, vaccines give in these cases results which are so strikingly favorable as to arrest the attention of every beholder. It is not unreasonable to think that the "antisepsis vaccines" might aid the surgeon in his conservative management of imperfectly drained wounds. In septicemias supervening on wound infections nothing can as yet be expected of the antisepsis vaccines beyond their possible prophylactic value.

2. Ileus Duplex.—W. Sampson Handley proposes this name for a condition in which as the result of a pelvic peritonitis there occurs obstruction of the intestine at two points: (a) in the ileum at a point about 3 feet above the ileocecal valve, and (b) in the sigmoid colon at the junction of its iliac and pelvic portions. These are the points at which the ileum and colon respectively cross the brim of the true pelvis. Peritonitis of the serous surface of the intestine, when it reaches a certain degree, is accompanied by complete paralysis of the involved segment of intestine. General peritonitis means general paralysis of the intestine, and is accordingly not amenable to surgical treatment. But if the peritonitis is partial, though unlimited by any adhesion barrier, certain segments only of the intestine are paralyzed. If the paralyzed segments can be thrown out of circuit by surgical measures recovery is in such cases possible and even likely. Unfortunately in these cases the surgeon's hand has been paralyzed by a facile assumption based upon the general abdominal distension that general peritonitis is present. The observations the author has made in the operating theater and the successful results of his cases show conclusively that septic ileus of pelvic origin is not accompanied by general peritonitis when it first comes under observation, and that it is perfectly amenable to surgical treatment, subject to a clear recognition of the fact that two segments of the bowel are involved and that accordingly two obstructions require to be circumvented.

British Medical Journal.

May 1, 1915.

1. Post-Graduate Teaching of Surgery. R. Morison.
2. Clinical Notes on Epidemic Cerebrospinal Meningitis: with Observations on Treatment. A. Gordon Gullan.
3. Further Remarks on the Mixed Typhoid + Paratyphoid A + Paratyphoid B Vaccine. A. Castellani.
4. A Comparison Between Some Physiological and Pathological Conditions. J. Barcroft.
5. On Wound Infections; and on Some New Methods for the Study of the Various Factors which Come into Consideration in Their Treatment. Sir A. E. Wright.

3. The Mixed Typhoid, Paratyphoid A, and Paratyphoid B Vaccine.—A. Castellani states that the mixed typhoid + paratyphoid A + paratyphoid B vaccine may be prepared according to various methods. The simplest mixed vaccine consists of an emulsion of typhoid + paratyphoid A and B bacilli killed by heat, or by adding ½ per cent. carbolic acid without heating, and standardized so that 1 c.c. contains approximately 500,000,000 of typhoid bacilli and 250,000,000 each of paratyphoid A and B. Of this vaccine 0.5 and 0.6 c.c. is given the first time and 1 to 1.2 c.c. the second time, a week later. The mixed vaccine is harmless, does not give a severer reaction than simple typhoid vaccine, and the inoculated persons develop protective substances for the three diseases. In the author's opinion, in countries where in addition to typhoid fever paratyphoid A and B occur, the mixed vaccine should be used as a matter of routine instead of the simple typhoid vaccine. This has been done in Ceylon since 1905 with good results.

Berliner klinische Wochenschrift.

April 5, 1915.

Digestive Disorders Due to War Bread, and Their Treatment.—Von Noorden admits that on all sides medical men have been listening to complaints of all kinds about the rye-potato war bread. It is true that such complaints have been for the most part silent, *i.e.*, went no further; still many of them have reechoed to the present time and it is very evident that numerous bakeries have been at no pains to make war bread palatable and digestible. Those individuals who have organic diseases of the digestive organs are not included, because at most with them it is a matter of wheat-rye rolls or toasted bread, which are fully equivalent to antebellum wheat bread. The rye-potato bread tends to set up, in those of sound as well as of weak digestion, *diarrhea*—as a result of fermentation which still persists in the feces. The subjects are naturally heavy eaters of white bread who consume to-day 400 to 500 gm. daily of war bread. Such individuals bolt their food, and all they need is to cut the daily ration in half and masticate thoroughly; as a result of which their troubles rapidly disappear. A few of these sufferers were victims of latent achylia gastrica. The second disorder is hyperacidity of the stomach in subjects with normal secretion under the old régime. We can only

explain these cases by the unusual pabulum as a result of which the sensitive stomach reacts by secretion, having a greatly increased content of acid. As it is hardly expected that these stomachs will learn to tolerate the new diet, the best we can do is to administer small doses of sodium bicarbonate until war bread is a thing of the past. The third disorder noted is flatulence, by far the most common result of eating war bread. We see this condition spread epidemically as if by imitation (mass-suggestion). These individuals as a rule have become addicted to the finest kinds of wheat flour products, which require little mastication. Hence, they do not sufficiently chew the coarse rye bread especially when it is fresh. The chyme, with fragments of bread, cannot be dealt with by the pancreatic amylase. Shreds of bread thus become a culture bed for intestinal flora; while the cellulose itself, so largely present, readily ferments. Nevertheless, tolerance develops in these subjects which in part explains why original complaints cease. The author regards blood charcoal as an extremely valuable remedy for this condition and uses it for several weeks in succession in large doses. The fourth disorder from war bread, to wit, constipation, is rare, and due perhaps to other factors. Instead of treating it we seek to correct it by giving foods known as "feces formers."

Cerebral Physiology and Its Services in War.—Rothmann refers naturally to the abundant opportunities for the study of cerebral localization from the results of wounds involving the cortex, etc., with especial reference to the more exposed frontal area and speech centers. For example recently an infantry man, aged 37, received a tangential wound of the left lateral aspect of the frontal region. Eight days later a peculiar akinesia of the right arm was noticeable. In attempting to grasp anything he miscalculated in certain directions, and there was also a suggestion of agraphia. The assumption was of an injury of the second frontal convolution. The patient showed confusion and failure of memory. After enlargement of the wound and removal of a speculum of bone, the patient instead of improving, became worse and a motor aphasia developed. The dura was then freely exposed and incised, and a cavity opened in the second frontal convolution which contained a blood clot and cerebral débris. First, the akinesia and speech disturbances disappeared, and next the sensorium disappeared. There still remained an uncertainty of grasp, the hand being carried too far to the right. This condition usually points to a lesion in the second convolution, provided certain phenomena are absent, and the more decidedly if agraphia and akinesia coexist.

Münchener medizinische Wochenschrift.

March 30, 1915.

Typhoid Immunization and Allied Subjects. — This number of the *Wochenschrift* contains no less than nine papers on these subjects. Von Tabora, writing on the treatment of typhoid at the front, alludes to progressive feeding as the best course, condemns baths and approves of a carefully devised plan of pyramidon medication with cool ablutions. Too low blood pressure is antagonized by digitalis. The resulting tonicity of the arteries serves as a prophylactic in dangerous complications. The author's mortality was 4.7 per cent., the low figure attributable largely to the use of digitalis. The socalled cumulative effects of the latter may or may not be visible in the persistent action of the drug long after its suspension. Rhein, of the same service, sought to abort typhoid by intravenous injection of dead bacilli. No bad effects were seen and in about half the material an abortive influence was noted, as estimated by a number of criteria. Mathes and Rannenberg have long been at work on a digestive product of typhoid bacilli. Pepsin was used at first, and more recently trypsin, while nothing could be done with pepsin products, trypsin has been shown to produce digestive products which can act like a vaccine. It is thermastabile, free from bacilli and gives a bacteriolytic immunity. Toenniessen reports on prophylactic immunization of 1,780 individuals, each of which received three injections. In the great majority the general reaction was slight, in the rest sharp. The reaction came on either after the first or second injection, never after the third. In two cases of general reaction venous thrombosis developed, exactly as in true typhoid. It may be that the action of living and dead bacilli is in this respect the same. Such reports are extremely rare and the patients soon recovered without permanent injury. There were two other patients inoculated in the incubation period. One died of a profuse intestinal hemorrhage, the source of the latter being ordinary typhoid ulcerations. The natural explanation of this case is that inoculation came too late to head off the disease. However, the author feels obliged to discuss in advance any claim that the injection could have contributed to the fatal, incoercible hemorrhage. This patient had received two injections, the last having been negative. The second was very promptly followed by the fever, as often happens in immunization. The case at present is unique and further observations of the same nature will be required to solve the mystery. The other patient was immunized while in the midst of an incipient typhoid. He received three injections, the last of which caused a severe reaction, the case ending fatally. Autopsy showed that he had been suffering throughout from a paratyphus fever. The part played by the injections is obscure. Such cases cannot be attributed to the direct action of the vaccine. Weichardt of the same clinic states that certain subjects are naturally abnormally sensitive to the typhoid endotoxins. He emphasizes that there must be technical improvements all along the line in antityphoid immunization. In peace material certain doubtful subjects can easily be weeded out, but soldiers already represent selected material. Schlesinger has immunized 1,340 subjects and makes careful analyses of the local and general phenomena produced. Several weeks must elapse before patients are immunized, and the protection may be short lived. But if typhoid develops after vaccination it is milder rather than more severe than the average. The chief duty at present is to prevent the more disagreeable concomitants of inoculation. Loewenfeld describes a rapid method of bacillary diagnosis. Several such are mentioned, all of which depend upon rapid blood cultures with special resources. The fact of previous inoculation does not interfere with this kind of test, as it does often with the Widal agglutination, and the result is arrived at more promptly.

Münchener medizinische Wochenschrift.

April 6, 1915.

Poisoning with "Gas Bombs."—Lewin states that private communications have increased in regard to the necessity for troops to inspire explosive gases. The whole matter resolves itself into the toxic action of carbon monoxide. Research has shown abundantly that no other known toxic substance has so great a range or variety of toxicity. It exhibits a malevolent destructive energy toward everything which lives; the injuries which it causes are functional, damaging both mind and body. It is an ingredient of explosive gases, but to what extent? The laboratory work of the au-

thor and Poppenberg has shown that the gas given off in picric acid explosions is 61.05 per cent. carbon monoxide; while in trinitrotoluol it is 57.01 per cent. We may contrast these figures with the less than 1 per cent. of CO in coal dust and the 6 per cent. in illuminating gas. A percentage of ¼ of 1 in the atmosphere greatly damages the red corpuscles, 60 per cent. of hemoglobin being chemically altered. Thus explosions in mines in which the gas produced is rich in CO are deadly, but only because the miners cannot reach a lighter and pure stratum of air. In cases of fire damp this gas has killed at a distance of several miles. In warfare enormous amounts of CO are set free in "free air," but it is a great error to assume that the latter renders the gas harmless. Powder gas is sometimes evident in wounds, the blood of which shows the characteristic changes due to CO. Powder gas contains from 3 to 10 per cent. of the latter. The affinity of CO for red blood cells is 210 times as large as that of oxygen. Men also succumb to CO in sea fights. Experiments were once carried out by bombarding old ironclads within which dogs had been placed, with no intention of injuring them. The gases set free caused functional traumatisms, such as loss of memory of a retrograde character. Dogs failed to recognize their masters. Apathy, disorientation, and disturbances of special senses were also noted. Similar isolated experiences have been seen in man.

Fatigue and Exhaustion. — C. Jacobi refers to war conditions, as a result of which one man persists in his efforts and becomes a temporary hero while another collapses and is regarded perhaps as a quitter. Some of the latter, however, may have been half-starved when they were called upon while others may have been undernourished—even tuberculous. However, exhaustion means more than a high degree of fatigue. A difference obtains here in regard to protein and carbohydrate insufficiency in utilization. If ordinary energy food (carbohydrate), is not available the organism must draw upon protein food, and protein tissues, for energy supplies. In other words muscular tissue is consumed to supply heat and energy. This means exhaustion, structural and functional, and anything short of this situation may be conceived of as some degree of simple fatigue. The author is throughout at much pains to discriminate between the highest degrees of fatigue and exhaustion. The former appear to be associated with a particular condition of the circulation, which in theory should respond to stimulation. The milder degrees of fatigue may be offset by the use of the caffeine substances used under the form of coffee, tea, cocoa, kola, etc. These stand in close relationship to the xanthin group. From another angle, the vascular indication may be filled by suprarenin and hypophysin.

Deutsche medizinische Wochenschrift.

April 1, 1915.

German Army Bread.—On March 6 at the Hygienic Institute, Berlin, a number of eminent men discussed the newer developments along the line of bread economics. Among those present were Rubner, Flügge, Klemperer, Ewald, Zuntz, von Noorden, Baginsky, Rosenheim, Albu, Boas, A. Schmidt, Strauss, Magnus-Levy, Neumann, and numerous others. All pertinent branches of science and art were fully represented. At the close of the discussion Citron stated that the majority of those present had agreed that the recently legalized wheat bread was unacceptable to a small number of patients with gastroenteric affections. The bread in question is 90 per cent. wheat to 10 per cent. rye. Granting that in saving a certain amount of wheat the rye addition works harm to a certain number of people, Citron states that rolls which contain 67.5 gm. of pure wheat flour will not only save so much wheat, but will not irritate the gastroenteric tract. At the same time there is no violation of the law. This is only a suggestion, based on the fact that the 75 gm. roll is made of mixed flour. Naturally, the patient loses 7.5 gm. of each roll, but this loss he can endure. Michaelis condemns rye-flour-potato bread outright. Cardiac and gallstone subjects, and the aged, bear this badly, on account of the flatulence caused. He questions at present the need of wheat flour economy; but as soon as this need is demonstrable, the substance should be saved up for the sake of the invalid. Fürbringer believes that wheat and potato flour make a better bread than wheat and rye flour. Gottstein refers to the part played by home baking in the manufacture of war bread. Should the regulation bread not agree it is provided by the law that home-made bread may be obtained from the community. Boas discusses a bread made of potato flour and skim milk which makes up in availability that which it lacks in palatibility. The gastroenteric disturbances should not be ascribed to diet alone, but to army life in general. Flügge, the chairman, mentions real and imaginary patients in connection with diet. It is the business of the army surgeon to discriminate here. This author, like numerous others, knows nothing of a real shortage of wheat at present. Germany used to be exposed to this contingency but this is not necessarily the case at present. In fact the rye, rather than the wheat, may need conservation. A wheat consumer cannot yet be shown to be a traitor to his country; but a rye flour consumer may already be a dyspeptic. Ewald states that potato flour enters into the composition of so-called "aerated bread" in England, and much more fully than in any of the German war breads. He ate some of this bread when in England and has even fed it to the sick and none objected. The home-made bread of the United States is a simple affair and can be readily made by German housewives. Kuttner gave the standardized war bread to hyperchlorhydrics and achlorhydrics; it disagreed in both cases, although no reason could be assigned. The hyperchlorhydric suffered mostly in the stomach, the achlorhydric in the bowels. Probably the very small pores of the war bread have something to do with it. The author and Loeb made a research into the digestibility of war bread by pepsin and trypsin, and have also used the same bread in trial breakfasts. In the artificial experiments the new and old breads show no difference in digestibility. But in trial breakfasts the chyme from army bread is much more lumpy and frothy than that from ordinary bread. Umber mentioned a very aggravated series of cases of organic stomach disease in which the army bread was well tolerated. He ascribes this result chiefly to good baking. Schmidt mentioned the great toleration of the gastroenteric tract to nutriment of all kinds; notwithstanding which a certain number of subjects known as chronic dyspeptics could not use army bread without both subjective and objective disturbances. Rubner states that there have been many complaints of army bread, but that he has yet to see a victim of it. We must not forget, however, that ordinary bread is often poorly baked. Rye bread in general gives off butyric acid in the intestine. The socalled coarsely milled wheat, asserted to contain valuable ingredients, tends to escape by the bowel in the form of indigestible cellulose. Baginsky insists that in many ailments of the gastroenteric tract with their secondary cardiac and renal disorders only the very finest wheat flour should be used. Albu claims that for the healthy, army bread is sufficient.

Insurance Medicine.

INSURANCE OF CHRISTIAN SCIENTISTS.

To the Editor of the Medical Record:

Sir:—Should we not enter protest against the issuance of life insurance policies to Christian Science believers? It stands to reason that individuals who will not seek help in early affections of the heart, lungs, or kidneys, will allow their condition to go on until they are beyond help. As a consequence the rest of the policy holders must suffer for their neglect.

My plan would be to insert a clause in the policy which makes the granting of the same dependent upon the employment of medical help in time of need.

Barnet Joseph, M.D.

Operations on the Gall-Bladder in Relation to Life Expectancy.—Dr. W. S. Harpole, Medical Director of the Old Colony Life Insurance Company, Chicago, in a paper read before the American Life Convention, discusses operations on the gall-bladder in relation to life expectancy. That there has been an increasing frequency of operations on the gall-bladder, he says, is very evident to all. Everyone has had patients undergo cholecystostomy for indications that would not have been recognized fifteen years ago. He has secured no figures in percentages of increase, although he has made an effort to do so, but no surgeon or hospital has given him figures that would show the percentage of increase relative to other operations. The best he has obtained is from W. J. Mayo, who says in a personal communication: "In going over our statistics I find that the growth of gall-bladder surgery during the past seven years has been very great, increasing from 421 operations in this clinic in 1907 to 981 operations during the year 1914." There are undoubtedly two reasons for the increase of operations on the gall-bladder. First, the more recent knowledge that cholecystitis is sometimes the cause of disease in other organs, as diseases of the heart, the kidneys, the pancreas, the nervous system, and of systemic conditions as high blood pressure. Thus many operations are done without sufficient evidence of gall-bladder disease and only with the hope that exploration of this viscus may reveal a hidden focus as the cause of the distant trouble. Secondly, the technique of these operations has so improved that drainage of the gall-bladder is simple and a relatively safe procedure.

The increase in the number of cholecystic operations brings many more cases to the attention of life insurance companies because of the increased number of operations done and because more are done on men than formerly. In former times cases showing unmistakable gallstone colic were hardly within the limits of insurability. The Medico-actuarial Investigation shows that those who gave a history of two or more attacks of gallstone colic were among the most hazardous risks, giving a mortality of 195 per cent. of the expected. There are only three physical states and three occupations listed in this investigation that show a higher mortality. The six classes showing greater mortality are: (1) Intemperate habits at indefinite times in the past without treatment, 205 per cent. of the expected mortality. (2) Pulse rate over 100, 205 per cent. (3) Working miners, surface miners, 208 per cent. (4) Young men, stone cutters, 214 per cent. (5) Working miners, underground, 226 per cent. (6) More than 50 per cent. overweight, 228 per cent. Reports show that the prognosis of the operative gallstone case is fair, but the studies have covered only short periods of time, and observations in the next twenty years will be enlightening. After surveying the status of operations on the gall-bladder, the writer brings up the subject of prognosis and the question of what attitude must be taken with regard to operative cases. Only two authorities of recent years are found who have made rules or arbitrary limits for these cases. Homer Gage, doubly qualified to speak as he is a surgeon in large practice and medical director of a large company, gives his conclusions in gallstone cases as follows: "In all cases it is, of course, essential that a very full and accurate statement of the conditions found at the time of the operation and the condition of the applicant's health since the operation should accompany the application. If no unfavorable conditions were found at the operation and no signs of recurrence have since been observed, it would seem that after two years a proposal for insurance might be favorably entertained whether the gall-bladder was removed or not. But if the operation were upon the common duct, the interval should be longer." The second opinion is that of Julius Flesch, who says, "A simple cholecystostomy with evacuation of the gall-bladder is no assurance that gallstones, empyema, or cholecystitis will not return. If the radical cholecystectomy is done and during the operation no changes in the ductus choledochus are found and the liver is found of normal size, and after the operation an interval of at least three to five years has passed the application may be considered. The writer's own conclusions in the main agree with the conservative attitude of Flesch.

Complications of Infectious Catarrhs.—Dr. R. A. Young points out that those who have had any experience of vaccines in the treatment of organisms in the respiratory tract know how extremely difficult it is to get rid of them, and therefore some of these repeated attacks of so-called influenza may be reinfections by an organism of which the individual has been the carrier, or they may be due to a succession of different organisms causing successive attacks. The fact that the influenza bacillus is so rarely found nowadays seems to show that there is for the time being, at any rate, a temporary immunity. One point which should be considered is the importance of the cardiovascular complications of infectious catarrhs. Young considers that many of the so-called examples of cardiac over-strain supposed to result from athletics and from over-exertion are really only the result of too early exertion, too early indulgence in games, after one of these infectious catarrhs.

From an insurance point of view there are two facts to be considered. First, what should be done with an individual who comes with a history of a recent attack or who has a catarrhal attack at the time of examination? Secondly, if we get a history of repeated attacks of influenza, obviously it should direct special attention to the condition of the heart and lungs, but is it justifiable even with a history of repeated catarrhal attacks to impose an extra premium upon the risk, apart from finding some demonstrable change in one or other of the vital systems of the body?—Life Assurance Medical Officers Association.

Book Reviews.

THE COMMONER DISEASES, THEIR CAUSES AND EFFECTS. By Dr. LEONHARD JORES, o.ö., Professor der allgemeine Pathologie und pathologischen Anatomie an der Universität Marburg Authorized English translation by WILLIAM H. WOGLOM, M.D., Assistant Professor in Columbia University, Assigned to Cancer Research; Assistant Pathologist to St. Luke's Hospital, New York City. Price, $4.00. Philadelphia and London: J. B. Lippincott Company, 1915.

THIS book is a collection of lectures published by Jores originally for the aid of his pupils. It aims to present as a coherent whole the post-mortem findings of the diseases considered with their sequelæ and their more usual complications. The subject matter is collected into thirty-four chapters which present as many diseases or groups of diseases. It is more than a strictly pathological volume, however, for the author has paid particular attention to the pathological physiology, and while there is no pretention to a listing of symptoms these are introduced to a greater or less extent. Pathogenesis and etiology are discussed sufficiently to clarify the picture. The defect of the work is the one inherent in any collection of lectures, that the presentation is of necessity a brief one and leaves many questions unanswered. Nevertheless, it is likely to prove of value to both the physician and the student. The press-work on the book is of a high grade and the illustrations, many of which are colored, are numerous and excellent.

URGENT SURGERY, By FÉLIX LEJARS, Professeur Agrégé à la Faculté de Médecine de Paris; Chirurgien de l'Hôpital Saint-Antoine; Membre de la Société de Chirurgie. Translated from the seventh French edition by WILLIAM S. DICKIE, F.R.C.S., Surgeon North Riding Infirmary, Middlesbrough; Consulting Surgeon Eston Hospital. Third English impression, with 20 full page plates and 1086 illustrations, of which 729 are drawn by Dr. E. Daleine and A. Leuba, and 198 are from original photographs. Vol. I., Introductory, Head, Neck, Chest, Spine, Abdomen. Price per volume, cloth, $7.00 net; half morocco, $8.00 net. New York: William Wood & Co., 1914.

THERE are many surgeries, in fact, there are far too many books that masquerade under that title; but in Lejars' "Urgent Surgery" we have a work that has a definite *raison d'être* and is the unquestioned leader in its field. Originally written at a time when this division of surgery was very inadequately covered, and furnishing not only an authoritative and practical but also an extremely interesting presentation of the subject, this work soon attained an enviable popularity which has steadily grown with each succeeding edition. At the present time this work has been translated from the French into at least seven other languages and is recognized as a standard throughout the world. Extended comment upon the seventh edition of such a work is obviously unnecessary; but it does seem appropriate to say for the benefit of the new recruits in medicine and surgery that nowhere else, other than by actual experience, can such an insight into this branch of the surgeon's work be obtained.

In this edition there has been a thorough revision of the entire book and such a remodeling of the text as to allow the incorporation of five new chapters (Acute Dilatation of the Stomach, Acute Pancreatitis, Obstruction of the Mesenteric Vessels, Sigmoiditis and Perisigmoiditis, and Dislocations of the Pelvis), and still keep within practically the same space limits. The work now conforms to the latest teachings in practically every respect, the text remains a model of clearness and conciseness, the numerous illustrations are of unusual excellence and all to the point, and it requires no bearded prophet to foresee a still further increase in the popularity of Lejars' "Urgent Surgery."

OPTIC PROJECTIONS Principles, Installation and Use of the Magic Lantern Projection Microscope Reflecting Lantern Moving Picture Machine, by SIMON HENRY GAGE, Professor of Histology and Embryology, Emeritus, Cornell University, and HENRY PHELPS GAGE, Ph.D. Fully illustrated with plates and with over 400 test-figures. Price, $3.00. Ithaca, New York: Comstock Publishing Company, 1914.

SINCE the remarkable development of modern methods of projection the use of the lantern has become so general in medical teaching that a new guide to the proper handling of the modern forms of apparatus is welcome. This volume, however, includes much more than mere practical directions; it is really a complete study of the mechanics and optics of the projection lantern with chapters on the preparation of lantern slides, on drawing with projection apparatus, and on the theory and practice of moving pictures; it contains in addition descriptions of many interesting lecture room experiments for the demonstration of optical phenomena. There is appended an historical summary, a list of manufacturers and dealers in optical and electrical apparatus, and an excellent bibliography of the chief works on optical projection. The book should prove very valuable to those who are using the lantern in connection with teaching.

THE SALVARSAN TREATMENT OF SYPHILIS IN PRIVATE PRACTICE, With Some Account of the Modern Methods of Diagnosis. By GEORGE STOPFORD-TAYLOR, M.D., M.R.C.S., and ROBERT WILLIAM MACKENNA, M.A., M.D., B.Ch., Physicians to the Liverpool Skin Hospital. Price, $1.50. New York: Rebman Company, N. D., 1914.

THIS manual may be unqualifiedly recommended to the practitioner. The authors' material in three years of private practice furnishes the subject matter. Public cases are hardly amenable to successive years of control. It is seldom in any book that we find individual and general experience so intimately interwoven in a small compass. The booklet is at the same time a summary of the most recent acquisitions in the diagnosis and treatment of syphilis, and a concise record of personal experience in the practical application of the same. The authors are warm partisans of the salvarsan treatment of syphilis, and the eighteen "before and after" photographs show what may be accomplished by the drug within a short time, with or without the collateral action of mercurials. Like good Britons, the authors give Donovan priority in the arsenic-mercury treatment of syphilis. The dark side of salvarsan therapy receives little consideration in this optimistic and personal work.

THE BACKWARD BABY. A Treatise on Idiocy and the Allied Mental Deficiencies in Infancy and Early Childhood. By HERMAN B. SHEFFIELD, M.D., New York, Fellow of the New York Academy of Medicine and the Am. Med. Assn.; author of "Modern Diagnosis and Treatment of Diseases of Children," "Pediatric Memoranda," and "The Baby's Record and Health," and co-author of "Practical Pediatrics," etc. Awarded the Alvarenga Prize of the College of Physicians of Philadelphia, July 14, 1914. With twenty-two original illustrations in the text. Price, $1.00. New York: Rebman Company, 1915.

THIS brochure of 184 pages was awarded the Alvarenga Prize of the College of Physicians of Philadelphia. It aims to present an account of the mental deficiencies of children under five years of age. The prenatal and postnatal causes are discussed and the methods of examination and the means of recognizing the different types of mental deficiences are described. The special groups of amentia, including microcephalus, hydrocephalus, paralytic amentia, amaurotic family idiocy, mongolism, cretinism, infantilism, and "moramentia" (a word coined by the author to signify retarded mentality) are delineated. The concluding chapters deal with prophylaxis, eugenics, care of the newborn, mental training of the normal infant, the active treatment of amentia, general hygiene, training by "incentive" method and physical therapeutic measures, organotherapy, thyroid transplantation, drugs, and surgical procedures.

AUGENVERLETZUNGEN IM KRIEGE UND IHRE BEHANDLUNG. Mit einem Abriss uber die Diagnose und Behandlung des Trachoms von Professor Dr. C. ADAM, Priv.-doz. für Augenheilkunde in Berlin, Während des II Balkankrieges Dirigierender arzt der Augenabteilung des Militärhospitals in Belgrad. Mit 40 Abbildungen. Price, Marks 2.50. Berlin and Vienna: Urban & Schwarzenberg, 1914.

THIS little volume of 96 pages is a fairly comprehensive monograph on the subject. Part I is directed to a general consideration of the effect of gunshot wounds on the eye. Part II deals with injury to the various parts of the eye in logical order. Part III is devoted to examination and diagnosis. Part IV to the therapeutics of these injuries. There is a short chapter devoted to trachoma. The work is well illustrated; it is intended for the use of the surgeon in the field as well as the oculist.

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

109th Annual Meeting, Held in Buffalo, April 26-29, 1915.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page* 837.)

SECTION ON MEDICINE.

Wednesday, April 28, Second Day.

DR. JOHN A. FORDYCE OF NEW YORK IN THE CHAIR.

THE morning session was a joint meeting with the Section on Syphilis.

Pathology of Syphilis.—Dr. JOHN A. FORDYCE presented this paper. He believed that in order to combat successfully the syphilitic invasion it was important not only to be informed as to the possibilities of the therapeutic agents but to have a thorough knowledge of the nature of the infection, the reaction which it called fourth in the tissues and the resulting changes which followed. It must be borne in mind that during and even before the secondary period of the disease the organisms were in the general blood and lymph streams and located themselves at this time about the nutrient vessels of the aorta, in bone, in the central nervous system, in the glomeruli of the kidney, or in other viscera. The special tissue selected by the spirochetes might be purely accidental or possibly might be governed by affinities for the strain. While confirmatory laboratory evidence up to now was far from satisfactory, there were certain clinical reasons for the belief that special strains had different invasive powers and might limit their activities to one set of tissues. Patients with syphilis of the nervous system, as a rule, denied the secondary rash. The subjects of extensive skin syphilis were not often afflicted with nerve syphilis and patients with luetic osteitis and periostitis were not so often afflicted with skin lesions. The important factors to be kept in mind were the possibilities of the disease in the secondary period as related to the destructive and incurable lesions which manifested themselves years afterward. If spirochetes were deposited about the vasa vasorum of the aorta in the secondary period of syphilis, they might yield to the natural defenses of the body or be reached by specific drugs. They might be completely destroyed or their activities only delayed by imperfect medication. In the latter case it might be years before the changes in the aortic walls were sufficiently advanced to cause symptoms or physical signs. When such changes were recognizable it might or might not be possible to influence the condition by specific treatment. The early inflammatory reaction about the vessels had produced sclerosis in the vessels' walls, and to these changes was added the mechanical action of the heart on the weakened walls of the aorta. The same held true of the nervous system. Investigations during the past twelve years had shown that the nervous system was invaded early in the disease, probably at the time of the spirochemia, that a meningitis was produced which might manifest itself clinically during the secondary stage or remain latent for a long period, or prepare the soil for an extension of the process or new invasion in later years. It had been estimated by different workers that involvement of the central nervous system in the secondary stage took place in from 20 to 80 per cent. as shown by abnormal findings in the spinal fluid. Dr. Fordyce's own opinion was that no larger percentage of luetic individuals showed changes in the spinal fluid than later developed frank disease of the nervous system. In a series of his clinic and hospital cases of early secondary lues punctured less than 20 per cent. evidenced any abnormality. Whether as Nichols had suggested that in nerve syphilis they were dealing with a specially invasive strain of organisms or whether the choroid plexus acted as a filter or barrier to the spirochetes, he was not prepared to say. They might find analogies in tuberculosis and typhoid fever in both of which diseases the organisms circulated at times in the blood, but only rarely were found in the spinal fluid. In human syphilis inoculation was followed either by a local reaction at the point of entry of the organisms or the spirochetes gained access directly to the blood and lymph stream without producing any demonstrable change *in loco*. In the first event the spirochetes found lodgment in the interepithelial lymph spaces and from here reached the perivascular lymph spaces, where after becoming acclimated to changed nutritional conditions they multiplied. Even now a reaction was taking place on the part of the fixed connective tissue cells in this vicinity which increased in intensity until the height of the second incubation period with the full development of the chancre. The macroscopical appearance was varied. In one case only a herpetic lesion might be present, in another a papule or a slight erosion, and again the classical Hunterian chancre, or its clinical characteristics might be entirely masked by a preexisting chancroid or other cutaneous lesion. It was difficult to say whether this multiformity was dependent upon the immunity mechanism of the patient, the number of organisms, or upon the strain of the spirochetes. Noguchi found certain definite differences in the morphological character of different strains isolated. This led him to divide the various specimens into the thicker and thinner forms and an average or normal form, the last being the most common and frequent. He found that the lesion in the testicle of the rabbit differed according to the variety inoculated consisting either of a diffuse or a nodular type. Nichols also found that a strain isolated by him from the central nervous system presented different biological properties, without being in a strict sense of the word neurotrophic. He applied to them the quality of invasiveness based on the production in rabbits of lesions of the scrotum and testicle which were hard and necrotic in the center and a generalization of the infection as evidenced by lesions of the eye and skin. The organisms were thick in form and had a short incubation period corresponding to the thick type described by Noguchi. These results were of particular interest in view of the occurrence of syphilis of the nervous system in individuals infected at the same source, and the not unusual occurrence of conjugal and familia syphilis. The attempt of Jakob and Weygandt and others to produce a neurotrophic strain in rabbits had not given uniform results, some rabbits showing a pathological condition of the nervous system, others not. Noguchi came to the conclusion that it was necessary to previously sensitize the animal in order to obtain involvement of the nervous system. Just how soon after inoculation in the human subject the spirochetes reached the satellite lymph nodes and the general circulation had not been definitely determined. Fruffi claimed to have found them one and two weeks after infection. It had been demonstrated by animal experiments that the bone marrow and the testicle contained them before the appearance of the chancre. The *Spirochæta pallida* was essentially a lymph organism but its generalization took place in the early period through the blood stream and from time to time it probably appeared in the blood in the later stages of the disease.

There was now a widespread belief that with the dissemination of the spirochetes in the early period of the disease every tissue was invaded without, however, in all cases producing subjective or objective symptoms. It had been demonstrated that the spirochetes might remain in contact with tissues for long periods of time without exciting microscopic or macroscopic changes. Their knowledge regarding visceral involvement at the time of generalization was rather limited but it was quite probable that lesions analogous to those found in the skin were present. As in these cases the interstitial tissue would more probably be involved if the lesions were superficial, tended to undergo spontaneous regression, and therefore the disturbance of function was slight. Where, however, the intoxication was severe and analogous to that of the eruptive fevers, the parenchymatous portion of the organs was affected and this led to more or less degeneration and destruction with impairment of function. It was believed formerly that the sequence of syphilitic eruptions was dependent upon the parasite and its virulence. The relationship was no longer admitted. In accordance with modern research the various manifestations were interpreted as an expression of the immunity processes which began to develop shortly after the introduction and multiplication of organisms. Clinical and animal experiments had demonstrated that during the first incubation period a change was taking place in the skin and mucous membranes which rendered them resistent to reinoculation under ordinary conditions. This biological change to which the name "anergy" had been applied by Neisser began within a few days of the in-

itial inoculation and was practically complete at the end of the second incubation period or time of the general eruption. If during this period reinoculation was practised it was found that the inoculation period was shorter and that the lesion no longer developed in a typical manner. These phenomena were analogous to those described by von Pirquet under anaphylaxis.

Syphilis of the Arteries and Veins.—Dr. ALEXANDER MCPHEDRAN of Toronto, Ont., presented this paper. He said that few more important advances had been made in modern medicine than the recognition of the morbid changes and the symptoms resulting from syphilitic infection of the walls of the blood vessels. Syphilis as a cause of aneurysm had been known over 200 years, but syphilitic "arteritis" had been known to exist for little more than 50 years. Sir Clifford Allbutt was the first to describe the histological changes (1868) but it was only in recent years that the great importance of the disease had been fully realized, that was, since the *treponema pallidum* was discovered and had come to be recognized as the infecting organism causing the disease. In common with other structures, the whole vascular system might be the seat of infection, but the arteries seemed specially prone to invasion by the infecting organism. Of the arteries, the cerebral were most liable to infection, and next to these the aorta and the coronaries. This might be due in part to the free blood supply to the walls of these vessels, and in part to the sudden increase of blood pressure to which they were so often subjected and by which their resistance to infection might be lessened, as these arteries were surrounded only by loose areolar tissue. It was remarkable that relatively few cases of syphilitic arteritis had had marked symptoms of syphilis or in fact any symptoms. Very many had little treatment. Brain syphilis probably always began as arterial disease in some form. Even gumma began in the periarterial tissue in the pia-arachnoid, although often situated apparently in the brain substance (Mott). Arteritis might begin very soon after the syphilitic infection; it was not rare early in the secondary period. The terms primary, secondary and tertiary had long outlived their usefulness, and should be discarded as they were too often used with reference to the time of occurrence of the lesion rather than to the tissue invaded. In many cases neither primary nor secondary lesions had been observed, the first symptoms being those of disease of the deep structures. Arterial lesions might occur in the first year, in fact some believed the onset as most frequent then, the numbers lessening with each succeeding year.

The reason for the occurrence of arteritis and periarteritis in the relatively few, although the number was large, while the majority of the infected escaped, was difficult to determine. As in other diseases, a variety of causes were operative, such as inherited abiotrophy, or a lowered power of resistance, traumatism, insanitary environment, all varieties of excesses of which alcoholism and venery doubtless had the most influence, and probably most important of all, inadequate treatment after the infection, often no treatment. Age probably had much influence, at least on the distribution of the infection. In children and young people syphilis might infect the peripheral vessels, causing general arteriosclerosis. This was in fact probably the most frequent cause of it, while in those of mature and advanced age the large vessels were most often the seat of disease. Syphilitic arteritis was probably always due to infection of the arterial wall through the vasa vasorum by the tropoma pallidum. The resulting lesions were multiform, varying chiefly with the structure of the arteries, and might be divided into two classes, the large and the small.

1. In the *large* arteries, of which the aorta might be taken as a type, the wall consisted chiefly of elastic and white fibrous tissue. The lesions were usually quite characteristic, consisting in the early stages of gelatinous looking plaques, caused by infiltration and thickening of the intima. These might be confined to narrow areas at the root of the aorta, but might be found in any or all of the larger arteries. Later they became paler or of a bluish tint, and showed fibrous looking depressions of various shapes and sizes, often with linear scars. On section they were always found to be associated with mesarteritis and periarteritis of the corresponding areas, in which there was perivascular infiltration about the vaso vasorum, and fracture and splitting of the elastic tissue. In these infiltrated areas in the media giant cells were found. Later the elastic tissue was quite destroyed and replaced by these gummatous formations. In many cases *Spirochæta pallida* had been found in these areas. There was, therefore, little room for doubt that the primary infection was in the media, spreading later to the intima and adventitia. Similar lesions had been found in the large vessels in cases of congenital syphilis. These changes in the vessel wall weakened its resistance so that it yielded to the blood pressure and an aneurysm formed. In fact, the great majority of aneurysm had this origin, all of them probably occurring before early middle life. The introduction of the Wassermann test afforded good ground for this view. He had only met with one case without evidences of syphilis and this occurred recently in a man of 60. He had been a caretaker of a large building and therefore doubtless subjected to heavy strain.

2. In the *small* vessels, whose walls were composed chiefly of muscular tissue, endarteritis and sclerosis were the morbid changes met with. As in the brain, the heart or the limbs, single vessels or groups of vessels only might be affected or the disease might be widely distributed, involving the vascular system generally. The endarteritis might be nodular, deforming and reducing the lumen of the vessel, or wholly obstructing it at various points. This proliferated tissue showed little tendency to undergo caseation, but as it grew older it usually became denser and converted into cicatricial tissue. In this manner a more or less widespread arteriosclerosis might result. It was probable that many cases of general arteriosclerosis, especially in infants and children, and even in those of mature years, were due to fibrosis following the degenerations caused by the devitalizing effect of syphilitic infection. Broadly viewed, the symptoms arose (1) from the disturbance or arrest of the blood supply to an organ or tissue and (2) from pressure as of an aneurysm or gumma on surrounding structures. To these should be added probably spasm of the heart or aorta, arising from areas of weakness caused by local disease. Painful spasm of a similar character and due to arterial disease occurred in the skeletal muscles in intermittent claudication. Symptoms from occlusion in endarteritis would depend on the suddenness of the onset and the degree of collateral circulation. For example: The Circle of Willis regulated the blood pressure in all of the blood vessels within the cranium. The free communication maintained an equable supply of blood to all the branches even if one section was closed, but the closure must be gradual in order to permit of the anastomosis being sufficient to maintain a good circulation. This was well illustrated by the occlusion of the basilar artery. If sudden, instant coma resulted, followed by death within a few hours, but the artery was not rarely found completely closed at death, without there having been any symptoms enabling a diagnosis to be made. Even very small aneurysms that only pouched during life when under the pressure of the blood stream might cause serious damage. Such an aneurysm might compress one of the coronary arteries and, if occurring suddenly, prove fatal (Winternitz). Endarteritis of cerebral arteries not only led to partial closure of the artery but also to loss of elasticity and, therefore, disturbance of equality of the pressure might occur under varying circumstances, as shown by slight dizziness, a dazed mental state, momentary loss of certain functions, as of power of speech, temporary paresis of any part. Even with healthy arteries, many people with rather low blood pressure had similar disturbances on sudden movements, *e.g.* sitting up suddenly, stooping over quickly, showing how easily a momentary change in the force of circulation might occur in ordinary health.

The Evolution and Treatment of Hyperthyroidism in Its Mild Types.—Dr. HARLOW BROOKS of New York presented this communication in which he said that every physician knew that tachycardia, exophthalmos, goiter and tremor were the cardinal symptoms of hyperthyroidism and when found together they constituted a very definite and unmistakable disease picture. He wished, however, to discuss not the well marked and fully developed cases of exophthalmic goiter, but those usually obscure and incomplete types of hyperthyroidism which in his opinion were more numerous and far more important, especially from the standpoint of medical treatment. Symptomatic discrepancies were naturally especially evident in mild or incompletely developed instances and in the relatively early stages of the disease. Many or most of the characteristic signs and symptoms might be entirely wanting so that an absolute diagnosis was impossible. It was in these very

cases that treatment was most advantageous and successful. The onset was commonly more or less slow. Cases appeared to have a sudden onset as from a nervous shock, a fright or from some traumatic condition. Close analysis of such cases, however, showed almost without exception a long standing predisposition and instead of really being sudden in onset a tendency toward hyperthyroidism had long existed. True exophthalmic goiter rarely developed before the sixteenth year, but they constantly saw children and especially young girls showing definite traits of mild hyperthyroidism before this age, particularly about the period of menstrual establishment. Enlargement of the thyroid gland took place in early girlhood particularly at that time when the menstrual functions were about to appear, when the mammary glands were undergoing rapid development and when at the same time the fancies, the affections, the passions and the "temperament" of the young woman were in rapid process of establishment. Precisely though less striking changes appeared in boys. By no means infrequently the enlargement of the thyroid at this period and the consequent sensations of swelling and neck disturbances which it caused gave rise to the diagnosis of a globus hystericus. One could not consider these signs and symptoms as pathological in type except as to degree, for they knew how dependent the development of the sexual apparatus was upon thyroid activity.

Cretinism and myxedema were of course extreme degrees. Both were characterized by retrogression, or by lack of progression in physical and psychic growth. The cretin was a dwarf of undeveloped mentality. The myxedematous patient became physically defective and mentally incompetent, entirely unable to think in an original manner. The physiological secretion of the thyroid in adolescence indexes mental and physical activity and growth. Charm of personality and the mental and physical differentiation of the sexes occurred very largely under and as a direct result of thyroid secretion. Normal cleverness and responsiveness became exaggerated into precocity and petulence, and active and deft muscle and nerve response became ataxia or tremor, bright and sparkling eyes into an exophthalmos. Normal sex differentiation was transmuted into hysteria, perversions and "nervousness," etc. Many of these characteristics were likely to escape the observation of the physician who did not know what he was looking for and the case might be pronounced one of "nervous heart," "hysteria," "laziness," "perversion" and so on. For some time such cases had been properly classified under the heading of Formes Fruste or of undeveloped exophthalmic goiter, though admittedly many such cases even untreated would never develop true Graves' disease. In Dr. Brooks' experience there were very many instances in which nature was a more wise physician than the surgeon and in his observation where physicians were able to carefully and especially individually study these cases, brilliant results might be confidently expected more definitely without rather than with the assistance of surgery. Many school physicians and intelligent parents were beginning to grasp the fact that the psychic or nervous management of these children was very important. The precocious child was held back from her studies, the neurotically inclined boy was put into the open and given occupations which taxed not his higher but his more primitive resources. He was sent to the farm, to the boy's camp or to the occupational school. Instead of too many books and too much music, the little girl should be given routine duties, taught to cook, to sew and mend, to use her hands instead of her head. She was sent into the open in preference to the classroom. Theaters and parties were to be replaced by tennis and horseback riding and by all manner of other interesting, absorbing, yet primitive, simple and healthful occupations. Such a régime of mental supervision, treatment if one liked, did more to quiet down the heart action, to check the outbursts of temper, or temperament, than all manner of radical surgical procedures. The selection of a proper school was a very weighty matter in these cases. In cases where home conditions were salutary, it seemed better to have the child attend a school which permitted its return each night. Such a course presupposed a home surrounding of quiet and order with parents of even temper and judicial calm. It demanded a school in which the spirit of competition was subordinated and in which, in so far as was possible, an attitude of privilege and pleasure was thrown about instruction. For many children suffering from this tendency to hyperthyroidism, the religious schools with their attitude of trust in Omnipotence with the devotional services, which formed as it were an outlet for the sentimental and passionate side of many natures, were of very definite medical desirability. Such institutions were far less frequent in this country than in Europe and he referred particularly to many Sisters' Schools, especially in France, Belgium, and Southern Germany. The entire absence of flirtatious escapades in such institutions aided very materially to subordinate the growth of the sexual instincts. It was doubtless true, as the psychanalyzers assert, that religious devotion and fervor in not infrequent cases supplanted or typified the sexual. On the other hand, cases existed in which the routine of religious exercises irked and irritated to the point of almost terror.

With a naturally irritable and overacting heart, exercise must be so adjusted that no excessive strain was placed on the circulation. Medical treatment should not be neglected, and while the crux of his paper had been to emphasize the therapeutic necessity of training and of the psychic side of the treatment, ordinary medical methods were by no means to be subordinated. Anemia was a condition associated in these cases in a very large number of instances. Iron must be used in nearly every case. In the average case the old-fashioned tincture of the chloride of iron, Bashams Mixture, or the syrup of the iodide of iron were most useful. In cases associated with chorea, arsenic acted very beneficially. Any treatment in each instance must be of long standing and be sustained and usually until the child had passed to the adult when in case a normal life was possible, complete cure was likely to become firmly established. It was his belief that most cases recovered spontaneously, though they might suffer throughout life from more or less thyroid instability. The important matter, however, appeared to be early recognition and persistent supervision.

AFTERNOON SESSION.

DR. G. REESE SATTERLEE IN THE CHAIR.

Election of Officers.—*Chairman,* Dr. John L. Heffron of Syracuse; *Secretary,* Dr. John M. Swan of Rochester.

Clinical Observations of Mild Cases of Hyperthyroidism.—Dr. JOHN M. SWAN of Rochester read this paper. He said that he was inclined at the present time to look upon hyperthyroidsm as a disease of metabolism characterized by tachycardia and associated, with varying frequency, with exophthalmos, struma, nervousness, tremor and other systemic disturbances. The metabolic disturbance that was responsible for the disease appeared to be connected in some way with iodin chemistry. The disease was chronic and showed acute exacerbations from time to time. The pathologic changes in the thyroid gland might be hyperplastic, colloid degenerative, fibrotic and hypoplastic (Marine and Lenhart). All three stages might be seen in the same gland. The acute exacerbations were usually associated with hyperplastic changes. When the disease became quiescent colloid degeneration had occurred. When the fibrotic and hypoplastic stage appeared the symptoms ordinarily known as hypothyroidism developed. The usual train of events in this disease might be theoretically outlined somewhat as follows: An individual had been sickly during childhood, or if not sickly, had been delicate, perhaps anemic and easily the victim of infectious diseases. Indeed, when the infections developed he was perhaps sicker than others of his acquaintance. At the time of puberty he became nervous, irritable and complained of indefinite disturbances, perhaps of the respiratory system, perhaps of the gastrointestinal tract, possibly of the genitourinary organs. If the case was studied at this time the individual might be found to have an enlarged thyroid gland, rapid pulse and nystagmus, or one of the other eye signs. During these years he was likely to develop a scoliosis. In the third decade, and perhaps in the first half of the third decade, an acute infection like typhoid fever, fright, some disappointment, or severe sorrow would be followed by the development of well marked Graves' disease. If Graves' disease did not develop, the individual continued to become more nervous and apprehensive, perhaps develop some phobia, and gradually passed into a condition of outspoken neurasthenia. Still later on, cardiac hypertrophy developed from the constant overactivity of the cardiac muscle. The increased blood

pressure attendant upon the cardiac hypertrophy started arterial and renal changes, or possibly the direct action of the altered thyroid secretion might produce renal changes, which, by further increase of blood pressure, interfered more and more with the hypertrophied heart and increased the atherosclerosis, so that in the last years of life the patient became a cardiorenal case of classical type, but perhaps without satisfactory antecedent history to account for the development of the disturbances. At any stage of the development of this train of pathological disturbances the condition might become quiescent and apparently be arrested. In women, for instance, they sometimes saw this as an apparent result of marriage, although sometimes marriage and pregnancy were attended with an aggravation of the condition. Again, the arrest of the condition might be followed by retrograde changes which had been repeatedly described under the term of hypothyroidism; increase in weight, increase in the size of the hands and feet, mental sluggishness, loss of hair and arthropathies.

The Heart in Syphilis.—Dr. HARLOW BROOKS of New York read this paper. He said that the condition was now reported with great frequency from all communities of the sick who were observed with sufficient care to permit of the recognition of so obvious a lesion. It had now certainly been shown that invasion of the heart began at least as early as the first appearance of secondary symptoms or signs and that at this period extensive and serious lesions of the circulatory center might even then exist. Many of the older authors who had considered this subject had given the impression that involvement of the heart occurred only as a late manifestation of lues. When one fully recognized that syphilis was a septicemia, any other conclusion would be necessarily illogical, even had it not been now certainly shown that symptoms, signs and even fatal lesions occurred in the heart in the secondary stage of the infection. Carrol and he had thus far reported 25 cases of cardiac involvement in this period of the infection. Though Dr. Brooks was of the opinion that in all probability very many instances of cardiac involvement originated at this time, as a matter of fact most of them were not recognized until late in the tertiary stage. His conclusions throughout had been, however, that close routine examination of cases of secondary syphilis from the internist's standpoint would disclose abundant examples of evident serious heart involvement at this early stage. Fortunately the mortality rate at this period was not high because nearly all instances of secondary lues were at least for a time correctly and more or less vigorously treated. Analysis of the lesions found at post mortem examination in cases of heart involvement showed that disease of the myocardium was the most frequent. The dominant and earliest lesion consisted of a true syphilitic myocarditis which, as first demonstrated by Adler in 1898, originated about the terminal arterioles of the coronary system. As regarded the involvement of the heart valves, their studies had corroborated the general opinion as to the prediction for the aortic segments, though signs of mitral discrepancy commonly appeared first. The great importance of disease of the coronary artery in syphilis could not be too highly emphasized and it should be noted that the probable earliest lesions in the muscle originated as a periarteritis. His studies had shown that the severity of coronary involvement was not so much dependent upon the time or stage of the invasion as on its activity. Age also appeared to be a negligible factor and he had reported advanced cases at the respective ages of 23, 26 and 28 years. As to the occurrence of circulatory symptoms in the late stages of syphilis, of 200 cases analyzed in this respect, 164 entered an internal service making complaints of circulatory discrepancies. In many, perhaps most of the cases, symptoms of heart involvement were not complained of until long after the primary infection and the lesions not infrequently remained fully compensated until approaching old age or an extraneous incident revealed them. After the secondary stage nothing symptomatically characteristic of syphilis was shown by the heart lesion, and the signs and symptoms manifested in each case were respectively those due to the specific anatomical change present whether it was an endocarditis, a myocardial degeneration, cardiac gumma, aneurysm or a small cardiac fibrosis. The association of cardiac symptoms and signs with other stigmata of lues were the only specifically diagnostic features. Analysis of the symptoms presented in their group of over 300 cases had shown, however, the prominence of signs and symptoms indicating muscle discrepancies. Named in their relative order of frequency and taken as a whole, irrespective of the specific anatomical changes presented, the symptoms had been dyspnea, tenderness and pain in the precordium (at times true stenocardia due to dilatation or to coronary disease), disturbances of rhythm, including heart block and insomnia. The question of the diagnosis of heart involvement in syphilis resolved itself into two factors, the diagnosis of the general infection and that of the special cardiac lesion.

Dr. Brooks said he could not speak too highly of the value of the Wassermann reaction for the recognition of lues as a causative factor in cardiac conditions of obscure etiology. They had found it but rarely negative where the cardiac symptoms were of an aggressive character. The treatment resolved itself into that designed to attack the specific and causative infection, to remove in so far as possible its resultant lesions and that designed to benefit the elementary circulatory changes. The treatment of either type must be individualized. Unless the aggressive character of the case demanded the most prompt possible check, Dr. Brooks preferred to introduce treatment by the use of intramuscular injections of the salicylate of mercury. Other forms of mercury medication were also employed. They had never had a serious accident following this method. Subsequently in most cases salvarsan was given three or more times. He had found that the old salvarsan was most efficient and most permanent in its effects. Where an immediate check of the process seemed to be imperative, he had used the prompt intravenous injection of salvarsan, usually with excellent effect. As a result of their experience, he preferred to precede definite cardiac methods of treatment, except as to the customary physical and precautionary measures, by specific methods. He was convinced, for example, that drugs of the digitalis group produced much more definite and permanent effect when given after rather than before or during the early specific treatment. The specific treatment must be persistently prosecuted as in other cases of acute or long standing syphilis. Sporadic specific treatment gave much less decisive or satisfactory results as compared to those instances where the specific treatment was persistently carried out. With regard to prognosis, he believed that in early instances the heart disease might be radically cured, in most cases by specific measures alone, and even in active luetic endocarditis or myocarditis.

Metabolic Studies in Diabetes.—Dr. FREDERICK M. ALLEN of New York City said that partial pancreatectomy in animals gave a rather close imitation of human diabetes; there might be seen a similar progress from mild to severe forms, a similar aggravation by unsuitable diet, and a similar improvement by properly restricted diet. Animals in a suitable diabetic condition could be made sugar free by fasting. After one or two days of sugar freedom it was possible to begin feeding cautiously and to keep the animal permanently sugar free with no downward progress on a certain diet, whereas an increase of this diet would send the animal into diabetes with a progressive downward course. Sometimes the diet must be so low that the animals were kept very thin, and only in this thin condition could they be kept free from diabetes. Restriction of carbohydrate and protein and the use of occasional fast days were part of the regular treatment for diabetes. The present paper dealt with metabolism rather than treatment, and the following observations concerning diabetic metabolism might be mentioned. Broadly speaking, glycosuria could be stopped in any case of human diabetes by sufficient fasting. The patients ordinarily bore the fast excellently, acidosis was quickly and markedly diminished, generally down to small traces. A more difficult feature of the program was to feed subsequently so as to keep the patient free from glycosuria and acidosis, but this had so far been accomplished in even the most severe cases; this was accomplished even if it be necessary to diminish the patient's weight considerably by fasting and low diet. Reduction of weight by this means appeared to act favorably upon the diabetic condition. Subsequently, it was ordinarily possible gradually to increase the diet and the weight. This recuperative power varied with the different patients. Instead of the unlimited fat heretofore allowed diabetics, the fat was carefully restricted in all severe cases under this treatment. Their patients took no alkali unless for a very brief period at the outset. They showed no specific craving for carbohydrate. They ordinarily followed their diet and remained free from symptoms after discharge so far as observations yet ex-

tended. Considerable time would be necessary to establish whether patients had an inherent downward tendency, or whether diabetes was merely the weakness of a metabolic function which remained stationary or even improved when the overstrain of this function was relieved.

Some Practical Questions on Metabolism.—Drs. JOHN L. BUTSCH and CHARLES G. STOCKTON of Buffalo presented this communication in which they first made a plea for the closer study of these cases and the reason why cases should receive more time and consideration. They dealt with some of the problems involved in the treatment of disturbed metabolism, such as the constantly changing degree of tolerance in rather a small range. They spoke of the kind of carbohydrates to be given, how it was given, the effect of the proteids and the effect of the total amount of food for the day. Two cases illustrating their point were reviewed somewhat in detail. They told of their method of study, their method of handling a case which presented itself for study, the blood examination, the examination of the stools, of the urine, etc. They discussed the dieting of the patient and told what they could accomplish by close study of the dietary in the present state of their knowledge.

Thursday, April 29—Third Day.

This was a joint meeting with the Section on Surgery. (See report of Section on Surgery, page 794.)

State Medical Licensing Boards.

STATE BOARD EXAMINATION.
QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF NEW JERSEY.
October, 1914.

(*Continued from page* 714.)

PATHOLOGY.

1. What is the difference between hypertrophy and enlargement?
2. Give theory of diabetes mellitus.
3. Describe gout; give theory.

BACTERIOLOGY.

1. Name the pathogenic spirilla and diseases caused by them.
2. Describe mycetoma.
3. Name the pathogenic protozoa and give life history of the dysentery ameba.

HYGIENE.

1. What is a water shed?
2. How can it be properly safeguarded, and why?
3. Name the water-borne diseases.
4. What is the best general method of purifying drinking water?
5. How may ground water injuriously affect the public health?

MEDICAL JURISPRUDENCE.

1. What is the difference between molecular and somatic death?
2. What are the signs of, and how can you determine between, real and apparent death?
3. How would you conduct an autopsy?
4. Name most of the causes of violent death, and tell how you would differentiate them.
5. What is the object of a coroner's inquest?

PRACTICE OF MEDICINE.

1. Differentiate rachitis and scurvy.
2. Describe the several kinds of arterial pulse.
3. Differentiate catalepsy, epilepsy, and hysteria.
4. What diseases may cause occlusion of the common bile-duct?
5. Describe the varieties of stomatitis, giving the causes of each.
6. Describe vocal fremitus and name the conditions causing its increase or decrease.
7. Describe the urinary casts; where formed and the disease each indicates.
8. Describe the eruption *only*, in its different stages, of measles, scarlet fever, and smallpox.
9. Describe the pathological pulmonary sounds heard on auscultation of the lungs and name the conditions causing them.
10. Describe the normal heart sounds and state the points on the chest where each is heard with the greatest distinctness.

ANSWERS.

PATHOLOGY.

1. In *hypertrophy*, all of the tissues or constituents of an organ are increased in size or weight or number.

In *enlargement*, only one tissue of the organ is increased.

2. *Theory of diabetes:* "The theoretic interpretation of diabetes varies with the view which may happen to be held of the glycogenic function of the liver. Normally about 0.1 per cent. of sugar is present in the blood, and a minute trace, which the clinical tests cannot detect, in the urine. When the amount in the blood is more than 0.2 per cent. an appreciable glycosuria occurs, and even in health a temporary glycosuria may be produced by an ingestion of sugar beyond the physiological limit. The appearance of sugar in the urine is thus due to an excess of sugar in the blood. The usual view of the glycogenic function is that the liver converts the carbohydrates brought to it from the intestines into glycogen, which it stores up as a reserve, and gradually reconverts into sugar and delivers *via* the blood to the tissues according to their needs. On this view the excess of sugar in the blood is due either to excessive production of sugar in the liver, or to diminished oxidation by the tissues. On the other hand, Pavy holds that part of the ingested carbohydrates is converted by the intestinal villi into fat, and another part is synthetically built up into proteids, in which forms it reaches the blood, and that only a portion reaches the liver, where it is stored up as glycogen, and prevented from entering the general circulation except in synthetic combination with proteid bodies. A temporary glycosuria would therefore be due to a defect in the sugar-transforming mechanism, and diabetes to its arrest, permitting the passage of unaltered glucose. In mild forms of the disease, a diet free from carbohydrates stops the glycosuria, the excess of sugar being thus derived from the carbohydrates of the food; but in severer cases, glycosuria persists though carbohydrates are withheld, and sometimes even though no food is taken. In these instances, sugar is formed by disintegration of the proteids of the food, and in the gravest cases by disintegration of the body proteids. It remains to explain why the excess of sugar is not utilized by the tissues, is not, that is, oxidized in the ordinary manner by the muscles. It has been conjectured that it may require previous elaboration in other organs, and as the pancreas is in many instances diseased attention has been directed to that gland. The recent researches of the younger Cohnheim are suggestive in this regard. He finds that neither pancreatic juice nor muscle juice has singly any action upon sugar, but that when the two are combined the sugar is rapidly broken up. He holds, therefore, that the proenzyme produced in the muscles is only activated by a glycolytic substance contained in the pancreatic juice, and probably derived from the internal secretion of the islands of Langerhans. Extensive disease of the pancreas would destroy this substance, and render the sugar unavailable for combustion in the muscles. It must be added that, in some cases, no disease of the pancreas or liver has been found. In some of these there has been disease in the region of the "diabetic puncture" (floor of the fourth ventricle)."—(Wheeler and Jack's *Handbook of Medicine.*)

3. "*Gout* is a condition characterized by attacks of acute arthritis and other constitutional symptoms, clinically, by the excess of uric acid in the blood, and anatomically, by the deposit of sodium biurate in the cartilages and elsewhere. It must not be imagined that this excess of uric acid in the blood is the cause of the disease, for uric acid in excess exists in the blood in a number of different states without gout being present. The urates are inert bodies, and the most that can be said is that they are an indicator; that is, the faulty metabolism which produces them produces also substances that are toxic. These substances we do not know with any exactness. . . . It is necessary to know, more fully than we do, the toxic effects of the purin bases, for they are toxic, and it is perhaps the purin bases that are responsible for gout. Gout, therefore, is probably the outcome of insufficient oxidation, whereby the precursors of the uric acid, and similar bodies, are not fully oxidized, and by their accumula-

tion and their toxicity, set up morbid changes; and the uric acid formed is in its turn imperfectly oxidized, and accumulates; this diminished oxidation is due to a constitutional deficiency of oxidases, inherited or acquired."—(Adami and McCrae's *Textbook of Pathology.*)

BACTERIOLOGY.

1. PATHOGENIC SPIRILLA. *Spirillum choleræ* found in Asiatic cholera; *Spirochæta recurrentis*, in relapsing fever; another variety of the same, in Congo tick fever; *Spirochæta pallida*, in syphilis; *Spirochæta refringens*, in syphilis; *Spirochæta fusiformis*, in Vincent's angina.

2. "*Mycetoma*, or Madura foot, is a localized chronic inflammation, almost painless, and usually involving the foot, the hand, or some exposed portion of the body. The disease involves the tissues by direct extension, attacking the bones as well as the soft tissues. It usually remains localized to one extremity. It is due to the *Streptothrix maduræ*. The black variety of Madura foot is due to a different organism, the threads of which are 3 to 8μ in thickness. This organism seems to be an aspergillus, and has been named *Madurella mycetori*." —(MacNeal's *Pathogenic Microorganisms.*)

3. *Pathogenic protozoa:* The ameba of dysentery (*entamœba histolytica*), *Trypanosoma lewisi*, *Trypanosoma evansi*, *Trypanosoma brucei*, *Trypanosoma gambiense*, a trypanosoma probably causing kala-azar, *Plasmodium vivax*, *Plasmodium malariæ*, *Plasmodium falciparum*, *Piroplasma* (various species pathogenic for animals), and *Balantidium coli.*

"The ameba is a rounded cell with a clear outer ectoplasm, and a granular endoplasm. It has a rounded or oval excentric nucleus, and measures from 10 to 15μ in diameter. On the warm stage it shows active ameboid movement. In the resting stage it forms a cyst or cysts, and in this state resists drying for a long time. The organisms are found chiefly in the large intestine, especially in the rectum and flexures, but they also occur in the ileum and stomach, and in the liver. They have the power of penetrating the tissues."—(Wheeler and Jack's *Handbook of Medicine.*)

HYGIENE.

1. A *watershed* is the region from which a water supply is derived.

2. It can be properly safeguarded by preventing the discharge of sewage or waste into the source of water supply; also by purification.

3. The *water borne diseases* are: Typhoid, cholera, gastric and intestinal irritation, parasites, and diseases, diarrhea, dysentery, and (according to some) goiter.

4. Drinking water may be purified by distillation, or by filtration, and boiling.

5. Ground water may become polluted in its course through the soil, or after it has passed through the surface soil.

MEDICAL JURISPRUDENCE.

1. By *molecular death* is "understood the incessant disintegration of tissue which is going on in the body during the active processes of life; the waste of material thus produced being compensated by the reparation. In youth, the supply is in excess of the waste, and growth is the result; in advanced age, the reverse is the case. *Somatic death* is the cessation of all the vital functions of the body, or the death of the whole body. The latter is the popular idea of death, and the time when it takes place is generally recognizable. The precise period when universal *molecular* death occurs cannot be accurately determined. No doubt, molecular life may continue some time after somatic death, as is evidenced by postmortem temperature and muscular irritability, by the postmortem beating of the heart, and by certain acts of nutrition and secretion." —(Reese's *Medical Jurisprudence.*)

2. *Signs of death:* Complete and continuous cessation of circulation and respiration; loss of body heat; pallor; rigor mortis; cadaveric lividity; putrefaction; adipocere formation; and, occasionally, mummification. The presence of some of these signs of death marks the difference between real and apparent death.

3. For a complete answer to this question the reader must consult one of the standard works on pathology or medical jurisprudence.

4. *Causes of violent death:* Wounds, burns, and scalds, suffocation, hanging, strangulation, electricity, drowning, excessive heat or cold, starvation, and poisoning.

5. The *object of a coroner's inquest* is to discover the cause of death when the latter is unknown, or inexplicably sudden.

PRACTICE OF MEDICINE.

1. In *scurvy*, the cardinal symptom is the extravasation of blood beneath the periosteum, with resulting thickening and tenderness of the shaft of the bone. The pain in the legs, their position, and the spongy and bleeding gums are symptoms of nearly equal importance. The disease may be suspected in any child who has difficulty or pain in moving the legs, or in whom paralysis is suspected.

In *rachitis*, although the early stages may be indistinguishable, there soon develops the rachitic rosary and the enlargement of the ends of the long bones; pain is, as a rule, absent; and ecchymoses, petechiæ, and spongy gums are not observed. Both may coexist. —(Butler's *Diagnostics of Internal Medicine.*)

2. KINDS OF ARTERIAL PULSE. The normal pulse; the pulse of increased frequency, or tachycardia; the pulse of decreased frequency, or bradycardia; the intermittent or irregular pulse; the high tension pulse; the pulse with a wave of great volume; the slow, or tardy pulse; the dicrotic pulse.

3. *Catalepsy* is a condition characterized by muscular rigidity of the limbs; the affected limb will stay for a long time in the position in which it is placed; the patient is insensible.

EPILEPSY.	HYSTERIA.
1. No apparent cause.	1. Cause, emotional.
2. Sudden and rapid onset.	2. Onset gradual, usually after some mental excitement.
3. Aura generally present.	3. Globus hystericus or palpitation.
4. Consciousness lost.	4. Consciousness generally preserved.
5. Pupils generally dilated.	5. Pupils normal.
6. Tongue often bitten.	6. Tongue never bitten.
7. Patient very liable to hurt himself.	7. Patient not liable to hurt himself; may injure others.
8. May be involuntary bladder and bowel discharges.	8. Never.
9. Of short duration.	9. Duration longer.

4. The *common bile duct may be occluded* by: Gallstones; ulceration; parasites; foreign bodies; pressure from outside by tumor of pylorus or pancreas, abdominal tumors, aneurysm, or enlarged glands; cicatricial contraction following duodenal ulcer or syphilis of the liver.

5. VARIETIES OF STOMATITIS, WITH CAUSES. *Catarrhal stomatitis*, due to dentition or gastrointestinal disturbances in children, irritating or too hot food, and the acute infectious diseases. *Aphthous or follicular stomatitis;* canker, sore mouth is most common in infants and young children, either as an idiopathic affection or as a result of indigestion or a febrile attack; and occurs in adults when the general health is impaired. *Ulcerative or fetid stomatitis;* putrid sore mouth occurs most commonly in children during the first dentition, and may be epidemic, even in adults, in asylums, jails, and camps, where the hygienic conditions are poor. *Parasitic or mycotic stomatitis;* this affection (thrush, soor, muguet) is dependent upon the *Saccharomyces* (or *Oidium*) *albicans.* It occurs mainly in bottle-fed infants. Predisposing conditions are uncleanliness of the mouth and of feeding utensils, and cachectic or diseased states in general, in adults as well as children. *Gangrenous stomatitis;* cancrum oris or noma is a rare disease, affecting children of from 2 to 5 years of age, and occurring usually during convalescence from the acute fevers. More than fifty per cent. of the cases follow measles; less frequently it occurs after typhoid fever, scarlet fever, variola, and whooping-cough. Debilitated and cachectic states also predispose. The exciting cause is probably a yet unknown microorganism. *Mercurial stomatitis;* due to personal idiosyncrasies this may follow the use of repeated minute doses of a mercurial; or it may be an occupation poisoning. *Subvarieties of stomatitis;* in the newborn there may be small ulcers of the hard palate, symmetrically placed on either side of the median line, which may involve the bone (Parrot). Similar ulcers on the hard palate may be caused in

marasmic children by the irritation of a rubber nipple (Bednar). Jacobi has described a chronic recurring herpetic eruption of the buccal cavity in neurotic persons, sometimes coexisting with erythema multiforme." —(Butler's *Diagnostics of Internal Medicine.*)

6. *Vocal fremitus* is the vibration of the chest communicated to the hands of the physician while the patient is speaking. It is *increased* in lobar pneumonia, tuberculosis of the lungs, and bronchopneumonia; it is *decreased* in pleural effusions, emphysema, collapse of the lung, tumors of the lung, and pulmonary edema.

7. *Urinary casts* are moulds of the uriniferous tubules of the kidney. *Epithelial tube casts* are found in desquamative nephritis. *Blood casts* are found in acute renal hyperemia, acute nephritis, hemorrhagic infarction, and renal hematuria. *Pus casts* are found in suppurative nephritis and pyelitis. *Bacterial casts* are found in pyelonephritis and suppurative nephritis. *Granular casts* are found in chronic degenerative processes of the kidneys. *Fatty casts* are found in subacute or chronic nephritis with fatty degeneration, especially large white kidney. *Hyaline casts* are found in all inflammations, acute or chronic, of the renal tubules. *Waxy casts* are found in subacute or chronic nephritis. —(From Butler's *Diagnostics of Internal Medicine.*)

8. *Smallpox:* The eruption usually appears first on the forehead and wrists, and on the third or fourth day; it is first macular, then papular, then vesicular, and finally pustular; it does not appear in successive crops; the spots are multilocular, and do not collapse on being punctured; the papule is hard and shotty, and does not disappear on stretching the skin.

Scarlet fever: Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes. As compared with smallpox and measles, the eruption is brighter, is on a red background, punctiform, and is more uniform; the temperature is higher, the pulse quicker; the tongue is of the "strawberry" type, the lymphatics in the neck may be swollen, and there is sore throat; Koplik's spots are absent. *Measles:* Character of eruption, small, dark red papules with crescentic borders, beginning on face and rapidly spreading over the entire body; desquamation is branny. As compared with scarlet fever, the eruption is darker, less uniform, more shotty; Koplik's spots are present.

9. *Pathological sounds heard on auscultation of the lungs: "Bronchial breathing* occurs in *lobar pneumonia*, phthisis, compensatory emphysema, tumor, syphilis, and infarct. Both inspiration and expiration are harsh and have a high-pitched (tubular) character. *Cavernous breathing* is low-pitched and blowing in character and is heard over cavities. *Amphoric breathing* is similar to the sound produced by blowing gently over the mouth of an empty jar. It is present in phthisical cavities, pneumothorax with patulous opening, and localized consolidation near a large bronchus. Adventitious sounds include râles, metallic tinkling, and pleuritic friction sound. Râles may be dry or moist: *Dry râles* occur in bronchitis and asthma, and may be low-pitched snoring sounds (sonorous râles) or high-pitched whistling sounds (sibilant râles). *Moist râles* are produced by the passage of the air through liquid, and may be crepitant, subcrepitant, or gurgling in character. *Crepitant râles* are extremely fine and occur at the end of inspiration; they are heard in the first stage of pneumonia and in engorgement and edema of the lungs. *Subcrepitant râles* are comparatively few in number, and are heard during inspiration and expiration, in capillary bronchitis, pulmonary edema, hypostatic pulmonary congestion, and incipient phthisis. *Gurgling râles* may be large or small, and are heard during inspiration and expiration in phthisical cavities, bronchial hemorrhage, in the stage of secretion in bronchitis, and over the trachea. *Metallic tinkling* is a bell-like sound heard in pneumothorax and phthisical cavities, and is caused by the dropping of a liquid through the space inclosed in tense walls. The *succussion splash* is produced in pneumothorax when the patient is suddenly shaken. *Pleuritic friction sounds* are heard during inspiration and expiration, and do not pass away after coughing. They are pathognomonic of pleurisy."—(*Cyclopedia of Medicine and Surgery.*)

10. The first, or systolic, sound is dull and somewhat prolonged; the second, or diastolic, is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup.* The first is heard best in the fifth left intercostal space; the second over the second right costal cartilage.

(To be concluded.)

Therapeutic Hints.

Allylmorphine.—A. Mayor and B. Wiki state that this is a new derivative of morphine obtained by the substitution of the allyl radicle for a phenol group in the morphine molecule. The sulphate of allylmorphine has an action notably different from that of morphine. It produces somnolence but not profound sleep. It has a local analgesic action similar to that of morphine. It does not slow respiration and lowers blood pressure. Moderate doses are well borne.—*Revue Médicale de la Suisse Romande.*

Treatment of Intestinal Hemorrhages in Typhoid Fever.—A. Robin details this treatment as follows: Absolute rest; the application of ice to the abdomen; the avoidance of stimulation, and the alternate administration every hour of ergotin in conjunction with gallic acid, and calcium chloride, according to the following formulæ:

℞ Ergotin, 4 grams.
Gallic acid, 0.5 gram.
Syrup of turpentine (Fr. Phar.), 30 grams.
Distilled water, 120 grams.

℞ Calcium chloride, 4 grams.
Syrup of opium (Fr. Phar.), 30 grams.
Distilled water, 120 grams.

The above are given alternately every hour in tablespoonful doses.—*Journal de Médecine et de Chirurgie.*

Treatment of Bedsores.—A. Robin recommends the use of the following ointment after the parts have been washed with Labarraque's solution:

℞ Precipitated sulphur.
Camphor.
Pure glycerin, āā 30 grams.
—*Journal de Médecine et de Chirurgie.*

Pyocyanase in the Treatment of Diphtheria.—A Montefusco records good results obtained by means of insufflations of the throat with pyocyanase, a mixture of enzymes obtained from cultures of the *Bacillus pyocyaneus.* This treatment is used in conjunction with the injection of antitoxin.—*Giornale Internazionale delle Scienze Mediche.*

Treatment of Occupation Rhinitis.—D. Braden Kyle details this as follows: The cause should be removed. As a preventive the nostrils should be protected by moistened cotton or woolen plugs. When ulceration takes place the treatment consists in cleansing, drying, and the application of liquid astringents, as 3 per cent. chloride of zinc. Before ulceration alkaline cleansing solutions should be used, as:

℞ Phenol.
Sodium biborate, āā 10 grams.
Glycerin, 30 grams.
Distilled water, 50 grams.

This should be followed by

℞ Oil of cassia.
Sandalwood oil, āā 5 drops.
Liquid paraffin, 1 ounce.

Or compound tincture of benzoin, with an equal part of boroglyceride, 50 per cent., for its sedative action.—"Diseases of the Nose and Throat."

Treatment of Vomiting in Infants.—A. B. Marfan is accredited with the following formula:

℞ Tincture of belladonna, 10 drops.
Sodium bromide, 1 gram.
Sodium bicarbonate, 1.5 grams.
Distilled water, 60 grams.
Simple syrup, 30 grams.

M. Sig.: Four to six teaspoonfuls per day.—*Journal de Médecine et de Chirurgie.*

807, SHERBOURNE ST,
TORONTO.

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 22.
Whole No. 2325.

NEW YORK, MAY 29, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

THE PROGNOSTIC SIGNIFICANCE OF CHANGES IN THE RETINAL VESSELS.*

BY ARNOLD KNAPP, M.D.,

NEW YORK

PROFESSOR OF OPHTHALMOLOGY, COLUMBIA UNIVERSITY; EXECUTIVE SURGEON, HERMAN KNAPP MEMORIAL EYE HOSPITAL.

THE importance of ophthalmoscopic changes in the retinal blood vessels for the interpretation of general vascular disease has been admitted for a long time. More exact study of these ophthalmoscopic changes in recent years permits us now to formulate the various changes which are observed in the retinal vessels and to state definitely their prognostic significance.

It can be stated both on clinical and on pathological evidence that the presence of sclerotic changes in the retinal vessels pre-supposes with certainty a similar state in the cerebral arteries, but not the reverse (Hertel[1]); in a number of cases of pronounced vascular disease in the brain the ophthalmoscopic condition was normal. The retinal arteries are furthermore end arteries, just as are the cerebral blood vessels which supply the basal ganglia, and are equally exposed to increased blood pressure in the internal carotid artery.

Occurrence.—In general arteriosclerosis changes in the retinal vessels of moderate degree are frequently present, and can be recognized with the ophthalmoscope. Raehlmann,[2] to whom we owe the first careful examination of this subject, found among 210 cases, in nearly one-half, changes in the retinal vessels. Similar results were found by Friedenwald,[3] Lurje,[4] and Hertel. In general, changes in the retinal vessels occur in those cases of general arteriosclerosis in which the large cerebral arteries are particularly involved. Leber[5] believes that there is a direct dependence of the disease of the ocular vessels to that of the mother vessels at the base of the brain.

Arteriosclerotic changes may affect either the arteries or the veins or both, and in a characteristic manner the involvement may be restricted to quite limited vascular areas in the retina, such as the central vessels or one of their branches. In some cases of retinal vascular changes no clinical evidences of general sclerosis can be found. These cases, if carefully watched, will show sooner or later general symptoms.

A case in point is that of a young man who was first seen in 1911, when he was sixteen years old. The right retina presented a number of whitish areas which looked like old hemorrhages. Some of the retinal blood vessels were slightly tortuous. A physical examination by the family physician revealed no general abnormality. Two years later, in 1913, the vision in the right eye became blurred and a number of fresh hemorrhages appeared in the retina. The small arteries in this region were distinctly tortuous. The other eye ground was perfectly normal. The general examination showed the urine to be normal, heart somewhat enlarged, blood pressure 180. This was supposed to be secondary to an obscure intestinal process. Under appropriate general treatment the pressure was reduced to 125. The circulation in the retina improved and no further hemorrhages occurred. In the spring of 1914 there were some additional hemorrhages in the retina. The blood pressure was 130, the urine normal. In the fall of that year there was no particular change in the ophthalmoscopic condition in the right eye. In the left eye there was a hemorrhage below the disc, some pigmentary disturbance in the macula, with distinct vascular changes. The urine showed a trace of albumen. The blood pressure was 140. Latent interstitial nephritis is now suspected.

Physical Signs.—The arteriosclerotic changes may be only microscopic. Hertel found microscopic changes in the retinal vessels of patients with pronounced general arteriosclerosis where no ophthalmoscopic disturbance was found present in the eyes. These arteriosclerotic changes were variable in their distribution and circumscribed. Slight changes can, therefore, not be recognized with the ophthalmoscope. It must, furthermore, be remembered that arteriosclerotic changes do not cause functional disturbance in the retina until the process has progressed to vessel-closure, hemorrhages, or exudates.

In the early stages of retinal arteriosclerosis, according to Thoma,[6] there are increased tortuousness of the arteries, distinct presence of true arterial pulse and a progressive peripheric venous pulse. Raehlmann and Gunn have drawn attention particularly to the variation of caliber in the blood column. These arteries, which are generally narrow, show circumscribed contractions of the lumen with intervening dilated areas, small ectasias, or the beginnings of miliary aneurysms (Leber). In the veins between the constricted areas there are varicose dilatations.

Gunn,[7] in 1892, drew attention to a peculiar shining appearance which the arteries present, suggestive of "silver wire." The light reflex is unusually narrow and bright, not only near the disc, but in branches of the second and third order, which gives the impression of unusual fullness and rounding. The transparency of the vessel wall is diminished, and where the arteries pass over a vein the latter cannot be seen through. Leber agrees with Gunn that a narrowing of the reflex streak and the greater rounding of the artery indicate increase of blood pressure. Gunn furthermore has pointed out the indentation which a sclerosed artery exerts on an underlying vein, and which frequently leads to a peripheric dilatation of the vein. A similar observation was made by Raehlmann, who believes that this pressure causes a circumscribed sclerosis of the venous wall.

de Schweinitz[8] speaks of the following signs as

*Read at Meeting of the Practitioners' Society, March 5, 1914.

being suggestive of retinal arteriosclerosis, "and which must not be disregarded if they are associated with other symptoms of arterial disease. Three signs may be seen early: (*a*) A markedly corkscrew appearance of certain arterial twigs, either of those which skirt the macula, or, more significantly, of one or more small branches which arise from the larger vessels of the main distribution which themselves are apparently normal."

(*b*) "A flattening of a vein where it is in contact with an artery, and at this spot it has somewhat the appearance that a strap would have if laid across a solid tube, provided the vein passes over the artery. If the artery passes over the vein, the appearance is analogous to that which would be produced if the strap were placed across the lower surface of the tube. The vein is only slightly compressed at this stage, but is not yet indented sufficiently to produce an ampulliform dilatation of the vein beyond the point of crossing."

(*c*) "The nerve-head has an appearance often loosely described as 'congested.'"

The diagnosis of congestion of the nerve head should be made with great caution, as there are such wide physiological variations of congestion compatible with a healthy optic nerve. The later ophthalmoscopic signs are changes in the vessel wall by which they become thickened, opaque, and are gradually transformed into white lines which sheath the narrow or obliterated blood current, the lumen becomes narrowed and occluded. Similar changes occur in the veins, though the veins are more tortuous than the arteries in the later stages. Other changes are hemorrhages, edema, and exudates.

Uhthoff believes that these so-called first ophthalmoscopic signs of retinal arteriosclerosis, consisting of slight tortuousness, slight variation in caliber, and a somewhat accentuated reflex streak, are to be interpreted with caution in considering their prognostic bearing on the state of the cerebral vessels, as these changes can occur in the healthy and be physiological. For the certain diagnosis of arteriosclerosis of the retinal arteries the vessel walls must be outlined with white lines (vascular sheathing), and distinctly thickened, the lumen must be narrowed up to the point of ischemia and complete obliteration; in the earlier stages the diagnosis can only be made when arteriosclerotic changes have led to arterial occlusion through thrombosis, as in the picture of closing of the central artery. This represents the most conservative standpoint in the interpretation of the retinal arteriovascular changes. We must, therefore, agree with de Schweinitz in regarding the early signs as suggestive and of importance if associated with other symptoms of arteriosclerosis.

Prognostic Significance.—The important question, how frequently do cerebral complications ensue after the definite ophthalmoscopic diagnosis of arteriosclerotic changes has been made, can only be answered by the systematic clinical following-up of a sufficiently large series of cases. This has been done by Geis in an unusually painstaking and instructive study of a large series of cases occurring in the practice of Uhthoff, by whom all ophthalmoscopic examinations had been made. The following is largely based upon Geis's[8] results:

Distinct arteriosclerotic changes in the retinal vessels indicate the existence of similar changes in the cerebral vessels. The subsequent history of 17 cases of distinct retinal arteriosclerosis were investigated by Geis, and death resulted from apoplexy in all 17 not later than four years.

Cases with the ophthalmoscopic picture of sudden closure of the central retinal artery or of a branch are to be regarded as examples of arteriosclerotic retinal disease when they occur in patients over 40 years of age with no evidence of any other cause or of a cardiac lesion. In these cases the ophthalmoscopic picture has the same prognostic significance as in the case of the visible arteriosclerotic retinal changes, though the apoplectic attack may occur somewhat later. Closure of the central retinal artery in young people up to 39 has no prognostic unfavorable significance.

Vascular changes in the retina, due to syphilis, have not the same serious general prognostic importance as the corresponding arteriosclerotic changes.

As changes in the veins (*venous thrombosis*) occur much more readily than in the artery, Geis's statistics show that in 50 per cent. venous thrombosis is a purely local change, though in 40 to 50 per cent. it was the precursor of cerebral vessel sclerosis. Really definite and serious prognostic significance is only given in those cases where in addition to the lesion in the vein the other retinal vessels showed sclerotic changes.

Retinal hemorrhages, if they are not due to local diseases or to abnormal blood conditions (anemias, etc.), occur when the vessel walls are brittle, especially with the addition of increased blood pressure as in arteriosclerosis. These vessel changes need not be recognizable with the ophthalmoscope. They have the same serious prognostic significance that arteriosclerotic changes in the retinal vessels possess, though in Geis's cases the cerebral hemorrhages did not occur for a number of years. A distinction must be made in isolated hemorrhages occurring in the macular region. These seem to be due to local changes and have not the same serious general significance. This also holds good for the retinal hemorrhages occurring in syphilis. It is very important to realize the necessity of estimating the blood pressure in the presence of retinal hemorrhages. Its increase is a serious sign.

In general, vascular changes in *albuminuric retinitis* are not pronounced on ophthalmoscopic examination. Aside from the usual picture of albuminuric retinitis, we find isolated retinal hemorrhages occurring in nephritis where there are signs of increased blood pressure, and which are probably due to arteriosclerosis. In this condition cerebral apoplexies are to be expected and in the cases which Geis was able to follow they always occurred. At the same time, death resulted at a later stage than is usual in albuminuric retinitis. Thrombosis of the veins occurring in cases with albumin in the urine should be differentiated from cases of albuminuric retinitis and isolated retinal hemorrhages occurring in nephritis, as they do not permit of any general prognostic deductions.

The conditions in *diabetic retinitis* are similar. Aside from the typical diabetic retinitis, we find hemorrhages which must be due to pathological changes in the vessel walls. In these isolated retinal hemorrhages in diabetics the blood pressure is increased in a large number of cases. A definite prognosis in diabetic retinitis can only be given in those cases of isolated hemorrhages associated with arteriosclerotic vascular changes which are to be regarded as precursors of more serious cerebral mischief. In the usual retinitis of diabetic patients,

just as in albuminuric retinitis, apoplexies occurred in only 1/3 to 1/2 of the cases.

Vitreous hemorrhages have not any definite prognostic significance, unless they are associated with distinct ophthalmoscopic signs of arteriosclerotic changes in the vessels. This is readily explained by the number of causes which may produce hemorrhages into the vitreous.

Finally, as to the significance of *subconjunctival hemorrhages*. They occur, as is well known, in all ages and after a great variety of causes and cannot be regarded in any way as forerunners of cerebral hemorrhages.

A very remarkable clinical feature are attacks of *obscurations* which especially patients with vascular disease of the retinal arteries are subject to.[11] They are important as they may be the forerunners of a permanent loss of sight and frequently precede partial or complete blindness. The cause for these obscurations has not been determined. It is perhaps best explained by the acceptance of spasm affecting the vessel, for patients with recurring obscurations have been examined during an attack and the blood vessels were found contracted and obliterated. The spasm is frequently relieved in a very short time and the function restored. It is evident that vascular spasm has a different prognosis, as it affects normal and pathological bloodvessels, and Osler mentions the direct incentive to spasm which pathological vessel changes offer. Russell[11] has suggested the term "intermittent closing" as indicating this vessel action. There are a number of examples of "closing" dependent upon vasomotor phenomena, such as the contraction of the retinal artery, which have been observed in epilepsy, malaria, whooping cough, and migraine. A study of the anatomical changes in retinal arteriosclerosis shows that the slightest change in the blood pressure or the slightest contraction of the vessel will cause an obliteration of the blood column. If this occurs for a length of time which would not be of account in a healthy vessel, in a pathological one it will be sufficient to cause a permanent functional atrophy of the retina. Intermittent closing of healthy retinal arteries may occur without any lasting effect on vision. In diseased retinal vessels this phenomenon is of grave significance.

Conclusions.—1. Distinct arteriosclerotic changes in the retinal vessels indicate a similar state in the cerebral vessels, but not the reverse.

2. Slight changes are suggestive and of importance if associated with other symptoms of arteriosclerosis.

3. "Silver wire" retinal arteries and retinal hemorrhages, if no disturbance of the blood constituents is present, are each indicative of raised blood pressure.

4. In nephritis and diabetes there are changes in the retina due to arteriosclerosis which are independent of and give a different prognosis from the usual albuminuric and diabetic retinitis.

5. Syphilitic disease of the retinal vessels has no general prognostic significance; thrombosis of the central retinal vein is in more than one-half of the cases purely a local lesion.

6. Temporary obscurations of vision in patients with arteriosclerotic changes of the retinal vessels are of grave significance for sight.

REFERENCES.

1. Hertel: "Veränderungen der Netzhautgefässe bei Arteriosklerose." Bericht über die XXVIII. Vers. der Ophthalm. Gesellschaft, 1900, p. 150.

"Beitrag zur Kenntnis der Angiosklerose der Zentralgefässe des Auges. *v. Graefes Arch. f. Ophth.* Vol. 2, p. 191; 1901.

2. Rachlmann: "Über einige Veränderungen an den Netzhautgefässen, welche bei allgemeiner Arteriosklerose beobachtet werden." *Arch. f. Psych. u. Nervenkrankh.* Vol. XX, No. 2, p. 566; 1888.

"Über ophthalmoskopisch sichtbare Erkrankungen der Netzhautgefässe bei allgemeiner Arteriosklerose, mit besonderer Berücksichtigung der Sklerose der Hirngefässe." *Zeitschr. f. klin. Med.* Vol. XVI, Nos. 5 and 6, page 1; 1889.

"Über die ophthalmoskopische Diagnose sklerotischer Erkrankungen der Netzhautgefässe." *Zeitschr. f. Augenheilk.* Vol. VII, p. 425; 1902.

3. Friedenwald: "The Significance of Constrictions and Dilatations in the Calibre of Retinal Arteries," *Archives of Ophth.*, Vol. XXV, No. 2, p. 177; 1896.

4. Lurje: "Über das Verhalten der Netzhautgefässe bei Sklerose der Hirnarterien und der übrigen Teile des Aortensystems. Inaug. Diss. v. Dorpat., 1893.

5. Leber: "Die Krankheiten der Netzhaut." *Graefe-Saemisch-Hess, IIed.* Part II, Vol. VII, Chapter X, p. 101.

6. Thoma: "Über die Elastizität der Netzhautarterien." *v. Graefe's Arch. f. Ophth.* Vol. XXXV, No. 2, p. 1; 1889.

7. Gunn: "Ophthalmic Evidence of Arterial Changes Associated with Chronic Renal Disease and of Increased Arterial Tension." *Ophth. Soc. Transact.*, Vol. XII, p. 124. Plate II, Fig. 2; 1892.

"On Ophthalmic Evidence of General Arterial Disease." *Ophth. Soc. Transact.*, Vol. XVIII, pp. 356-379; 1898.

8. de Schweinitz: "Intraocular Angiosclerosis." *International Clinics*, Vol. I, 17 Series; 1907.

9. Geis: "Beziehungen der Gefässerkrankungen der Netzhaut zu denen des Gehirns. *Kl. M. f. Augenhlk.* Vol. XLIX, p. 4; 1911.

10. Knapp: "Intermittent Closing of Retinal Arteries." *Journ. Amer. Med. Assn.*, Vol. LIV, pp. 2118-2120. June 25, 1910.

11. Russell: "Intermittent Closing of Cerebral Arteries." *Brit. Med. Journ.*, Oct. 16, 1909.

STUDIES OF ATYPICAL CHILDREN.

FROM THE DEPARTMENT OF UNGRADED CLASSES IN THE PUBLIC SCHOOLS OF NEW YORK CITY.*

By WILLIAM B. NOYES M.A. M.D.,

NEW YORK.

ATTENDING NEUROLOGIST TO COLUMBUS HOSPITAL; NEUROLOGIST TO THE DEMILT DISPENSARY; CONSULTING NEUROLOGIST TO THE MOUNTAINSIDE HOSPITAL, MONTCLAIR, NEW JERSEY.

A VILLAGE in Southern New Jersey was much stirred up three weeks ago by a religious revival under the direction of speakers who are associated with "Billy" Sunday. A number of the town drunkards were converted and several individuals known to be feeble-minded of a type that is rather common in that part of the State. A physician who was personally much interested in the movement asked the writer to define a moron. The definition given was "a moron is an individual who is capable of earning a living under favorable circumstances, but is incapable from mental defect, existing from birth or from early age, of competing on equal terms with his normal fellows or managing his affairs with prudence. He is able to do mental tests corresponding with the performances of a normal child from 7 to 12 years."

The question was then asked what possibility there was of such a feeble-minded person who had become a convert "making good" and holding permanently to the stand he had taken. After assuming the fact of the well-known mental instability and hyperexcitability of the subnormal

*Read at a meeting of the N. Y. Neurological Society, April 6, 1915.

class under discussion and the intimate relation between religious emotionalism and the psychosexual life the question was finally asked by the physician as to whether or not there was any psychological test that would adequately determine the possibility whether such a mentally deficient convert might not only radically change his moral reaction to his environment but that he might actually develop a strength of effort and purpose that might be lasting and effective.

The answer to this is positively that no such test exists. No Binet scale or even the remarkable series of Healy tests will settle the problem of the effect of an overmastering emotional or intellectual stimulus, any more than it can determine how far a long continued lack of effort and ambition has been the underlying cause of what appears to be purely mental deficiency in a given case.

A principal of Public School 168, Brooklyn, has developed a method of approach in the way of effective influence of defective children that is the most successful thing seen by the writer in five months' study of these cases in the public schools. He had an ungraded class of boys, nearly all of whom were poorly developed physically and clumsy or awkward in their movements and overgrown in their stature. Mentally they were mostly of the grade of morons. Nothing could have been more unpromising for results to be hoped for except a class of imbeciles or idiots. They were all morally troublesome or incorrigible at first. He devoted himself to special efforts in physical training. He also formed them into a basket ball team and in the course of time succeeded in making them the winning team of the school. As he expressed it, the gain in conduct was radical. They were changed from a set of incorrigible and disorderly boys into a decent, well-disciplined, self-respecting class. Muscular coordination had to be created in each one. Intellectually he stated that he had gained little and expected less. He believed that he had made men out of them. The facts on record proved conclusively that he had made each one of them over and that the intellectual gain was greater than he had realized himself.

The team work of the basket ball work seemed to have a socializing effect. And the fact of becoming winners at times and meeting on terms of equality the other boys was an overmastering influence in these special cases.

It is easy for one who has been trained in the use of clean-cut diagnoses and in the habit of using medical terms in common use in hospitals and neurological clinics to find his sharply defined conceptions badly obscured after a few months' work examining large numbers of mentally defective or abnormal children in the public schools.

Ungraded classes are now a well recognized part of the school organization in most cities. The sifting of the children who are doing unsatisfactory work in their grade is done systematically by the teachers. The final study of their mental deficiency or the physical or neurological causes responsible for these mental defects is being more and more assumed by medical advisors.

The Department of Health has the first chance to work over these children and in many cities covers the entire field. In New York and other cities the mental and neurological problems are now the subject of careful study of a few physicians specially trained in this line. All of us recognize that the so-called borderland cases partly mental, party neurological, are very numerous, but that there should be such an infinite variety of intermediate forms as to almost prevent any well-defined and sharply classified diagnosis is a problem both perplexing and serious.

Many terms formerly in use, apparently distinct and clear, seem to merge into one another, or are based on varying points of view, such as the etiological factors or dominant symptoms. Under such circumstances one may be pardoned if he turns with relief to more general and more comprehensive terms, such as atypical, subnormal, and abnormal children, or mentally retarded or deficient children; psychasthenic, or degenerate children; debiles or varying forms of the so-called psychopathic constitution. But after a painstaking study of about 1,500 children of the public schools in this city, of all grades of abnormality, certain facts begin to be too obvious to be questioned.

Certain phases of personality; certain reactions to the environment of the school, certain neurological conditions associated with definite mental types recur again and again. Some familiar and classical forms of disease well recognized by all of us appear very frequently or occur under marked forms that ought to be recognized.

Typical epilepsy will appear from time to time and is recognized as such quite as positively by the teachers as by physicians. But among an infinite variety of emotional outbursts or "tantrums" seen not infrequently in schools, uncontrollable reactions to ordinary school routine, both temperamental and intellectual, how often will it be possible to state with definiteness that this too is epilepsy and can only be scientifically classified as the psychic equivalent of epilepsy?

Within two weeks a boy of 9 years, of an unusually intelligent family of good social position, was seen by the writer in a school. He was, in the judgment of his teachers a candidate for an ungraded class, not so much on account of his failure in school work, or his mental deficiency as on account of his incorrigible behavior, which was characterized by disorderly conduct, emotional instability, a quarrelsome temperament, and spurts of temper. His past history included convulsions in infancy during a few weeks and nothing else of special interest. In my presence he had a typical attack of petit mal epilepsy, characterized by standing still, looking dazed, becoming unconscious for a few moments, rolling his eyes, twitching his facial muscles for a few seconds and then resuming his work as if nothing had happened.

Such momentary attacks had been by no means infrequent, were not considered of any serious import by his family, and had dated back to the time of his original major convulsions. His own sister was a teacher in the school. Without this distinct attack of petit mal the interpretation of his emotional reactions would have been difficult.

A second case, a boy of 11 years, showed similar symptoms as far as conduct was concerned, but he was much more incorrigible, more violent in the outbursts, variable in all reactions with a similar fair mentality, enabling him to reach a class up to his mental age. The Binet test showed only one year mental retardation. It was impossible to obtain any history of petit mal attacks and no general convulsions. His brother was an epileptic. He himself had suffered a serious traumatism to

his head, from which it was said he has never fully recovered. It may be interpreted as a possible case of psychic equivalent of epilepsy. It certainly was a typical case of the epileptic character.

Some form of motor abnormality will be met with among nearly every child who is submitted for examination to school physicians. Many of them are called by their teachers fidgity or restless children—and even normal children react in this way if tired or poisoned by the poor air of the school room. But under this term of fidgity or restless children will be found a large number of pathological conditions.

In the sense that epilepsy is universally recognized as a clinical diagnosis, Sydenham's chorea may without question be called a clinical entity and is to be seen in typical form in any class of children in a school. Corresponding to the psychic equivalent of epilepsy, it is not difficult to recognize a series of cases that may just as truthfully be termed the psychic equivalent of chorea.

The twitching of certain groups of muscles of the fidgety child may be indistinguishable from the muscular twitching of the child who has had definite Sydenham's chorea, but is improving. The same thing is true of the motor conditions in a child who is developing what will be in a few weeks definite Sydenham's chorea.

Out of the long series of children seen in the schools and clinics, one fact stands out positively and definitely, that there is a definite change in the mental condition of many of these children showing such motor irritability which may be called the psychic equivalent of chorea, and it is characterized by emotional instability, or irritability, by unstable or failing attention by mental fatigue produced after brief strain and by general weakening of memory, all of these symptoms occurring in a child who may have been fairly normal previously. This differs radically from the habit movements of defectives due, as sometimes stated, to a primitive arrest of psychosexual development.

Given a child with a motor irritability, some form of twitching, as stated, hardly severe or extensive enough to be characterized as Sydenham's chorea, a change in disposition and mental power, from a previously normal disposition and mentality, and a general deterioration of all school work after normal progress in previous grades and the diagnosis is possible. If confirmed by a history of so-called rheumatic attacks, a neurotic action of the heart, a valvular heart disease, or even attacks of acute tonsilitis, the diagnosis is probably correct.

This question is of vast importance. Such children are frequently subjected to criticism or discipline, or are wrecked for future efficiency by untactful methods. They differ from the average case of mental retardation, or mental deficiency by the fact that if properly treated they will recover. Treatment varies in each case. Often the ungraded class is a proper place for these children because the home or the street is the only other place a child can go to if temporarily excused from school. When the ungraded class ceases to be a retention pen for the lower types of feeble-minded children, idiots, imbeciles, and low moral defectives, it will be possible to use it for transient treatment for these neurotic types.

These conditions of masked epilepsy and chorea are mentioned to draw attention to an important question. In the broader view of the psychopathic constitution, or the more definite psychic constitutional inferiority, we will see both epileptoid conditions and atypical chorea, or various forms of tics and twitchings as an incidental symptom or by-product of the general condition, and they are sometimes classed among the stigmata of degeneration associated with the general condition. Are such terms as constitutional inferiority, psychasthenia, or even feeblemindedness to be regarded as adjectives, as syndromes, or as a diagnosis? Is the so-called epileptic character or constitution to be distinguished from constitutional inferiority?

The work of Warren Coleman in Bellevue in standardizing terms of medical terminology and diagnosis needs to be followed up in the study of atypical children, recognizing that when one observer speaks in terms of mental deficiency, another is emphasizing etiological, neurological, or physical conditions which underlie it.

An adequate study of the individual child who is thought by the school to be a candidate for the ungraded class, is based on six factors, each of which must be worked out as thoroughly as the available data will permit. First, family history, including the environment and general social status. Second, the previous personal history of the child. Third, the present physical condition. Fourth, the reaction of the child to his environments at home and at school, which is in simple language conduct or behavior or the moral status. Fifth, the mental peculiarities or deficiencies, the mental development in the past, and that which may be called his innate capacity for improvement. Sixth, the technical questions of the school and the child's relation to his work in the classroom, which is the pedagogical problem. This is not new. It is, perhaps, the general method of approach to the study of these children in all clinics where thorough work is done. But when this work is done under the conditions present in the public schools, the following phases of the work will be emphasized from necessity. The family history of school children may be unobtainable, but as a rule may be studied with far more assistance and far more thoroughly than in any clinic. There are many ways in which a teacher or a principal of a school can come in possession of data that often escape the physician. They are able to judge the influence of the family and home on the child. They know whether the parents cooperate with the school work or not and this means not so much whether the parents actively help the child as whether or not they actively or passively block the work of the school and the Department of Health. All teachers see the obvious results of parental alcoholism both as a phase of hereditary taint and the evidence constantly before their eyes from month to month of poverty and the shiftless family life with all its results. If a winter like the past puts thousands of fathers out of work, thousands of mothers take up the responsibility of supporting the family and the children must suffer neglect. In some sections of the city obvious loose living or notorious immorality of the parents is too common, even to complain to the Gerry Society or the police. As all the poorer families are notoriously prolific, and one child after another will surely appear at the school from the same family with the same heredity and the same bad environments at work, it is rare to find

a single subnormal child as the only defective in the family.

The older teachers will always notice the same types repeating themselves from a family of this sort. No examiner of children of ungraded classes would ever neglect to put on record the mental and physical status of the rest of these children. But here appears the greatest riddle of heredity unless it is a riddle solved by the Mendel law. Out of these tainted sources and from the worst and most tainted families appear some children who are perfectly normal or who are potentially normal. With their possibilities masked by environmental conditions the keenest diagnostic skill and endless patience is needed to distinguish these normal or potentially normal children from the constitutionally inferior children who will never under any circumstances develop normally or reach average mental capacity or a decent moral status. No greater mistake can be made than to consider the foreign, or lowest tenement house families, the most antagonistic or obstructive of the parents in their attitude towards the school. A large fraction of American families who belong to what one calls the middle class will obstruct and neutralize the best work of the school if they can. But there is no doubt that the Italian parents and certain allied nationalities are more difficult to manage than the others. If the compulsory education laws were relaxed for a week an army of Italian children would be on the streets or at work. Should we speak of a condition of hereditary illiteracy, the accuracy of the term would be questioned at once. And yet hereditary illiteracy exists. Every school in the city has a set of mentally retarded or abnormal Italian children who are in every way a difficult problem; for underlying their varying mental attainments they all agree in lacking an adequate interest in their school work. They have no interest in the work of the school compared with their work outside. They are predestined bootblacks, or it may be predestined sports or gangsters like their older brothers. Their parents, speaking little English, lose control over them as time passes. In many cases the interval between the arrival of the father and the rest of the family gave ample opportunity for the widespread infection by syphilis. Tuberculosis is conspicuously a racial disease among Italians in the tenements, and a general deterioration of an originally sturdy stock is only too evident.

In the schools this means that among every ten children of Italian parentage are several troublesome cases, some of them distinctly constitutionally inferior. No Binet scale or other standard of mental age adequately gages this vital point of effort and interest any more than it would distinguish between a race horse and a vicious balking or tricky horse. A child in one school who at 13 was unable to learn to read and write, has a father who could not read until after his marriage, when with the help of an intelligent wife he learned. Neither of them was mentally defective as far as could be learned. What is true of the Italians is true in the case of Greeks or other nationalities. The Scandinavians and Slavic races present other problems to the school peculiarly their own. The Hebrews differ from all of them. They not only want to get all that the school can give to their children, but in addition they keep their boys an additional two or three hours in a Rabbinical school, whether for purposes of religious or linguistic study may not concern us. It wrecks the health of hundreds of these children but is difficult to control.

Our approach to the study of present physical conditions of the school child can readily encroach upon matters much discussed by the Department of Health, and by every organization that endeavors in its own way to improve the health of the school child. As a matter of fact, no physician employed by the Department of Education dares for a moment presume that any physical examination of a child by the Department of Health in a public school is adequate for his own study of that child.

It will never be possible or desirable for the Department of Education to rival either the work of well-equipped clinics in dealing directly with the physical condition of the child or the general work of the Department of Health. It must use every possible means to learn exactly which of many possible physical defects are the direct factors in causing retardation or mental deficiency.

The conditions of the nasopharynx have not been neglected, as they are obvious. Discovering and correcting defects of vision has not been approached except in a casual and superficial way. By using the McCallie test for illiterates anyone in a morning's work can unearth cases of serious refractive errors never previously noticed. The test can be easily carried out by teachers or nurses. In many ungraded classes are children who have been struggling along five years or more with 50 per cent. vision. The same conditions are found among partially deaf children, though earnest efforts have been made to teach those who have been recognized as already deaf.

It has been difficult to know what results could be obtained if the recommendations of the physicians of the Department of Health were carried out and every effort was made by the school authorities to influence the parents to cooperate with their suggestions.

In Public School 110, New York, the principal, Miss Simpson, has been tireless in this work and in spite of the opposition from the parents has carried it on by tact and patience. Of about 100 cases seen by the writer a set of 46 children in the various ungraded classes had been subjected to operations for the removal of post-nasal growths, adenoids, and hypertrophied tonsils, and she reports the following statistics of the progress noted by her in these children:

Physical improvement, rapid and marked	86.9%
Physical improvement, slow and slight	8.7%
No apparent improvement	4.3%
Mental improvement, rapid and noticeable	80.4%
Slow, definite, slight	10.8%
No apparent improvement	8.7%
Improvement both mentally and physically	91.3%
No improvement whatever	4.3%

Of the various splendid attempts to meet the problem of undernourishment by means of school lunches, no exact statistics are available, or perhaps can ever be made. I may say that I have eaten the school lunches myself, and 9 cents bought more than I could eat. The quality was satisfactory in every way. Thorough treatment of the teeth of school children is only attempted in a few schools, though the danger of decayed teeth is being more and more recognized.

Every day the need of adequate physical training was seen and the general class drill has been carefully developed and is excellent. Never in

five months was it found possible in any individual case of a poorly developed child needing individual physical training to have it carried out unless some grade teacher would volunteer to do it in addition to her other duties, which is rarely practicable. The teachers of ungraded classes have far more instruction in physical training than teachers in regular grades, but even they are far too busy with other things to give much individual care. Such training is without doubt the only hope for many of the cases of mental deficiency.

It is peculiarly the function of those who work for the Department of Education to study developmental conditions. The motor abnormalities referred to already are but one phase of the greater problem of the physiology and pathology of development. The ideals of the department of physical training should in their own way when worked out, contribute much to this subject.

Each ungraded class has specimens of children who show evidences of extraordinary physical overgrowth and this is seen even among such stunted races as the Italians or Hebrews. There are endless varieties in these developed mental anomalies, including not only the overgrown but the obese, the undersized or dwarfish, the cretins, and the cretinoid types, such as the Mongolian idiot and the various forms of asymmetrical or local malformations.

Not unlike conditions are seen in every insane asylum, where normal looking men and women after a certain length of time under the influence of dementia or other psychoses develop marked changes in features, deterioration in the conformation of their bodies, hair or ears. These changes of physical appearance and general metabolism can be recognized not only by the physicians but by non-medical observers in cases of dementia and other chronic mental diseases. That mental abnormality or marked mental deficiency occurring during the period of early development in young subjects should produce even more startling results is not surprising and is an obvious fact to be seen in almost any school.

It is no coincidence that in almost every ungraded class one may find examples of one or more forms of every known condition that can be associated with disease of abnormal function of the ductless glands. In a single school visited on March 17 the following cases were seen:

Case I.—Stanley T., age 17, was of good family antecedents, one of seven children, all of them said to be normal. Birth was instrumental, infancy and early childhood were negative. In 1909 he was a strong boy, prehension 25 right hand, 50 left; tonsils enlarged; nothing else abnormal noted. In 1914 he was found by a physican of the Department of Education to be growing rapidly, wearing glasses for hyperopia, awkward in his gait, neurotic in heart action. At present he is 6 feet 2 in. in height, has enormous hands and feet. His nose originally retroussé has thickened and lengthened. His frontal bone and supraorbital ridges are enormously thickened. He has developed an unquestionable case of typical acromegaly after 6 years in an ungraded class. He presents various stigmata of degeneration, such as high arched palate, irregular pointed teeth, underslung jaw, and incoordination of eye muscles. He began school at 11 years but was never permanently in grade, entering an ungraded class in 1910. His attainments at present are reading equivalent to 3B; arithmetic to 1B, and he has improved in attention and memory. Physically he has developed in motor coordination. He is suffering from constant frontal headaches. His mental attainments as measured by the Binet scale are 6 years. He has never advanced beyond the mentality of an 8 or 9 year old child. Emotionally he is torpid. He is easily confused. He is deteriorating at present rather than advancing.

Case II.—Donald C., age 17, is 5 ft. 7 in. high. He has the same history of mental retardation and failure to develop from an early age as the previous case. He has not advanced beyond the mental age represented by his Binet test, 6 years. His mother died at confinement. His father and two sisters are normal physically and mentally. In 1908 he was anemic, a mouth-breather, but strong in muscular development; subject to some indefinite twitching which has disappeared. He has many stigmata of degeneration. Physically, he has the same tendency to overgrowth and the same enormous hands and feet and enlarged nose as the previous case, but he is not what one could ordinarily call a case of acromegaly. But he is a type of case to be seen by the score every month. Mentally he is a low-grade moron, who has been trained to fair involuntary attention and good auditory memory.

What is the meaning of this overgrowth? Is the anterior lobe of the pituitary gland to be suspected as in the genuine case of acromegaly whom he closely resembles?

Case III.—Edith G., aged 19 years, seen a few minutes after the two previous cases, comes from normal parents and is one of six living children, one of whom was born without a hand. Her early history is not fully known. She was seen in 1911 in the school and was 38 inches in height. In four years she has grown to 56 inches. She did not attend school until 1911 and remained in the lowest class for a year until placed in an ungraded class. She could not at that time read or write. She was regarded by all who saw her as a rather mild case of cretinism and was put under thyroid extract. She began to develop and has in 4 years grown 18 inches and has learned to read. She writes fairly well but slowly. At present she is showing in addition to a few symptoms suggestive of her former cretinism, exophthalmos, von Graefe's symptom, pulse 100, no goiter, perspiring hands. Her former hypothyroidism is changing to hyperthyroidism and it is not due to the thyroid therapy as that is said to have been stopped. Physically, her progress recently has been slow. Mentally, she is slow and has not advanced beyond her Binet age of 7. She has shown marked improvement in manual work. Her greatest delight is to make doll's clothing.

The heredity and the alternation from hypothyroidism to hyperthyroidism make this case interesting.

Case IV.—Bessie K., was seen by Dr. Smart in 1908. Her family history is negative; healthy parents; six living children all in school and all but Bessie making normal progress in their grades. In 1908 Dr. Smart noted that she had defective vision, enlarged tonsils and adenoids and valvular heart disease. Her speech was thick; she showed a slow reaction to all tests. She began school at 5 years, reached the third grade and was placed in an ungraded class in 1909 because of her poor attainments in all school work, and especially in arithmetic, where it was said she had no idea even of the form of the numbers. She was indifferent, showed poor attention and memory, poor general intelligence. During the last three years she has grown extremely fat in her face, hands and abdomen. Her height is 4 feet, 11 inches. She was not treated with thyroid extract. She has developed exophthalmos, von Graefe's symptom, nystagmus, pulse 102. Goiter cannot be distinguished from the mass of fat tissue in the neck. In this case a defect of the posterior pituitary lobe is probable, but a polyglandular condition is even more to be considered. Her mentality, which brought her to an ungraded class in 1909, has improved so that she is doing such excellent work in her class that she has been able to return to the regular grade, 4A. Her mental retardation was in part due to defective eyesight.

Case V.—Frances M. Father a letter carrier, healthy, mother appears sickly, has had three children, one of whom died of chorea and a "rheumatic heart." Home conditions are good. Her personal history records asphyxia at a difficult birth. Walking at two years. Talking not until five years. She developed symptoms of cretinism at about four years and even at an earlier date her mother noticed symptoms of mental deficiency. In 1912 a physician of the Department of Education recorded defective speech, adenoids, a slow shuffling gait,

and cretinism. In 1913 she was treated with thyroid extract but with no improvement. During the past year or two she has grown markedly obese, height 4 ft. 7 inches. In 1914 was given pituitary extract with beneficial results. She is now growing taller and is improving in many ways. She began school at six and never passed beyond 1A. She was put in an ungraded class in 1912 and has learned to read a few words but cannot write her own name or do any number work. Her chief element of progress was development of interest in her work and surroundings and improved muscular coordination. Before the pituitary extract was given the general indifference to her surroundings, and general mental deficiency were the chief points of her mental development. The pathological conditions may be ascribed in all probability to a polyglandular condition including deficient function of the thyroid and pituitary glands, posterior lobe.

Case VI.—Emma P., a girl, who was seen by the writer in private practice in 1908, when she was 17 years old, gave a perfectly normal family history, having intelligent parents, and four healthy brothers and sisters. Her mother gave a perfectly normal history of pregnancy, birth, infancy and childhood, excepting a general clumsiness and spasticity of the child which could not be explained by any traumatism at birth, and improved with physical exercises. She talked at sixteen months; walked at three years. She had no infectious disease but measles. She menstruated once at fourteen years; never again; nor did she show any physical or nervous symptoms corresponding to a suppressed menstrual period. Mentally at 17 she was intellectually normal, except a general slowness. She was dreamy, abnormally sensitive over unimportant matters. Her memory was good. She was a fine linguist. Her attention was somewhat wandering, especially in the subjects in which she was not interested. She was happy, affectionate, absolutely without the point of view of normal girls of seventeen. She was a great reader of books of interest to adults rather than to girls. No sexual trend of thought or action was noticed. She was informed of sexual matters but was not interested.

In 1911 an examination of the pelvic organs by a competent woman physician showed an undeveloped uterus about the size of a walnut, sharing in general lack of muscular tone and bulk the condition of the other muscles of the body. In general this may be considered a fair type of infantilism in a girl, closely associated with poor motor development, whose mentality, by no means deficient in many ways, by the aid of the best private teaching was brought to a high development. In the end at the age of 21 she was a purely asexual type of a girl physically and mentally. She has never menstruated. Much interesting work in the line of Freud psychoanalysis was done but without bearing on the purposes of this paper. In the schools among infantile types both girls with mannish traits, and boys with feminine traits will be met and need special study.

Every teacher of girls distinguishes at once the absolute difference not only physically but neurologically and mentally between those girls who begin to menstruate as early as 12 and those who are delayed to 16 or later. An arrest of mental progress shortly after puberty is by no means unusual. In a large number of women mental advance ceases at the time of childbearing. In many cases after puberty is established the same failure to advance or develop in any way may be noted, especially common among girls who are household drudges and among Jewish girls who are inclined to obesity.

No type of idiocy or imbecility is more definite or unvarying in its features than the Mongolian idiocy. The obvious resemblance to cretinism has long been a matter of interest and the failure of thyroid extract to cause any marked improvement is a definite method of differential diagnosis in cases of doubt. Some of the cases of Mongolian idiocy emphasized typical symptoms of hypothyroidism and in certain cases treated in the Demilt Dispensary with thyroid extracts the hypothyroidism disappeared, leaving the definite condition of a stunted child, with eyes far apart, fissured tongue, tapering fingers, and low grade mentality, which is called Mongolian idiocy.

In a case seen March 20 in an ungraded class in addition to the classical symptoms of Mongolian idiocy, were added distinct symptoms of hyperthyroidism, marked exophthalmos, rapid pulse. Another case was recently seen, aged $2\frac{1}{2}$, with some symptoms of Mongolianism superimposed on rickets and hypothyroidism with many gross stigmata of degeneration.

These cases are but a small number from a large series of similar types seen in ungraded classes, indicating not only that there are an extraordinary variety of conditions directly associated with abnormal function or actual disease of the ductless glands to be found among school children, but that there is a marked tendency to polyglandular diseases, or shifting of the symptoms commonly associated with one ductless gland to symptoms peculiar to another.

But by far the commonest condition is that tendency to coarse overgrowth in morons who by 12 years of age are as tall or taller than their parents, and present definite hint of an involvement of the anterior lobe of the pituitary gland.

Among girls hyperthyroidism is not only fairly common but is usually unnoticed by teachers and by the physicians of the Department of Health until the extreme nervousness, rapid heart action, genuine goiter, and marked exophthalmos have become too far advanced to react to simple therapeutic measures.

It is certain that no adequate study of atypical school children can be made without mastering the general problem of the normal or abnormal reaction of the child to the strain of puberty and adolescence. The relation of the thymus gland to the development of puberty is one of the most interesting and obscure parts of the physiology of the ductless glands. Perhaps a third of all the cases of mental abnormality seen in the schools are near or at the period of puberty.

It is probable that no adequate knowledge of hysteria in girls or adults can be gained that does not recognize the persistence of infantile states of mind. That the elaborate phantasmagoria associated with Freud's psychoanalysis has a basal relation to abnormal physical conditions and to abnormal sexual development is only common sense.

It is undoubtedly true that in the schools two divergent types may be seen among boys associated with a premature development of the sexual glands and their functional activity, or on the other hand their delayed development. This may well be the cause of or correspond with the failure to advance from the stage of infantile libido towards the parent to the adult heterosexual interests.

The cleavage between children of a shut-in personality and those who are social in their instincts may be associated with this same physical sexual development. In a sense the "self concerned" or so-called "narcissus" stage remains in one case permanent. In the other the self-centered or egocentric stage is outgrown and the normal social life is entered in at an early stage long before the normal heterosexual life is reached.

Whether the basis of this cleavage is to be attributed to somatic variations alone or to psychosexual inferiority is a question not easily answered. It is held by some that psychosexual inferiority is constant while the physical or mental deficiency

may be obvious or may not exist at all. Whether or not the premature or delayed sexual development makes a definite cleavage in the mental and moral development of the two types of children, it is a fact not to be questioned that the psychology of the child who from infancy on to adult life has been a part of a group, reflecting the varied characteristics of the crowd is radically different from that of the child living from choice or necessity by himself, developing what is generally called an egocentric or "a shut-in personality." Each type may develop along its own lines of normal growth or may develop abnormal or thoroughly morbid traits of mind or conduct. By far the majority of adult psychoses appear in those who had the "shut-in personality."

From these physiological variations during the period of puberty, or during the period that preceeds it or follows it, we are drawn to the special study of conduct. Much of the behavior of the child in school, and his reaction to discipline of both home and classroom is devoid of pathological interest. In the children proposed for ungraded classes the entire record of behavior must be studied and frequently it is that alone that has made his school career a failure. To judge a child on the strength of his work in the classroom alone is folly. The standardized tests for mentality in general use ignore personality and general conduct.

It is natural that the conception of what constitutes dangerous traits and abnormal actions will vary in different schools. In the judgment of some teachers a boy who is always fighting or bullying or is impudent is a menace to the welfare of the school. In another school stealing, or general dishonesty are common and the influence of the gangs of neighboring streets is a dangerous factor. In another school minor or major sexual offenses are common. The collections of postal cards removed from the children are obscene. They will be found in girls' desks. In another, vices such as drug-habits run riot.

It is easy for teachers or others to exaggerate the importance of these misdeeds or to ignore them totally. The fact cannot be questioned that of the criminals of 1925, a fair fraction are in the public schools to-day. Of the prostitutes of 1925, a still larger fraction are in the public schools to-day.

An example of what might be called simple misbehavior of a school boy without any special pathological interest was brought to our attention in the case of George F., who in 1913 threw an eraser at a teacher who was passing him in the school yard, striking him in the face. There was no reasonable explanation for the act and he was not caught at the time but confessed to save another boy who was wrongfully accused. He was punished by being compelled to apologize before the entire school which he did in a manner that left an impression of his being an unusually manly boy. He graduated at 13 and went to work. The case was submitted to the writer not over a month later for mental examination on account of a most foolish persistent series of petty thefts of sheets of postage stamps and cigarettes which cost him the loss of a splendid position. A thorough study of his case proved that he had an excellent family history. He had always been healthy and strong and had been most carefully watched by his mother. He was in the boy choir of a neighboring church and was highly thought of. He was accustomed to active physical exercise. Four years previously he suffered from a superficial pistol wound in the forehead said to have been the result of an accident. He was arrested for this and at another time for playing ball in the street. In 1910 when at the age of puberty he became "sassy," made trouble for his mother; masturbated occasionally; was expelled from the Y. M. C. A. for unruly actions which the director said were nothing but boyish high spirts and disorderly conduct. In 1912 he stole $5 from his mother and bought a watch but never stole again until the theft of the stamps. His mother said he was rather of a secretive stolid nature and did not appear to regret his misdeeds very much; though he cried and repented at the time. He was confirmed in 1912 in the Episcopal Church. He never had much interest in girls or parties. He had been in many fights in school but recently the gang in the neighborhood "had it in for him" and he stuck to his house after school hours or went to the Y. M. C. A.

A careful psychological examination was made without any definite results. He was normal in attention, memory, reasoning faculties. His Binet test was over 12. He was absolutely lacking in imagination by every test. He showed some emotional deterioration. For 2 years he had been sulky. He had no adequate appreciation of the contradiction that a boy recently confirmed in a church should be getting into such scrapes. He stated that it was not fair to the rector but could not explain the cause of his misdeeds. If any mental conflict, or underlying sexual problem existed, it was not revealed. The keynote to the explanation of his later trouble was his foolish scrape in school; and that in turn was due largely to instability of the period of puberty.

That a large percentage of the cases of genuine delinquency, or of persistent incorrigible or immoral conduct, has a definite association with mental deficiency that can be demonstrated by accurate standardized tests is undoubtedly true. The type that is most constantly present in the schools and repeatedly submitted for special examination for supposed mental deficiency, is apt to be a type of a boy, or girl, who is the child of parents unfitted in every way, physically, morally and intellectually to have normal progeny. The children are from the earliest years of school life constitutionally inferior. Physical poor development and later physical deterioration are obvious. Mentality may be low grade, but often is fair. Such emotional instability exists that self-control is impossible. Volition may be weak; or there may be most marked exaggeration of self-will.

Underlying this is the lack of interest in school and rebellion against all restraint of the school and a tendency either to quarrel with or bully the other weaker children, or to yield absolutely to the control and influences of those capable of corrupting them in various ways.

The importance of definitely making a positive diagnosis of psychic or general inferiority in these cases, and some positive study of their tendencies is that it carries with it a prognosis of a future much more dangerous to others than any type of mere mental deficiency. There is always hope for reform among many types of criminals and other delinquents, but the permanent reform of these cases of genuine constitutional inferiority is questionable. Deterioration is more probable than any possible improvement. Many cases of dementia precox may arise from among them.

The possible variations of conduct in school children are infinite in variety. The toxic conditions are of special interest because in addition to poisoning by nicotine and alcohol, there has been added a new and dangerous form of drug habit, which is met with from time to time in the schools, though difficult to prove, usually consisting of cocain or heroin or a combination of the two called "coke." It is difficult to prove, but alternation of excited and depressed moods is suggestive. Periods of stimulation alternate with a sleepy or nervous condition.

A case of a boy, age 18, was brought to the Demilt Dispensary a year ago on account of epilepsy. He gave a good family and personal history and had his first fit January, 1913, apparently a typical epilepsy of the grand mal type, general in character, with aura and definite symptoms.

The boy had been associated with Calvary Church, had been in the choir and was highly thought of. He had become unsettled in his work, left several good jobs without cause. His school record was negative except failing in promotion two times. It appears that he had become associated with a questionable street gang and recently had developed the habit of petty stealing. The rector of the church called to inform us that the boy had the cocain habit, which his father confirmed. He was scared out of the habit and the epilepsy ceased. For a year he has been doing well, is working steadily and has improved physically and mentally. Lacking the etiological factor of cocain poisoning this case would serve as an example of the epileptic character.

The epileptic character as distinguished from the epileptic psychoses and the psychical equivalent of epilepsy is of infinite importance in an adequate appreciation of the problems of behavior met with among school children. Healy distinguishes this definitely, stating that the epileptics are prone to emotionalism, but that much inconstancy is shown in their feelings. Some are subject to constant irritability, but more often there is a sudden showing of anger or vicious conduct entirely without cause. Periods of sullenness or bad temper may be prodromata of actual attacks, and in some cases it seems certain that ill feelings and their reflection in mental disposition vicariously replace the attack. Impulsiveness is constantly seen. The ego centric tendencies are noticed by many. Self-love, self-assertion, defective appreciation of the rights of others, or excessive obstinacy are frequent. Their ethical perceptions are limited. He defines the blunted moral sense as a combination of mental deterioration and overwhelming impulsions. In every way epileptics tend to antisocial behavior, but are notoriously incalculable in their moods and impulses. The later psychic conditions vary all the way from twilight states characterized by foolish and unnecessary lies to quite irresponsible conditions of altered personality, and violent actions.

L. Pierce Clarke defines the epileptic temperament as a particular type of constitutional makeup which he thinks antedates the occurrence of the first epileptic fit. This makeup is predominatingly infantile in the emotional sphere of development. The affective defect is due to infantile psychosexual immaturity. The mind always remains of a simple child pattern. "The epileptic," Clarke continues, "has no marked scruples or doubts of the obsessive neurotic; he is not burdened with inhibitions or prohibitions, unhappily his personality permits him to become self-engrossed with lower animal instincts or passions. With the inhibitions reduced and with an over-emphasized estimation of his own importance and ability the epileptic finds himself in constant conflict with the outside world. He is furthermore attached to an infantile emotionalism because he is usually possessed of little or no constructive imagination."

The problems of the study of purely mental conditions observed in children who are in ungraded classes include every phase of psychic retardation and mental deficiency. These cases, whether higher or lower forms of feeblemindedness, have been thoroughly studied by many authorities of late, and have been subjected to much careful investigation with recent scientific methods.

Most interesting and perplexing are those cases of children who appear to casual observers to be normal and yet have some special defects in certain studies. If this should be in arithmetic, for instance, common experience of all will recall many cases where failure to comprehend even simple process of arithmetic seems quite compatible with perfect intellectual attainments in other lines. If, on the other hand, it happens to be an absolute failure to learn to read, spell, and write, it is hard to accept any statements of normal mentality. Before the Binet and other standardized tests were in use this was not so easy to demonstrate. But sometimes this defect in reading appears so definitely that the name "word blindness" will be glibly used to cover these cases. Children who have been in private schools often appear to better advantage during tests, and in their schoolwork are passed along in spite of obvious deficiencies. Much may be made of the relation of the interest a child takes in a certain branch to his success.

Two years ago two boys, who were twin brothers, aged sixteen years, were examined at the department of ungraded classes; they were adopted children of a well-known writer. Their real family history was unknown, but since the time of their adoption at the age of one they had been well cared for, had not been sick, excepting for an attack of typhoid fever at six years developed by one of them, and an abscess of the leg two years ago. They were both splendidly developed physically, well behaved, good looking boys, with no defect in the special senses, or in their speech, and not only normal but athletes in their muscular development. Their education had been carefully followed out except that they had been changed from one school to another far too frequently, and from eleven to thirteen were traveling around the world. For the last two years they had been at a fashionable boarding school. They were both ready talkers on subjects that interested them.

They were totally unable to spell any words but a few monosyllables. They were not especially deficient in arithmetic and gained good marks in that subject. Their attention was fluctuating, but was rated as fair voluntary attention. Their memory was good for recent and remote events and they could recall seven digits. Emotionalism was normal. They were affectionate and not excitable. Their general intelligence was about that of an average boy in a boarding school of their age. In testing their spelling no special difference was seen between auditory and visual memory; they had started in a school originally where a so-called phonetic method was used. Binet test showed a mental age of about eleven. Various special tests were made, but the general condition remained as stated, two boys apparently of the average mental capacity of their school mates, who were unable to spell at all or read more than a child in the lowest grades.

Some definite failure in the association tracts between visual, auditory and vocal centers was presumably present.

In these cases and others examined there appeared to be some individual difficulty in clearly noticing

the special sounds, or shapes of letters or words, and a failure to recall these special distinctions in shape or sound. Such a difficulty is normal in the average child of three or four years. It persists in the illiterate, but is an anomaly among school trained children. Why it is not much rarer is a question hard to answer. Even morons of a low grade often learn to spell better than these boys did, and in all other lines of mentality, unless the Binet test in these cases is accepted as positive, they were higher than morons.

In the public school they would have been placed in an ungraded class before they were twelve years old. In a private school their defect did not seem to make very much difference to their teachers or to them.

It will be impossible even to outline the many abnormal mental states seen in these school children. Psychoses are often suspected. Deterioration to the extent of definite dementia precox was occasionally seen. It was difficult to make a positive diagnosis in cases that seemed to gradually fade into dementia precox from the condition of a low-grade moron or imbecile. In some cases apathy, aboulia, and negativism superimposed on the previous mental deficiency made such a diagnosis possible. The condition of so-called predementia precox was seldom possible to diagnose with positiveness or to actually distinguish from certain types of constitutional inferiority.

Various forms of insanity common in adult life may be met with during childhood, though very infrequently. Certain affective psychoses may develop at the period of puberty, and during the adolescent period. Often they conform so closely to an exaggerated adolescent instability that it is not always easy to say whether the general diagnosis used in adult cases should be made, or the more limited one of a phychosis of puberty or adolescence. To untrained observers hysteria at puberty or during adolescence may appear to be definite insanity. The converse is true. Many adult phases of mental disorder are a reappearance of infantile or childish mental states.

Most interesting of all studies of mental abnormality in children the adequate observation of the various mental conflicts in school children especially at the age of puberty could rarely be adequately carried out in these cases. What one notes as peculiar behavior or mental abnormality can be explained after thorough work as a not illogical development of some hidden conflict or fixed idea.

The so-called psychoses of puberty are often due entirely to such hidden mental conflicts.

We commend such cases to the patient and sympathizing care of any one who can give them adequate attention. It is difficult to imagine a staff of alienists in the Department of Education so highly trained in psychoanalysis and with so much leisure time at their disposal that they could make any adequate study of many of these cases of obscure mental conflicts met in the schools from week to week. There are very few clinics in the city that can do the work. Many principals of public schools in their own way often without any psychological training are trying to do the noblest type of personal work with these children in what is really suggestion or re-education.

In general, the adequate treatment of a child who has failed to adjust himself to his environment in the public school is analytical, educational, hygenic, dietetic, and medicinal. To this may be added environmental, as many of these children need far more a prompt removal from their entire home influences than anything else. This will rarely be possible except in the case of families who can send their child to a private boarding school. The regulation not only of environment but friendships is fundamental. The custodial institution that offers itself as an alternate to home and street influences may wreck the child morally.

The department of physical training, by means of various forms of outdoor athletics or gymnasium training may let off the storm and stress of a naturally restless or over-anxious mental makeup. A sublimation of the "libido" into useful interesting occupations is above all things to be aimed at.

In conclusion we would express our gratitude to Miss Farrell, who is in charge of the Department of Ungraded Classes of the Public Schools of New York, for permission to use the case records of the children who have been examined. Words cannot adequately express the appreciation of all who know to what extent the entire credit of that work in New York City is due to her executive ability and energy in developing the elaborate system of ungraded classes of this city now in existence.

In calling attention to physical factors, especially to problems of development and particularly motor abnormalities, it is with the hope that in these lines the most promising work can be done. In conditions associated with the ductless glands, cures are sometimes obtained in types that have seemed too low grade for hope in the past. In a detailed study of the moral problems of the school child society in general may well take an active interest, for it will mean far more to society than the refinements of purely psychological study of cases of intellectual defects alone. But in reality no sharp distinction should ever be made between the neurological, mental, and moral problems.

221 West Fifty-seventh Street.

THE CURE OF GOITER BY THE INJECTION OF BOILING WATER INTO THE SUBSTANCE OF THE ENLARGED THYROID.

By JOHN A. WYETH, M.D., LL.D.,

NEW YORK.

SURGEON-IN-CHIEF TO THE NEW YORK POLYCLINIC MEDICAL SCHOOL AND HOSPITAL.

When, at the meeting of the American Medical Association in New Orleans, in 1903, I first made public the curative effect of water, at a high temperature, injected into the substance of otherwise inoperable angiomata, in the discussion which ensued, it was suggested that the method would prove equally efficacious in the treatment of goiter. A number of successful cases have already been recorded, especially by Dr. Porter of Fort Wayne, Ind., and Dr. Reder of St. Louis.

The technique employed in a recent case at the Polyclinic was as follows: The skin and the area to be injected were thoroughly anesthetized by the injection of a free quantity of a one-half of one per cent. novocaine solution. One of my steel syringes, taken out of the boiling cauldron, was filled with boiling water, which was immediately injected by inserting the needle well into the substance of the mass. To prevent scalding the skin, as heretofore advised, the contiguous surfaces are shielded by a

covering of towels, leaving only the point of injection exposed. As the steam or water is apt to escape from the needle, as it approaches the skin, a gauze swab is held as a shield in front of the needle, which latter is thrust through and into the skin, when the contact is made. From 10 to 20 minims are forced out in one spot. The needle is then *partially* withdrawn, and the point carried to a new field, and the injection repeated.

Three or four such areas may be injected at one sitting, and these may be repeated as required, in one or two weeks, and so on, until the tumor disappears.

In the case in question, five injections were made in ten weeks, and in three months the goiter had entirely disappeared. The pain was insignificant. There is very little danger of having the water too hot. A Bunsen burner or an alcohol lamp held under the barrel of the syringe just as the needle is being inserted will insure a high temperature. It is advisable not to have the point of the needle immediately under the skin, as the excessive heat so directly applied may produce necrosis, which is apt to become a point of infection. If the skin covering remains intact, all tissue coagulation or destruction, being aseptic, is harmless, and the solidified mass gradually disappears by granular metamorphosis. It goes without saying that important vessels and nerves, as well as the trachea, should be avoided.

I have used the method now in a large number of angiomata, since its introduction, nearly fifteen years ago, and have never had a fatal result or accident, beyond some slight burnings of the cuticle. In a single instance, as a precaution, I threw a temporary occluding ligature around the common carotid and the internal jugular. The great heat of the injected water, although seemingly in immediate contact with these vessels (in the case of a very large venous angioma of the neck, just below the jaw) caused no coagulation, and the ligatures were removed.

In the demonstrations at my clinic I often use the ordinary glass hypodermic syringe, which, being gradually heated with the water, will not break.

I am of the opinion that the majority of goiters can be cured by this simple method. So far, I have had gratifying results in every case of venous or arterial angiomata. The capillary form (mother's mark), especially those on the face, always undergoes more or less necrosis and infection, and while the vascularity is arrested, a secondary operation to secure a linear cicatrix is usually necessary.

244 Lexington Avenue.

THE IMPORTANCE OF THE EARLY RECOGNITION OF THE MENTAL LIMITATIONS OF THE PRECOX TYPE.

By J. R. ERNST, M.D.,

WASHINGTON, D. C.

JUNIOR ASSISTANT PHYSICIAN, GOVERNMENT HOSPITAL FOR THE INSANE.

The development of many of the psychoses could be retarded and possibly prevented by the early recognition of the child's mental limitations and the type of his mental make-up. The "shut-in," or precox type, is familiar to all. A child of this type, prior to puberty, usually excels all others in his classes; the parents, in ignorance of the impending crash, urge him on; the teacher, equally ignorant, cooperates with the parents in hastening the child's mental destruction. The child, thus encouraged, puts forth his best efforts, and as a result his limited amount of potential is used up and a deteriorating process begins. His mental powers gradually decline and he becomes the object of unjust criticism; parents, teachers, and friends alike join in calling him lazy. They appeal to his pride, recall his past successes, and by every possible means urge him to resume his previous intellectual status; but the damage is done; the fire burned brightly, but it was built of straw.

I believe if this child's mental make-up had been thoroughly understood by parent and teacher, his mental life would have been prolonged; the potential with which he was originally endowed, even though less than normal, might have been added to and built up, and he would have been able to reach maturity with normal or nearly normal mental powers and would have become a useful member of society, instead of a subject for institutional care for probably the remainder of his life.

If this type of individual grows to manhood without intelligent recognition of his condition and without proper training, he is easily recognized because of his tendency to come into conflict with his environment. Because he is unable to come into natural and free relation with the realities, he is constantly getting into difficulties and is peculiarly adverse to discipline of any kind. Another well-known characteristic is his actual need of alcoholics or drugs—one or both of these he uses regularly and very frequently to excess for the purpose of reinforcing that gradually failing potential, which, if properly conserved and directed during his earlier years, would not have failed him at this time.

It is men of this type who most frequently desert from the military service and are the least amenable to discipline; who serve a large part of their enlistment period in the guard house, or suffer dishonorable discharge.

This constant conflict eventually brings about the development of a psychosis, with the result that the individual's period of usefulness is cut short and he spends the greater part of his life a burden and expense to the State.

As stated by White*, "Every individual born into the world has, if it could be determined, a definite potential for development. The force of the impetus which starts it on its path is sufficient to carry it a certain definite distance. The predetermined goal, in each case, will be reached if no accident intervenes to prevent. In the subject of this disease, the original impetus has been weak, only sufficient to carry them a short way, and when its force is spent development stops and the retrograde process is hastened, or perhaps immediately initiated by some special physical or mental stress occurring at the critical point of puberty and adolescent evolution."

As this statement is the accepted belief of all psychiatrists, it will serve as an added proof of the great importance of recognizing in early childhood the precox type of individual.

As the potential of this type is limited, the child having "just sufficient to carry it a certain distance," every effort should be made to conserve it. As the majority of the precox type do not break until puberty is reached, and the increased demand

*"Outlines of Psychiatry," by William A. White, M.D., fourth edition.

incident to the unfolding of the sex is brought to bear upon the highly organized nervous system, it is reasonable to suppose that this "stranding on the rock of puberty" might have been avoided, at least in a certain number of cases, if proper measures were undertaken, during the years preceding puberty, to conserve the potential instead of encouraging the precocious child to squander it recklessly in order to attain what at best can be but a temporary and fleeting success.

The present public-school system, with its crowded curriculum, and a corps of teachers absolutely ignorant of the mental limitations and the type of mental make-up of the pupils entrusted to their care, is undoubtedly responsible for a large percentage of exhausted intellects and ruined careers.

The early history of almost any case of dementia precox will furnish ample proof of the total lack of understanding of the mental limitations of this type by those immediately concerned in their mental development. The following early history of a case is fairly typical:

Case No. 19883: The subject attended school between the ages of five and sixteen, failing promotion once and reaching the first year of high school. After leaving school, he was employed in a number of clerical positions, from several of which he was discharged on account of incompetence. At the age of twenty, he enlisted in the navy. Seven months after enlisting, when on shore leave, he spent a night in drinking and sexual excesses. Returning to the ship the next morning, he attracted attention by jumping overboard. For the next few weeks he was unable to answer questions intelligibly, talked constantly about sexual matters and carried on filthy practices with his excreta. He was transferred to this hospital six days after this sudden change in his condition.

I cite this brief history because it is typical, and because a few of the factors responsible for the mental downfall of this individual are set forth, giving an opportunity to point out the errors in his early and subsequent training. In the first place, we find this patient starting to school at the age of five years. While the history is incomplete regarding his early mental status, it is reasonable to assume, because of the early age at which he entered school, that he was somewhat brighter than the average child. At this point in the mental development of the patient there is no doubt but that an intelligent understanding of his limitations, by parents and teachers, would have resulted in his being kept at home until he was at least eight or nine years of age. There is no doubt but that a delay of four or five years at this time, combined with a proper understanding of his limited amount of potential, and a carefully regulated life, would have prolonged his period of usefulness many years.

The peculiarity of the pathological changes in nerve tissue in mental disease depends upon the fact that when certain elements are destroyed they are not replaced or are replaced only in part and very slowly. Hence the great importance of the early conservation of these elements in the individual whose supply is less than the average, due to an hereditary taint of insanity, or to alcoholism, or to neurotic tendencies.

In the further consideration of the patient's history we find him failing one promotion and unable to complete the first year high school before he was sixteen, when the average child is in the third or fourth year. This fact alone would have been sufficient warning to those who have studied the type; and if in addition a thorough knowledge of the family and personal history had been obtained, the disastrous consequences which followed might have been foretold and avoided.

As we consider the history further the evil consequences of this lack of appreciation of the patient's condition, become more and more apparent. He is urged to secure a position. Of course, he fails. He secures another one, with a similar result. Eventually when he has found himself to be totally incapable of success on his own initiative, he enlists in the navy, largely with the hopes that a shifting of the responsibility to some one else will make life less of a conflict. In this he is entirely in error, and soon becomes aware of the fact. As he is peculiarly antagonistic to routine and discipline, the conflict instead of becoming easier, becomes intensified. In despair, he seeks to dull his senses and forget his troubles by becoming intoxicated. He finds in alcohol the necessary aid to the dulling of the conscious. It eliminates the necessity of adjusting and life is easier. He becomes a chronic alcoholic with all its attendant social evils, and deteriorating effect on the higher conscious centers. He eventually attempts to end it all by jumping overboard, thereby admitting defeat. He is prevented and confined to this institution, where at the age of twenty-one, when his period of usefulness should be just beginning, he awaits the end.

In conclusion, I will say that in view of the great importance of the early recognition of this type of individual I believe that if more time and effort were expended in the study of the child and his limitations and the hereditary and prenatal causes of insanity, a far more lasting good would be done to humanity than that which is attained by the elaborate and detailed analysis of the mental processes after the damage is done. In making this statement I fully appreciate the importance of a thorough study of the pathology of this disease and have no intention of minimizing the importance of the work that has been and is now being done relative to pathological mental processes. This article was written with the hope that it might be the means of arousing more interest in the study of the child and his mental limitations.

An important factor in the early recognition of this type of individual is the school physician. Every child should be interviewed personally by the physician at least twice during the school year; a thorough family and personal history should be obtained and any hereditary taint ascertained, and if the child is of a highly nervous temperament, or shows any of the characteristic features of the precox type, special care should be exercised in his mental training.

In all other diseases, prophylactic measures are now considered of paramount importance. Large sums of money are expended by cities, States, and nations, and large and expensive organizations are maintained for the purpose of preventing disease. This extensive system of prophylaxis is of comparatively recent origin. It was brought about by extensive and detailed research and the directing of every effort to ascertain the cause of disease, with the result that prophylaxis became of first importance and the treatment secondary.

In the field of mental disease, scant attention has been given to the conditions necessary for the production of a normal healthy mind, and yet it is the universal belief that, "There is nothing great in the world but man, and nothing great in man but

mind." On the contrary, the greater effort is now being directed toward a study of the mental wrecks which have been produced by ignorance on the part of their progenitors, and a total lack of interest by the great majority of people in the fundamental causes of insanity. Quite likely the time is far remote when eugenic marriages will be the rule, and a child, bearing the handicap of a weakened intellect will be the exception, therefore we can but encourage and take part in the campaign of education now going on, hoping that when the individual has a better understanding of these things, he will bring about his own salvation.

NOVOCAIN - SUPRARENIN INFILTRATION - CONDUCTION ANALGESIA IN THE REPAIR OF INGUINAL HERNIÆ.*

By ISADORE SEFF, M.D., F.A.C.S.

NEW YORK

ADJUNCT ATTENDING SURGEON, BETH ISRAEL HOSPITAL

ALTHOUGH local analgesia in operative procedures for herniæ of the inguinal region is now used more extensively than in former years, especially since the introduction of the nontoxic novocain in combination with suprarenin, nevertheless, a large number of the medical profession is still not convinced that complete surgical analgesia can be obtained in this region. Such pessimism is entertained by those who have witnessed the unsuccessful use of local anesthetics in the hands of surgeons who have not familiarized themselves by practice and experience with the various methods and their limitations.

It is my purpose in this paper to report on the results obtained with the infiltration-conduction method in twenty-three cases of hernia of the inguinal region operated upon at Beth Israel Hospital, and to speak of its advantages as contrasted with the older method of local analgesia, namely the neuroregional method.

The Neuroregional Method.—Hall and Halsted in 1895 demonstrated that the injection of a solution of cocain into any part of the trunk of a nerve is followed by sensory paralysis in the entire peripheral distribution of that nerve. This paved the way two years later for the development by Cushing of the neuroregional method of producing local analgesia. Cushing followed the Reclus and Schleich method. He infiltrated and incised the tissues, layer by layer, freely exposing the inguinal canal and the nerves, which lie under the external oblique fascia, namely the ilioinguinal, the iliohypogastric, and spermatic. Into each of these nerves at their entrance into the operative field, *i.e.* at the upper part of the inguinal canal, a solution of cocain is injected. The conductivity of the nerves being thus blocked, there is produced a loss of sensation in the hernial sac, the coverings of the spermatic cord, the testes, and a portion of the skin of the inguinal region.

Although the superficial position of the parts and their anatomical arrangement are most suitable for the neuroregional method, yet the analgesia usually obtained is not very satisfactory. This may be due to the size of the hernia or what is more important, lack of knowledge of the normal and abnormal location and course of the nerve supply of this region. Because of these difficulties the method remained in the hands of only a few trained specialists.

*From the surgical service of Dr. Charles Goodman.

The Infiltration-Conduction Method.—In 1905 Braun of Zwickau described this method. It is based upon the principle that every infiltration of connective tissue with local anesthetics produces not only infiltration-anesthesia in the area injected, but also conduction-anesthesia in the area of distribution of the nerves that are contained in that tissue. This method requires the infiltration of the tissues through one or more punctures and the circumjection of the operative field. It eliminates the infiltration and incision of the tissues, layer by layer, and does not demand an accurate knowledge of the location, and the injection of the individual nerves supplying the operative area, upon which the success of the neuroregional method depends.

Technique of Braun's Method of Infiltration-Conduction Analgesia.—Two points are selected for the infiltration of a ½ per cent. solution of novocain with 5 to 8 drops of a 1-1000 solution of the synthetic preparatino of suprarenin to the ounce. Point 1 lies three fingers' breadth, or about two inches internal to the anterior spine of the ilium. Point 2 is over the ramus of the pubes at the external inguinal ring. At these points the solution is injected endermically, producing a wheal. Through the wheal at Point 1 the needle is passed perpendicularly through the aponeurosis of the external oblique and the muscular layers of the internal oblique and the transversalis. The needle is then withdrawn from the depth to the level of the subcutaneous tissue, and again inserted, at least twice, but more obliquely into the muscular layers previously mentioned until it strikes the iliac bone. The thick muscular layer in this region must be well infiltrated to block the ilioinguinal and the iliohypogastric nerves. To accomplish this about 20 c.c. of the solution is required. To anesthetize the terminal nerve branches a further injection of 10 to 20 c.c. of the solution is made from Point 1 under the aponeurosis of the external oblique in a fork-shaped manner toward the ilium and the median line of the abdomen. From Point 2 a deep injection of the solution is made in a fan-shaped manner, so that with each injection the needle will strike the pubic bone. Also from this point 10 c.c. are injected in a fork-shaped manner under the aponeurosis of the external oblique into the inguinal canal and alongside the spermatic cord. The next step is the subcutaneous infiltration of the operative field in the form of a rhombus from Points 1 and 2. The entire infiltration requires 60 to 100 c.c. of the ½ per cent. novocain solution, which amounts to from 5 to 7½ grains of novocain.

In our series of cases we have had no toxic effects from these large quantities. The time required for obtaining complete analgesia of the operative field is about fifteen minutes.

Our own technique in the main followed that of Braun. A hypodermic injection of 1/6 of a grain of morphine sulphate and 1/150 of atropine sulphate was always given one hour before the operation. We have modified the method to the extent of adding one step in the production of analgesia. After the hernial sac was incised and the contents returned into the abdominal cavity the analgesic solution was injected into the peritoneal surface of the neck of the sac. This prevents the pain which is usually experienced by the patient during the manipulations necessary for isolating the sac. It also blocks the impulses which results from traction on the peritoneum, and thus eliminates the occurrence of nausea.

The use of either the neuroregional or the infiltration-conduction method requires a more definite knowledge of the anatomy of the inguinal region than is necessary when one operates under general anesthesia, since with local anesthesia the patient is conscious and the surgeon must handle the tissues more carefully. The traumatism of the tissues being thus considerably reduced the process of repair is probably shortened, and the danger of wound infection largely eliminated.

Up to the present time we have met no contraindications to the use of local analgesia. It is of undoubted value in cases of incarcerated and strangulated hernia occurring in old and debilitated patients, and more especially in those suffering from pulmonary, cardiac, and renal affections where general anesthesia is usually contraindicated. Neurotic individuals who often fear the inhalation of a general anesthetic and its after effects readily submit to local anesthesia when they are assured by other patients that no pain is experienced during the operation.

In the series of twenty-three cases of hernia of the inguinal region operated under the infiltration-conduction method of local analgesia we have observed the following facts:

Operative Method Used.—We operated in twenty cases according to the Ferguson method of repair of inguinal hernia. Two cases were operated upon according to the Bassini method, and we found that although the cord was handled the results were just as satisfactory. There was no pain during the operative procedure, no postoperative catheterization, and no abdominal distention. One femoral hernia was operated upon through the regular inguinal incision with similar good anesthetic effects, and entire absence of postoperative pain, nausea, and vomiting.

Age.—The ages of the patients ranged from two to fifty-six years.

Postoperative Pain.—We observed that sensation of pain returned to the injected area about one hour after the operation was completed. Fifteen of the cases required a hypodermic injection of morphine, and two of these required one repetition of this drug. The other cases did not require it, as they complained only of slight discomfort.

Postoperative Vomiting.—This occurred in four of the cases, and but once in each instance. Furthermore it was noted that each of these received but a single dose of morphine for the postoperative pain. Since the vomiting followed the hypodermic injection within a very short time, we attribute it to the effect of the drug and not to the anesthetic. In the other nineteen cases even nausea was absent.

Postoperative Catheterization.—Although the patients were not previously taught to pass urine while in a recumbent position, nor were kept in bed for any length of time before operation, it is noteworthy that only three required catheterization, and two of these but once. The case that was catheterized four times during the first two days after operation was not operated under local analgesia exclusively, as general anesthesia was necessary for a thorough exploration of the abdomen because of the abnormal matted intestine which was found in the hernial sac. The general anesthetic was continued for the repair of the hernia of the other side. No doubt the general anesthesia and the added manipulations can well account for the retention of urine.

Postoperative Abdominal Distention.—Abdominal distention which usually follows general anesthesia was entirely absent in 70 per cent. of the cases in our series, and in the remaining 30 per cent. there was only a slight amount. None of the patients complained of abdominal discomfort.

Healing.—In twenty-two cases healing was by primary intention. The other case was drained down to the fascia because of the thickness of the fat of the subcutaneous tissue.

Appendicectomy Through the Herniotomy Wound.—In three of the cases removal of the appendix was accomplished through the inguinal incision. Only a slight amount of pain was experienced on tying off of the mesentery of the appendix. This can be eliminated if infiltration of the mesentery is employed.

1945 Seventh Avenue.

ACID CRISES.*

By WALTON FOREST DUTTON, M.D.,

TULSA, OKLA.

The term acid when applied to the reaction of the secretions of the human organism and the idea that it is meant to convey have varied greatly during the course of years. The word was applied to certain obvious and apparently spontaneous changes in organic materials which are accompanied by substances showing a reddish discoloration with blue litmus and other indications of acidulous character. Acid sweats, changes in the constituents of the saliva, gastric juice, and urine, are conditions met with in diseased animal tissue.

These mysterious phenomena excited naturally the interest of investigators, and with the development of biochemical knowledge numerous other processes were discovered which resemble typical acids in that they seem to be due to specific agents whose mode of action differs from usual chemical reactions especially in the fact that the causative agent itself is not used up in the reaction.

On the basis of the considerations presented in the preceding paragraphs, I wish to present one phase of the subject which I shall call "Acid Crises."

Case I.—A housewife of thirty came under my service December 12, 1903, for the second time. At my first visit in July, 1903, a diagnosis of hysteria was made. Her attacks of illness were of similar character. There was sudden occurrence of pain, severe and cramp like. It always started in the right and left side of the back and flank, thnce radiating to the right and left inguinal regions. It would last from one to four days, and was relieved only by large doses of morphine. After relief there would be no recurrence for weeks or months. The pain was associated with nausea and vomiting. The urine was highly acid and scanty. Micturition was frequent and excruciatingly painful. The bowels were constipated, and acted every three or four days. Menstruation regular, but scanty and painful. She has had no children, no miscarriages; had rheumatism and typhoid fever in childhood. Vaginal discharges were distinctly acid and caused maceration of the mucous membrane. Tongue coated and very red—of the strawberry type. Morphine has been injected several times, and she has had morphine at intervening intervals.

In any patient who presents such a syndrome we naturally suspect a psychoneurosis, especially in a married woman who has had no children, but is passionately fond of them. Our data, however, point in another direction. The rheumatic history may have some bearing on the acid secretions. The

*Read before the Tulsa County Medical Society, February 9, 1915.

question remains, does this explain her present condition? The trouble may be due to acute infectious process or to functional derangements.

The slight elevation of or normal temperature, the normal blood count, and other negative physical conditions, must lead us to the conclusion that we are dealing with a functional disturbance.

The patient was given citrate of potassium, 20 grains three times a day, until the urine became alkaline. Later sodium bicarbonate, 10 grains three times daily. She was also advised to take sodium bicarbonate or potassium citrate for ten days every third month. She had had but two slight attacks in ten years.

Case II.—A mining engineer of twenty-seven came under my care August 20, 1904. His family history and habits were good. He states that he had gravel last May and several times previous, and since then has been well. His bowels act, on an average, once every two days. His appetite has remained good, and he has slept well. Beginning this morning he has had some severe pain in the region of the kidneys radiating to the groin, bladder, penis, and testicles. The pain is so excruciating that it requires a hypodermic injection of morphine to relieve it. The act of urination causes intense pain.

Physical examination was entirely negative except for the presence of intensely acid urine, scanty in amount, and of a specific gravity of 1024. *X*-ray examination of kidneys and bladder was negative. Cystoscopic examination revealed slight inflammation of the bladder, and spasmodic contraction of the ureters after the passage of each discharge of urine. The passage of the ureteral catheter was not possible on account of spasmodic contraction of ureters.

In the absence of fever, pyuria, calcium oxalate crystals, stone, or tumor, the usual group of kidney and bladder diseases, seemed here unlikely. We were much impressed with the close parallelism between the degree of acidity of secretions and the amount of acid present in the urine from day to day. Because of this parallelism it seemed wise to base treatment upon the idea that acid might be causing sufficient irritation to produce the line of symptoms by some means or other. Nevertheless, we felt by no means convinced that this hypothesis was correct, and looked forward with much interest to its confirmation or refutation through the outcome.

The patient was given a bland diet of which milk was the main article. Water was given in abundance. Sodium bicarbonate, 60 grains before meals, was administered. In a few days the acidity subsided. Patient was advised as to the procedure to pursue when the urine became highly acid. Ten years later there had been no return of the attacks.

Case III.—An unmarried woman, twenty-four years old, occupation typesetter, with an excellent family history, past history, and good habits, came under my service June 10, 1910. She had enjoyed good health until a year ago, when she had an attack similar to the present illness. She had had an attack about every two months since that time. The present illness came on suddenly with excruciating pain in the lumbar region reflected to the groin, bladder, and rectum. The act of micturition was very painful, frequent, and productive of only small amounts of urine. The urine was highly acid and caused extreme irritation of the vulvar mucous membrane. The secretions of the vagina were acid and irritating. Tongue red and coated, mucous membranes of mouth, pharynx, esophagus, and stomach sensitive to acid food. No elevation of temperature.

Under sodium bicarbonate, 30 grains thrice daily, the patient began to improve, and in a few days recovered. She was advised to take alkalies from time to time to keep the urine fairly normal and has had no recurrances of attack.

Case IV.—A stenographer of twenty-six, was first seen by me October 19, 1914. For several years she had periodic attacks which had been diagnosed appendicitis. Menstrual periods regular. Bowels constipated. Family history, past history, with exception of these attacks, and habits good.

Present illness began while she was seated at her work in the office. She felt faint and nauseated. She was taken home and a physician was called. She was found suffering with excruciating sharp, stabbing pains in the lumbar region radiating to the groin and bladder. She was unable to move without intense suffering.

On physical examination the pupils were seen to be equal and the reflex was normal. The chest showed nothing abnormal. Abdomen somewhat rigid and sensitive. Urine highly acid, specific gravity 1025. Vaginal secretions intensely acid. Tongue, coated and red. Kidney stone, Dietl's crisis, and other probable causes were excluded. My diagnosis was acid crisis.

The cases referred to above were selected from some 42 cases which have come under my observation in the last 12 years. They are very valuable from a diagnostic point of view, and no doubt will lead the way to clearer observation and deeper investigation in diseases not alone of the genitourinary tract, but of other secretory organs as well.

Our methods of investigating the abdomen, as compared with the other parts of the body, are rough and primitive. This, no doubt, accounts for so many grave errors in diagnosis.

The first few cases of acid crises are rather enigmatical to the tyro. After one has studied a few of these cases the diagnosis is comparatively easy. The symptom complex of one case is that of all with an occasional atypical case which is met with in all classified conditions.

Nephric, gastric, ureteral, and urethral crises, twisted mesentery, ureteral stone, appendicitis, kidney stone, and allied conditions are liable to be confounded with acid crises. The process of exclusion, or a thorough application of differential diagnosis, is absolutely necessary.

In the light of a more careful study of this condition, I have come to speak of these attacks as acid crises due mainly to the irritant but not due to any disease of the organ so affected. The intense excretion and secretion of the acid products by the organism reaches a high tide and is made manifest by the syndrome to which I have given the name, acid crises.

The cases are met with chiefly in persons of rheumatic, lithemic, or uremic diatheses. Persons who eat large quantities of meat or candy and small amounts of liquid are especially prone to this disorder. This disorder of metabolism is associated with retention of uric acid and other purin bodies in the system, characterized clinically by attacks of spasms of the pelvis of the kidney, ureters, bladder, and urethra, and due to irritation by a highly acid urine.

Crile maintains that acidity of the blood is increased by muscular effort, emotional disturbances, surgical shock, infections, asphyxia, inhalation anesthesia, and excision of the liver and kidneys. Ether, nitrous oxide, and alcohol produce acidity. A certain degree of acidity is incompatible with life. At the point of death the blood is always acid. He thinks that acidity is the actual cause of death. If epinephrin in sufficient quantity is injected, the acidity is controlled. Acidosis results from starvation, diabetes, and Bright's disease. The acidity of blood is increased two seconds after the beginning of nitrous oxide anesthesia. Acid inhibits the action of the cerebral cortex, but stimulates that of the medulla.

Crile intimates the influence of the chromaffin system, but does not elaborate on this theory. The intimate relationship of the internal secretions to any or all enzymes does not admit of discussion in this paper.

The purin bodies are related chemically and result from the transformation of the nucleoproteins of the food and of the tissues by enzymes, each one of which has its own specific action. Specific ferments also liberate trioxypurin or uric acid from the nucleoproteins of the tissues and from the purins of the food.

The accumulation of purin bodies in the system in considerable quantities is one of the essential etiological factors in acid crises. All mammals except man are able to rid the system rapidly of considerable quantities of uric acid. This is accomplished by a specific enzyme called uricase, which is present principally in the liver and kidneys. The inability of man to oxidize uric acid rapidly accounts for many morbid conditions and is due to this loss of uricolytic power. The loss of the power of the elimination and consequent concentration of purins, and the attempt on the part of the organism to get rid of these concentrated acid bodies are causative factors of acid crises.

The first essential in treating acid crises is proper regimen. Unless the patient obeys implicitly the injunctions regarding diet and mode of life in general from the first appearance of the disease, no really lasting benefit will be obtained from the treatment.

The fact that our theories as to the nature of various metabolic diseases are changing in the light of advanced knowledge leads us to assume a more lenient role in giving dietetic injunctions. We would advise that the amount should be limited, more especially in the case of those having high uric values.

Milk and eggs, fat and carbohydrates are to be given in limited amounts. A vegetable diet is to be encouraged. The most important beverage is water. It should be taken on an empty stomach and in large quantities. Milk, tea, coffee, lemonade, and light wines may be allowed in moderate amounts. Fruits are salutary and are to be very highly recommended.

An open air life with plenty of exercise, such as gymnastics, horseback riding, mountain climbing, gardening, and swimming, are imperative. In advanced cases baths such as may be taken at White Sulphur Springs, Bedford, and Saratoga Springs, in the United States; Weisbaden, Baden-Baden, Ems, Aix, and other springs of similar character in Europe.

The internal administration of alkalies is an efficient adjunct to the dietetic and hygienic advice above given. It has been proven beyond a reasonable doubt that alkalies prevent the accumulation of purin bodies in the tissues, and their value is enhanced by the employment of suitable mineral waters. These waters stimulate the conversion of nuclear material, increase activity of skin, lungs, and kidneys, benefit gastric intestinal catarrh, and overcome constipation.

A brisk calomel, soda, and podophyllin purge is always advantageous at the onset. Later, wine of colchicum combined with citrate of potassium, or carbonate of lithium may be administered. Aspirin, sodium bicarbonate, or piperazin may be given as an efficient aid in solution of uric acid. The severe paroxysms of pain often have to be controlled by large doses of morphine.

The acid crisis itself should always be the main object of our therapeutic efforts, and beyond this we may be guided by general principles.

Suite 306 Bliss Building.

PSYCHOGENIC CONVULSIONS.

THE RESULT OF A WISH.*

By THADDEUS HOYT AMES, M.D.,

Assistant Physician in Outdoor Department, Neurological Institute; Assistant Attending Neurologist, City Hospital; Clinical Instructor in Neurology, Cornell Medical School,

AND

RUSSELL MACROBERT, M.D.,

Resident Physician, Neurological Institute, New York.

A girl, aged 18, entered the Neurological Institute on the service of Dr. Frederick Peterson the first of November, 1914, with a history of left-sided convulsions, occurring at varying intervals over a period of four years.

She was the seventh of nine children, five of whom died in infancy. There was no history of epilepsy in the family. With the exception of an illness at the age of 8, diagnosed as spinal meningitis, the patient's health had always been good.

Her present trouble started with a convulsive attack in August, 1910, and since then attacks have occurred at irregular hours and at varying intervals. During the past year they were as frequent as once a month, but there were times when the interval was only three days. They came on when she was lying down, sitting, or standing; there was no prodromal warning of the attacks. She was always conscious during the attacks, but could not interrupt them. After they subsided she felt weak for a few hours or even for days, but did not have stupor or headache. Physicians gave her constant care during the past four years, using various forms of treatment; for the past nine months she was treated thoroughly with bromide. When she came to the Institute she thought there was a possibility of an operation.

On admission the physical examination showed no abnormality. The reflexes were equal on the two sides, and were all rather lively. Her eyegrounds were found by Dr. Holden, the consultant oculist to the Institute, to be normal. The Wassermann, urine and routine blood examinations were negative. From the nature of her history and her examination, Dr. Peterson considered the attacks to be of a functional character.

Three days after her admission this unilateral convulsion started without warning or provocation. It was violent for 40 minutes, and persisted to a lesser degree for 36 hours. She was perfectly conscious and lay turned toward the right side, the left leg and left arm jerking in vigorous, irregular clonic spasms. The right side was disturbed only by the violence of the movements of the other side. In each spasm the left arm was extended fully, a little posterior to the hips; the hand was over pronated, the palm outward and the back of the hand toward her. Each tense thrust carried the hand backward nearly a foot from her. The left leg muscles during the spasms carried the knee upward and across the abdomen to the right side. Each one of the series of spasms constituting this attack consisted of a synchronous pushing of the hand away from the body and a drawing of the knee toward the abdomen across the midline of the body. There was no biting of the tongue, nor incontinence, nor frothing at the mouth.

During the entire convulsion she answered questions and complied with all requests. She said she

*Read before the Neurological Section of the New York Academy of Medicine, in December, 1914.

was suffering, and asked that something be done to relieve her. There was every evidence that she was uncomfortable and that she was getting no pleasure from the performance.

During this attack the pupils responded promptly to light and accommodation; the knee jerks and ankle jerks and plantar reflexes were all normal, the right equalling the left; there was no Babinski nor Oppenheim; nor was there lessening of the stereognostic sense in the convulsed hand. The tongue protruded in the midline. There was no mental confusion. There was no restriction of visual fields. Her corneal and pharyngeal reflexes were present. There was no generalized nor local cutaneous anaesthesia, nor any of the usual stigmata of hysteria. Patient was shown in the convulsion at the weekly conference of physicians at the Neurological Institute, and all present agreed that this was a functional disorder. The attack, which was witnessed also by Dr. Peterson, confirmed his previous opinion as to its functional character, and he decided that the causative psychic influences should be ascertained.

Assuming at the outset that all functional attacks express in some way a repressed wish and bring about something for the patient which cannot otherwise be accomplished, inquiries were commenced into the girl's mental processes.

Although she was 18, her intelligence was not that of a girl of that age; it was found by the Binet-Simon test to be that of a girl of only 12. She stopped school at the age of 14, never had any close friends, and was not in the habit of expressing her thoughts. She displayed great reluctance in speaking of even the most trivial affairs at home, but was persuaded to talk about the things that worried her.

She worried most, she said, in regard to the future in store for her. When her attacks began four years ago, as it was feared that she would have them in some public place, she dropped out of all school, church, and social relationships. The doctors advised her against severe exertion; so her daily life consisted of the lighter household duties, reading, sewing, and having her friends visit her. Her friends did not come in very often; sewing was the only amusement she enjoyed; reading did not appeal to her at all; card playing and dancing were not approved of by the family; such duties as washing dishes, making beds, and feeding chickens were intensely disagreeable to her, and she considered herself to be very unhappy, and frequently thought she would rather be dead than live having continued attacks.

Another thing that bothered her a great deal was the objection of her two oldest sisters to the marriage of another sister, aged 21, to a certain man of whom the patient approved. The circumstances did not require her intervention, she knew, because this sister was able to manage her own love affairs, but she could not keep from worrying about the matter. The girl was upset emotionally when she mentioned this sister's trouble, so much more than the occasion warranted that it seemed there must be some other reason than this excuse which spurred her into action in this instance. Another worry was her inability to control her temper—little things irritated her to such an extent that for many years she was in the habit of flying into a rage and throwing things on the floor. She said she often prayed that she might be able to control her temper.

On being questioned in regard to other worries or habits the patient burst out with her real secret. She did not appear to be ashamed of it, but asserted that the fault was not hers, a habit having been shown her by this sister, on whom she shifted the entire blame. She recalled that it began when she was 10 years of age, and her sister 13. It was a mutual masturbation which occurred only at night; they always slept together, never interchanging sides in the bed; the sister was always on the left of the patient. There was a strict and tacit understanding between the sisters that no mention ever be made of these performances. They indicated their intentions, not by spoken words but by their actions, and when the patient felt too tired and sleepy to participate, she did not indicate her unwillingness by words, but, turning over on her right side, she pushed her sister's hand away and drew up her knee to protect herself. When the sister persisted, it required repeated pushes with the patient's left arm and movements with her leg to stop her. The patient gradually came to feel that the whole performance was wrong, and her remonstrances became more and more frequent until this mutual practice ceased.

However, the desire for the sensation could not be resisted by the girl, and she kept up the practice herself. There were times when she felt distressed about it, but as she thought she would never have learned the habit herself, at these times she blamed her sister. She never referred to what was in her mind, but, instead, frequently quarreled with the sister over trivial matters.

When she was 14, during the summer, she was more openly antagonistic toward this sister, and on one occasion when she was irritable the sister was waiting for her to get ready for a church concert and she deliberately took a longer time than was necessary. The sister teased and nagged her to hurry but, as there was company in the house, she did not lose her temper at the time, although inwardly more angry than ever before. After arriving at the concert she suddenly began to tremble and was taken out into the vestibule of the church. She recalled in telling the story her very definite impression of this sister, who happened to be standing just to her left. The whole accumulation of anger against her for having taught the habit, surged up in a violent emotion, which seemed to draw her away from the sister with a feeling of revulsion, and movements for protection commenced in her left side and became uncontrollable. This was in August, 1910, and constituted the first attack.

The patient had such a keen recollection of all the details of the story she had been telling that she could show the movements she described; so she was asked to reproduce the whole scene of her first attack. She did this. She then, at request, showed the movements of her other attacks in the sitting, standing, and lying-down positions. She declared that these were all alike and identical with the first attack. On being asked to show, first, a single isolated movement of an attack, and then the movement used in restraining the sister, she complied, and immediately saw and declared that these were absolutely identical. She was then asked to demonstrate how she repelled her sister's repeated persistent advances. She did this by a series of the single movements which, when reproduced, constituted an exact counterpart of an attack. The analogy was at once so manifest to her

that she exclaimed, "Why, these movements are all the same."

If then the movements of these attacks were the same as those of her early revolt against the mutual practice, there seemed to be a reason for inferring that these recent attacks in their way, too, were a revolt—that they were representative of some other struggle against something she wanted to stop. On being asked what it was, she instantly replied it was this habit. It was a habit she knew she should stop, and yet sometimes one she wished she could continue, and although the sensation was one she could not always resist, she always felt that she needed some justification for it to her own conscience. This justification came by arguing that as she did not learn the habit herself, but was shown it, the fault was not hers and the blame was all on her sister. With the moral responsibility thus shifted her conscience was appeased. Nevertheless, as time went on she gradually felt just as she had felt years before when she broke off the first habit, that this one, too, should be stopped. That was her state of mind before the attacks began; these were the conditions which made a readjustment necessary.

The patient was then asked to recall the identity she had just admitted between the movements of the attacks and those of the revolt against her first habit and to consider if they had any relation to the habit with which she was at present struggling. She said that because she had believed her sister responsible for the habit she supposed that the same movements which warded off her sister the first time expressed her feelings in this instance. The patient had never before considered that these attacks were anything other than very distressing, but she readily realized at this stage of the analysis that they were the result of a distinct wish; they were an expression of her revolt, but did not stop the habit; unintentionally and unconsciously they did exactly what she wanted. The attacks were the outward form of her desire to be relieved of responsibility for the occurrence of the habit which she enjoyed, but which her conscience did not sanction.

She was now persuaded that she was solely responsible for the continuance of the habit in the future, and that she should no longer have attacks which only implied blame to her sister, and did nothing toward stopping the habit. She promised to assume the entire responsibility herself for any indulgence in the future, and not to have any more attacks. Up to date of the publishing of this article she has kept her promise.

Thanks are hereby expressed to Dr. Peterson for his permission to present this case and for his assistance in the preparation of this paper.

HUMANIZED MILK IN INFANT FEEDING.

By J. EPSTEIN, M.D.,

NEW YORK.

CLINICAL ASSISTANT IN MEDICINE, VANDERBILT CLINIC; IN PEDIATRICS, MOUNT SINAI HOSPITAL DISPENSARY AND BABIES' HOSPITAL DISPENSARY.

THAT mother's milk is the best food for her infant is past all discussion. When the supply of mother's milk is inadequate to feed her infant, complementary feeding with modified cow's milk becomes necessary. The feeding from the breast and bottle should be either alternately or to suit the convenience of the mother. Were every mother to nurse her infant, pediatrics would lose a great deal of its importance and usefulness. But since many mothers do not nurse their infants at all, there has developed a special science of infant feeding.

Though cow's milk is the only food used in the artificial feeding of infants and its constituent elements are very few, still there is no standard of infant feeding or milk modification. There are very able pediatrists who prescribe high fat and equally able pediatrists who advise low fat. The proteins are blamed by some for all ills, while others consider them entirely harmless. The sugar has not escaped the same fate and the salts are under suspicion.

Though every pediatrist claims the best results with his particular method of feeding, yet for practical purposes it would be very desirable to have some standard or basis for infant feeding from which the physician might deviate at times to meet certain special cases, but there should be a general diet for all healthy infants as there is a general diet for all healthy adults. The sick infant should be studied individually as to its digestive ability and fed accordingly, but the majority of healthy infants are almost alike and could be fed on a uniform diet.

Artificial infant feeding may be divided into three classes: (1) The feeding of healthy infants; (2) The feeding of infants during acute illness; (3) The feeding of infants suffering from some chronic gastrointestinal disease, or poor digestive ability, or intolerance for certain elements in the milk.

In order to feed the average healthy infant there are at present two methods which are commonly used: (1) Simple dilution of whole milk; (2) Percentage feeding.

Simple dilution of whole milk is really simple and at times very useful, but babies do not thrive on simplicity alone. Comparing the food value of this simple milk modification with the food value the baby would have received from the breast, especially in the early months of infancy, the infant is cheated of its food at the threshold of life. Percentage feeding is scientific and a proper food can be prepared by this exact method, but the majority of physicians know very little about it. The result is that many infants, healthy at birth, are made hopelessly ill by all kinds of irrational milk modifications.

Humanized milk—that is, cow's milk with the percentage composition of human milk—can be given to the vast army of healthy babies from early infancy to the end of the first year. It has a scientific basis for its use and infants fed on this food show a steady gain in every way.

In order to make it available to the average mother or nurse, I have much simplified the method of its preparation. The food is prepared from the upper 15 ounces of a quart bottle of milk.

The upper 15 ounces of a quart bottle of milk after standing undisturbed for six hours at a temperature of from 40° to 50° F. has approximately the following percentage composition: Protein, 3.40; sugar, 4.50; fat, 8.00; salts, 0.70; water, 83.40.

When this upper 15 ounces is diluted with an equal volume of water it gives the following percentage composition: Protein, 1.70; sugar, 2.25; fat, 4.00; salts, 0.35; water, 91.70.

On adding sugar to this milk to make up 7 per cent. it has the following composition: Protein, 1.70; sugar, 7.00; fat, 4.00; salts, 0.35; water 86.95.

From the above it is evident that by this simple

process of diluting once the upper 15 ounces of a quart bottle of milk we obtain a food that is very near to human milk.

HUMAN MILK.		HUMANIZED MILK.	
Protein	1.50	Protein	1.70
Sugar	7.00	Sugar	7.00
Fat	4.00	Fat	4.00
Salts	0.20	Salts	0.35
Water	87.30	Water	86.95

Having decided by the weight, age, and general condition of the infant how many ounces of food it requires at each feeding and the number of feedings in 24 hours, the mother or nurse is directed to use the upper 15 ounces of one or two quart bottles of certified raw milk and out of these 15 or 30 ounces of milk she takes as many ounces as she is directed, and to this she adds an equal number of ounces of cooled boiled water, to which the proper amount of milk sugar has been previously added. The entire quantity of food which is made up of half milk, half water, and sugar is now equally divided into the number of feedings required and fed at regular hours.

The feeding of infants during acute illness or of those suffering from chronic digestive disturbances or intolerance for certain elements in the milk requires individual study to adapt the food to the baby's condition.

Humanized milk is not intended to replace human milk, though it approximates it very closely in the percentage of solids, there still remain the chemical and biological differences which cannot be changed by any known means. Neither is humanized milk suggested to replace entirely the more scientific and exact method of fitting the food to each individual baby which is the aim of the pediatrist. But it is recommended as a very useful food for the average healthy infant who is under the care of the busy, practical general practitioner of medicine whose daily work among his little patients offers great opportunities to do much good.

1450 Lexington Avenue.

Medicolegal Notes.

"Culpable Negligence" of Physician or Surgeon.—A medical man demurred to an indictment accusing him of the offense of manslaughter in the second degree, on the ground that the acts or omissions charged were not stated with sufficiently certainty to, and did not constitute, a public offense. The demurrer being overruled, the case was certified to the Minnesota Supreme Court. The indictment was found under the Minnesota statute of 1913, declaring manslaughter to be of this degree when committed without any design to effect death, "by any act, procurement, or culpable negligence" not constituting a higher crime. It alleged that the defendant, without authority of law, but without a design to effect her death, did feloniously employ on the body of one R. N., an *x*-ray machine for the purpose of taking an *x*-ray picture of her hip, for his sole use and purpose, with her consent, extracted on his assurance that the exposure to the *x*-ray would do her no harm; and that he "did then and there turn and apply said *x*-ray upon the body of the said R. N. in and over the regions of her right hip, the said machine being a dangerous instrument, except when operated by a skillful manager it was not necessarily dangerous, which danger the said C. A. L. knew, or, in the exercise of the care required under the circumstances, he should have known, and said C. A. L. did then and there place the tube of the said *x*-ray unreasonably close to the body of her, the said R. N., and, disregarding the duty he owed her, he did negligently and carelessly fail to give her, during the time of such exposure to such *x*-ray as aforesaid, such proper and requisite attention as was requisite and proper to prevent burning her, and did operate such *x*-ray in an unskillful manner, and did keep her body so exposed for an unreasonable length of time, thereby inflicting upon the body of her, the said R. N., in the region of the right hip, as aforesaid, a mortal burn and injury known as an *x*-ray burn, from which mortal burn so caused as aforesaid, she, the said R. N., died."

In sustaining the order overruling the demurrer, the Supreme Court said that culpable negligence—that is, criminal negligence—is largely a matter of degree, and is incapable of precise definition. Whether it exists to such a degree as to involve criminal liability is a question that must be left, to a great extent, to the common sense of the jury. But not every careless or negligent act whereby death ensues comes within the statute, and something more must appear than the essentials necessary to impose civil liability for damages. When considered as the basis of a charge of manslaughter against a medical man, or person assuming to act as such, culpable negligence exists where he exhibits gross lack of competency or inattention, or wanton indifference to the patient's safety, which may arise from his gross ignorance of the science or through gross negligence in either its application or lack of proper skill in the use of instruments. Where, however, he does nothing that an ordinarily skilled and careful practitioner might not do, and death results merely from an error of judgment or accident, no criminal liability attaches. "Gross," as the court used the word, was intended to convey the idea of recklessness with regard to the safety of others, or "foolhardy presumption," as expressed by Mr. Justice Holmes, in Corn. v. Pierce, 138 Mass. 165. The failure to allege knowledge on the defendant's part that his acts involved probability of serious consequences to the deceased was not fatal to the indictment; the defect, if any, in that regard, being cured by the prsumption of contemplation of probable consequences. Nor was it necessary to allege the defendant's duty to the deceased under the circumstances, nor to set up a specific standard by which his acts might be measured; these being matters of law. —State v. Lester, Minnesota Supreme Court, 149 N. W. 297.

Employer's Liability for Medical Services.—A mill company had an arrangement with a hospital association to render medical treatment to injured employees in consideration of a deduction from their pay. An employee, H., having suffered a severe injury, the defendant directed another employee to take him to the hospital, which he did. On the way they were met by H.'s uncle, who, on arriving at the hospital, discharged the surgeon employed by the association and requested that the plaintiff, his family physician, treat the case. H. died, after which the uncle told the employee who took H. to the hospital, and who was merely a lumber salesman for the mill company, that there were certain physician's and nurse's charges, which the salesman said the company would pay. In an action by the physician against the company for his services, it was held that the defendant's obligation arising from its agreement to furnish medical attention was discharged when it sent H. to the hospital, and provided a competent surgeon to treat him, and, the salesman's promise to pay the plaintiff's bill not being within the scope of his authority, the defendant was not liable. The rule that an employer is bound to furnish medical attention to an injured employee in case of extreme urgency calling for immediate action did not apply for two reasons: (a) The defendant had already made reasonable provision for medical and surgical attention and hospital care; (b) the defendant's place of business was near Seattle, had telephonic communication with it, and its representative officers could readily have been communicated with.—Vanderboget v. Campbell Mill Co., Washington Supreme Court, 144 Pac. 905.

Opinion Evidence as to Sanity.—The Illinois Supreme Court holds that where an accused sets up the defense of insanity, a physician who examined him several months after the commission of the crime is competent to give opinion evidence on the question whether he was insane at the time of the crime.—People v. Gavrilovich, 265 Ill. 11.

Privileged Communications.—In an action for personal injuries it was held that the testimony of physicians who made an examination of the plaintiff, a section foreman, to ascertain his physical ability to work on the railroad, was not privileged, their information not being obtained for the purpose of treating or acting for him.—Cherpeski v. Great Northern Ry. Co., Minnesota Supreme Court, 150 N. W. 1091.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, May 29, 1915.

THE ETIOLOGY OF RICKETS.

In spite of the fact that this disease has been studied for the past three hundred years the knowledge of its etiology is still extremely indefinite. This is not because there has been lacking an abundance of material for its study, for it is one of the most common of the diseases of infancy. According to Still 44.6 per cent. of London children brought to the hospital for various diseases show signs of rickets. The tendency has been to ascribe this disease either to errors of nutrition or to a vicious environment. Most English and American pediatrists perceive the cause in a defective diet, chiefly in a deficiency of fat. Marfan attributes rickets to an intestinal autointoxication; von Hansemann to "domestication"; Mousser and Koch to an infection, and others, most recently Klose and Vogt and Stoeltzner, to a defect in the internal secretions, chiefly to a deficiency in the thymus gland.

The relative frequency of rachitis in large cities and among the poorer classes has given rise to the hypothesis that this disease is the result of overcrowding. Leonard Findlay (*Lancet*, May 8, 1915) has investigated this phase of the subject, basing this study upon careful observation of the home conditions of from 400 to 500 rachitic children in the city of Glasgow. He cites the results of an experimental investigation that he had made a number of years ago in which he showed that the disease could be induced in animals by confinement. In fact, rickets is extremely common in zoological gardens. The lack of exercise under normal conditions of life apparently prevents the retention of a sufficient amount of calcium by the organism, as recently demonstrated experimentally by Kochmann and Petzsch.

In pursuing his statistical study Findlay investigated the possible rôle of the following factors: (1) the length of time the child was breast-fed; (2) the order of the child in the family; (3) the condition of the bowels previous to the onset of the trouble; (4) the amount of air space in the house allowed to the child; (5) the number of stairs to be mounted to reach the house, and finally (6) whether or not the child has been taken much out of doors. As regards the influence of artificial versus breast feeding it was found that rickets developed just as frequently among the breast-fed as among the bottle-fed, and that the disease could not be attributed to prolonged suckling. Nor was there any evidence of a tendency to intestinal troubles in the rachitic infants prior to the development of the disease. This appeared to attack more frequently the earlier than the later members of a family.

Housing conditions seemed to be intimately associated with the cases of rickets. This was more common in infants living in the uppermost floors of tenement houses, with which circumstance was probably connected the fact that these children were not taken out in the fresh air as much as those living nearer or on the ground floor. Of still greater significance were the figures obtained by Findlay with reference to the size of the home and the number of individuals in the family; in other words, with reference to the amount of air space allowed to each child. It was found that the incidence of rickets is definitely proportionate to this amount. The explanation is made that this factor probably acts in a twofold manner: the lack of fresh air making the infant less inclined for exercise and the overcrowded home preventing the child from being properly attended to by the mother.

In seeking to place a proper valuation upon the statistics obtained by Findlay one must not be unmindful of the fact that these figures may be interpreted in different ways, according to the preconceived notions and convictions of the observer. Overcrowding goes hand in hand with abject conditions of life—with the entire train of ailments resulting from poverty and neglect. These bring one again to the question of feeding, which, after all, in view of the every-day experience of most observers and the happy results of a proper dietetic therapy in this disease, seems to be the fundamental problem in rickets.

TYPHUS FEVER.

Now that typhus fever is raging in Serbia and Montenegro, and probably to a greater or lesser extent throughout the battlegrounds of Eastern Europe, revived but melancholy interest is taken in this supposedly almost extinct disease. Dr. John F. Anderson, Director of the Hygienic Laboratory, U. S. Public Health Service, writes in *Public Health Reports*, April 30, 1915, concerning the etiology and prevention of this deadly pest. The author gives a sketch of the work done by various investigators in this field, including that by Dr. Goldberger and himself.

Attention is drawn to the now accepted fact that the body louse is the means by which typhus fever is transmitted. The clinical differences between typhus and typhoid are described, a point of special significance to the clinician. As a rule, the onset of typhus is more abrupt than that of typhoid fever. Chilliness or a distinct chill is common at the onset of typhus, very much more so than in typhoid. Headache with or without chilliness and with or without malaise almost invariably marks the invasion of typhus. In marked contrast to typhoid, the face is flushed and the conjunctivæ are congested in the first few days as the result of a capillary congestion not unlike that seen at the outset of dengue or of yellow fever.

The temperature rises rapidly and with it the pulse rate. In typhoid both rise more slowly. The fever of typhus does not, as a rule, range at high levels. In this as well as in some features of its outset typhus strikingly resembles yellow fever. The duration of the fever is about twice that of yellow fever and about half that of typhoid. An important distinction relates to the eruption. The eruption of typhus appears within three to five days after the onset, therefore earlier than is the rule in typhoid; it is general, sparing only palms and soles; its evolution is rapid, being fully out within 24 to 36 hours, and is permanent, in marked contrast to the typhoid eruption which appears in successive crops. It is important also to recall that the macules constituting the typhus eruption are polymorphic. They have not the regularity of outline or the uniformity of size and appearance of the typhoid rose-spots. Moreover, while most or all of the lesions may fade markedly on pressure in the early stages, some fade little if at all, and the proportion of these may and usually does rapidly increase, the eruption becoming petechial as it becomes older.

According to Anderson the body louse is the only agency through which the disease is spread and therefore all efforts at prevention are centered upon this parasite, and these efforts may be broadly grouped under the following headings: (1) Measures for the reduction of lice infestation among the population in general. (2) The destruction of all lice and their eggs found on the bodies, clothing, bedding, and surroundings of all cases of typhus, typhus suspects, and contacts. (3) The adoption of measures by persons in the vicinity of cases of typhus, to reduce or prevent the possibility of their being bitten by lice. (4) Inoculation with the mild type of the disease, Brill's disease, by persons contemplating entering localities where the disease is prevalent. Should Plotz's work be confirmed the use of a vaccine prepared from the typhus fever germ may be substituted for this.

Typhus fever is essentially a war disease, or, rather, it might be said that war furnishes those conditions which favor its inception and spread. It is very difficult, among soldiers who, like the Serbians, through the exigencies of warfare are compelled to live in dirty surroundings and who are unable to change their clothes or take baths to keep the body free from lice. When, however, it is clearly understood that the louse is the main, if not the only factor in disseminating the infection, and strong measures are put into force to destroy these insects, then the spread of typhus will be stayed. If, too, the vaccine discovered by Plotz is found to be effectual in rendering persons immune or more or less immune to the infection then another powerful weapon to be used against the disease will have been forged. The treatment of typhus fever presents no novel or especial features, and the hopes for its extinction or partial suppression rest wholly on preventive methods. The results of the work done by the American Commission now in Serbia will be followed with great interest here, as it is a practical attempt on a large scale to solve the problem of how to extinguish typhus fever.

PREPARATION OF THE AMERICAN PROFESSION FOR WAR.

With the war clouds rising so ominously out of the sea it is the duty of every American physician to take thought how he can best serve his country in the deplorable case that hostilities become unavoidable. No matter how strictly men of our profession observe neutrality or how strongly they would deprecate a war, knowing as they must something of the suffering attendant upon wounds, exposure, traumatism, etc., things which the layman may not appreciate, it is their patriotic duty as well as their obligation to the cause of humanitarianism which they have made their life work to be prepared to bear their share of the burden in case their country is forced into the present European war. Should this happen, there is no doubt that every man in the profession would be affected somewhat. Those physicians already in the various branches of the service would, of course, have their duties marked out for them from the first. The members of the Medical Reserve Corps should expect and be prepared for calls to service. Younger members of the profession, recent graduates perhaps, who have not yet located permanently nor given hostages to fortune should be prepared to offer their services to their country. Some of the older physicians who have none dependent on them or whose families are in easy circumstances, should be ready to volunteer. Other practising physicians who would find it impossible to give up their work can do their part by volunteering to assume the practices of their colleagues who have answered their country's call during the course of the war.

In these and other ways can the members of our profession make ready, not in any spirit of belligerency or in any desire to precipitate a war, but in the realization of a grave national crisis. It resolves itself for each physician into a question as to whether or not he would be able to give his services to his country in case of war. If he decides that for any reason he cannot undertake military service he should be prepared to assist in every way those who can go.

Having once made up his mind that he can volunteer, however, the physician should not be content to let the matter rest there. There are many ways in which he can make himself of greater value to his country. His personal affairs, of course, should be gotten in such shape that he can leave at a moment's notice. A review of surgery would, in the case of the average practitioner, be beneficial, especially military surgery, gunshot wounds, amputations, etc. The foreign medical journals nowadays will be found full of articles pertinent to war and the physician who contemplates volunteering would do well to read these, or at least the abstracts of them appearing in the medical journals here. It would not even be amiss for the prospective medical officer to familiarize himself to some extent with the drill regulations, especially the formation, the evolutions, and the manual of the litter. If our readers think that this is of minor importance, a talk with any medical officer of the regular army will undeceive them.

CARE OF THE MENTALLY DISEASED AND MENTALLY DEFECTIVE.

At a recent meeting of the New York Psychiatrical Society the following resolutions were adopted:

"I. That this society recommend (1) that the State Constitution require the Legislature to provide for a State Hospital Commission, the president of which shall be a physician who is specially qualified in mental diseases and in institutional administration, and for a State Commission on Mental Deficiency, the president of which shall be a physician who is specially qualified in mental deficiency and in institutional administration; (2) that the State Hospital Commission be given power not only to visit and inspect all institutions either public or private, used for the care and treatment of persons suffering from mental diseases, as at present, but be also given fiscal control of the State institutions for the care and treatment of such persons, and general supervision of their administration by the boards of managers; (3) that the State Commission on Mental Deficiency be given equal powers to those of the State Hospital Commission in regard to the institutions for the care and treatment of persons suffering from mental deficiency.

"II. That this society believes that a system of fiscal control of the State institutions for the mentally diseased and mentally defective by a board of control which would be independent of the specially qualified commissioners recommended in the preceding resolutions would be inefficient and would be detrimental to the proper treatment of the patients and to the interests of the State in dealing with the important problems of mental disease and deficiency."

As stated in the preamble to these resolutions, the essentials of an efficient and stable State system for the care of sufferers from mental diseases and mental defects should, as experience has amply shown, be safeguarded and shaped by constitutional requirements, and furthermore no system can be efficient unless it is administered by specially qualified officials. As the framers of the new State constitution, now in convention, must necessarily look to experts for advice as to the proper way of dealing with special subjects, we hope and feel sure they will give earnest consideration to the recommendations of the Psychiatrical Society. The members of this society are all specialists in nervous and mental diseases and have expert knowledge concerning the treatment of the mentally diseased, being particularly well informed and actively interested in the State asylums for the care of the insane and feebleminded. They are therefore preeminently qualified to advise the Constitutional Convention on such matters.

Hygiene at the Panama Exposition.

Every effort is being made to conserve the health of the employees of the Panama-Pacific International Exposition and to render the grounds and buildings healthful. Surgeon C. C. Pierce of the United States Public Health Service is in charge of the sanitary supervision of the exposition, and he relates in *Public Health Reports*, April 16, 1915, the steps that have been taken to safeguard the health of those working on the buildings and grounds and of visitors. These sanitary precautions appear to be thorough, and consequently those who intend to visit the San Francisco exposition during the coming summer need have no qualms as to its salubrity. The exhibits of hygiene at the exposition are full and diverse. They are scientifically accurate and are arranged in as graphic and interesting a manner as possible and on a plane readily comprehensible by the general public. The chief hygienic exhibits will be social—on sex hygiene, the tuberculosis problem, hookwoorm disease, personal hygiene with special reference to the harmful and fraudulent character of patent medicine now on the market, mouth hygiene, alcohol and other habit-forming drugs, mental hygiene, psychiatry and the care and treatment of the insane, feeblemindedness, school hygiene, filtration and sewage disposal, tropical medicine and hygiene, infant hygiene, eugenics, military hygiene, and the mode of spread of infectious diseases. From a perusal of the above it will be evident that the hygienic display, as shown in the exhibit of the U. S. Public Health Service, cannot fail to be in the highest degree instructive and interesting.

The Uric Acid of the Blood.

An important part of the studies which have been carried out in diseases of metabolism, especially gout, has been the estimation of the amount of uric acid in the blood. Numerous methods have been tried, and only that devised by Folin has been adjudged reliable. Now, however, new evidence has been presented, and as a result all the former work must be swept into the discard and the problem must be attacked from the beginning. Benedict (*Jour. Biol. Chem.*, 1915, xx, 633) has pointed out defects in the Folin method and has presented a modification. But what is of the greatest importance he has shown that the uric acid exists in blood in two forms, a "free" and a "combined." Thus ox blood which was believed to contain 0.2 mgm. per 100 c.c. was found as a rule to contain about 7. mgm. of total uric acid per 100 c.c. of blood, and, moreover, it was contained practically in its entirety in the red blood cells. Chicken blood, on the other hand, showed practically none of the combined uric acid, the free acid present being contained only in the serum, none of it being in the corpuscles. If the ox blood were allowed to stand at room temperature and protected from bacterial contamination there was found to take place a gradual transition from the combined to the free form of uric acid, apparently due to the action of some ferment. Just what the result of these observations will be cannot, of course, at this time be safely predicted. It is obvious, however, that all of the work on the uric acid content of the blood will have to be repeated. Numerous hypotheses will at once suggest themselves. Benedict suggests that possibly the free uric acid is that which is ready for excretion as such, while the combined is capable of further catabolism. The state in which the uric acid exists in the red cells is another interesting question. It is discouraging in a way to think of the amount of work which has been done to no purpose, but it is highly encouraging to know that a definite step forward has been made.

Diathermy at the Front.

At a Military Medical Evening Session held at Siemensstadt, March 16 (*Berliner klinische Wochenschrift*, March 29), Bucky praised the unexpected results of diathermy in nerve lesions. Either the direct or alternating current causes a marked stimulation of muscle or nerve tissue, the intensity being very low. The current changes the conductor, in the case of animal tissues, into a conductor of the second order—an electrolyte. As a result of the currents there occurs an ionic migration between the poles. If the alternating current is introduced at this point, with a frequency of 100 alternations per second, the number of alternations may be increased to one million—an inconceivable frequency, which has no stimulating properties and no ionic dissociation. Diathermy is therefore without stimulating properties, although a bulb introduced into the circuit glows brightly. If this current is passed through resistance, heat is generated. The current applied to injured tissues in warfare showed a beneficial reaction not only in tissues without lesion of the nerves, but in nerve traumatisms. The beneficent effects were, of course, due to thermotherapy. Bucky claims that this diathermy is a successful competitor of hot-air therapy.

News of the Week.

Warning.—Subscribers to William Wood & Company's publications are warned not to pay any money to the "National Educational Association, No. 130 Nassau street, New ork City," or to any persons representing this association, as they are not authorized to collect money or solicit subscriptions for any of the publications of William Wood & Company.

Committee of American Physicians for the Relief of the Belgium Profession.—The following extract from a letter by Dr. George W. Crile of Cleveland shows the great and continuing need of our colleagues in Belgium: "When I was in Belgium I received first-hand information from a number of Belgian physicians concerning their plight. They are indeed in dire need and there seems to be no way by which this need can be overcome until their land is restored to them again. The freemasonry of the medical profession so binds all medical men together that it seems to me that no appeal to doctors for the aid of their associates in Belgium can be in vain. We should all realize also that no single appeal can satisfy what is going to be a long-continued need, that we must give now, later again, and still later, and so answer repeated appeals until later conditions may restore to the Belgians the wherewithal to aid themselves."

Dr. F. F. Simpson, treasurer, 7048 Jenkins Arcade Building, Pittsburgh, reports the following contributions received during the week ending May 22:

Dr. H. M. Manning, P. A. Surgeon, U. S. P. H. S., Charleston, S. C.	$5.00
Anonymous—K., Toledo, Ohio	5.00
Dr. Dwight G. Kreul, Davenport, Iowa	10.00
M. L. H., Wallum Lake, R. I.	3.00
Knox Co. Medical Society, Fredericktown, Ohio	10.00
The Medical Club of Portland, Portland, Oregon	25.00
Dr. Edward E. Bancroft, Wellesley, Mass.	10.00
Dr. Thomas St. Clair, Latrobe, Pa.	5.00
Dr. Fred T. Murphy, St. Louis, Mo.	50.00
Dr. Hermann Grad, New York, N. Y.	10.00
Receipts for the week ending May 22	$133.00
Previously reported receipts	6,860.50
Total receipts	$6,993.50

Disbursements for the week ending May 22, 178 standard boxes of food at $2.28	$405.84
Previously reported disbursements: 1,625 standard boxes of food, at $2.20	3,575.00
1,309 standard boxes of food, at $2.30	3,010.70
Total disbursements	6,991.54
Balance	$1.96

In Memory of Madame Depage.—We understand that there is a movement on foot among English surgeons to establish a permanent memorial to Mme. Depage of Brussels, who was killed in the *Lusitania* outrage while on her way home with money collected in this country for the Red Cross. If steps are definitely taken for the memorial the many friends in America of Dr. Depage will no doubt claim the privilege of taking part in this tribute to the memory of a noble and greatly beloved woman.

Gorgas Prize Medal.—This is to be awarded yearly by the Association of the Medical Reserve Corps, U. S. Army, New York State Division. The competition is open to medical officers of the army, officers of the Medical Reserve Corps of the Army, and medical officers of the organized militia. The medal will be awarded for the paper submitted which shows the most important advance in medicine or surgery on a medical or medico-military subject, preference being given to the latter. The papers should be submitted by March 31 of each year, and should be addressed to the president of the Board of Award, Gorgas Prize Medal, Army Medical School, Washington, D. C. The award will be announced at the graduation exercises of the Army Medical School, on May 31 of each year.

Hospital for Drug Victims.—A fund of $6,000 has been subscribed by a number of women whose names are not published, for the purpose of building a hospital for the care and treatment of sufferers from the drug habit. The money was recently turned over to Dr. Katharine B. Davis, Commissioner of the Department of Correction, who accepted it in behalf of the city. The hospital is to be built on Riker's Island, where a municipal farm is being laid out by workhouse prisoners.

Gratuitous Treatment of Officers at Aix-Les-Bains.—The authorities at Aix-les-Bains, which is State property, announce that treatment there during the coming season will be entirely free for all sick and wounded officers of the allied armies, a valuable concession in view of the large number who have contracted rheumatism in the trenches or have been left with damaged or stiff joints as the result of wounds. A certain number of the principal hotels have been reopened in order to provide accommodation for visitors and the hotel proprietors' syndicate announce a special tariff varying from five to ten francs a day, inclusive, for convalescent officers.

For Osteopaths at Cornell Infirmary.—The students of Cornell University have petitioned the Board of Trustees praying that osteopaths be allowed to treat students at the Cornell Infirmary. At the present time students in the infirmary may not call in osteopaths.

American Association of Immunologists.—The second annual meeting of this association was held at the New Willard Hotel in Washington, D. C., on Monday, May 10. The following officers were elected: *President*, Dr. James W. Jobling of The Vanderbilt School of Medicine, Nashville, Tenn.; *Vice-President*, Dr. George P. Sanborn of Boston, Mass.; *Secretary*, Dr. Martin J. Synnott of Montclair, N. J.; *Member of the Council*, Dr. John A.

Kolmer of Philadelphia, Pa. Dr. Oliver S. Hillman of New York City and Dr. Victor C. Vaughan, Jr., of Detroit, Mich., were elected active members, and Prof. Emil Abderhalden of Halle, Germany, Prof. Victor C. Vaughan of Ann Arbor, Mich., and Prof. Edward C. Rosenow of Chicago, were elected to honorary membership. The association now has sixty active members and twenty applications for membership. The total number of members allowed by the constitution is one hundred.

Medical Association of Alabama.—The annual session of this association was held at Birmingham, Ala., April 20-24, 1915. Surgeon-General W. C. Gorgas, U. S. A., gave an address on the sanitation of the Panama Canal, and Dr. William Seaman Bainbridge of New York delivered an oration on surgery dealing with the sanitation of the gastro-intestinal canal. The election of officers resulted as follows: *President,* Dr. J. Norment Baker, Montgomery; *Vice-Presidents,* Drs. Edward B. Ward, Selma, and Abner N. Steele, Anniston; *Secretary,* Dr. Henry G. Perry, Montgomery; *Treasurer,* Dr. Jacob U. Ray, Woodstock. The next annual meeting will be held in Mobile.

The Woman's Medical Society of the State of New York held its annual session at the same time and place as the general State Society. The following officers were elected: *President,* Dr. Maud Josephine Frye, Buffalo; *Vice-Presidents,* Drs. Eveline P. Ballintine, Rochester; Annie Sturgis Daniel, New York City, and Mary Sutton Macy, New York City; *Secretary,* Dr. Mary Gage Day, Kingston; *Treasurer,* Dr. Florence L. McKay, Rochester; *Councillors,* Drs. Josephine Walter, New York City; Inez A. Bentley, King's Park; Agnes E. Page, Albany; Lois L. E. Gannett, Adams; Florence L. Staunton, Utica; Anna M. Stuart, Elmira; M. Louise Hurrell, Rochester, and Nathalie K. Mankell, Buffalo.

The Education of Women Physicians.—A complete set of moving picture films, showing in detail the work of educating women physicians in the Women's Medical College of Pennsylvania, have been especially prepared and passed by the Commission on Women's Education, for exhibition in the Temple of Education in the Y. W. C. A. Building at the Panama-Pacific Exposition.

The Arbuckle Memorial, completing the north wing of Long Island College Hospital, Brooklyn, was opened on May 24. It was presented to the hospital in memory of the late John Arbuckle by two of his sisters. It will house 171 male patients and, besides the wards and private rooms, it contains a clinical laboratory for forty-five medical students and three research laboratories for the use of the clinical research workers. With the addition of this wing the physical plant of Long Island College Hospital is completed.

The New San Francisco Hospital was dedicated on May 1. T. A. Reardon, president of the Board of Works, formally turned over the group of buildings to the city. A speech of acceptance was delivered by Arthur Barendt, president of the Board of Health. Mayor Rolph conducted the dedication and his address was followed by speeches by John O. Walsh, chairman of the health committee of the Board of Supervisors, United States Senator James D. Phelan, and Dr. T. W. Huntington.

Additions to Mt. Sinai Hospital.—Three buildings for the Mount Sinai Hospital, New York, are to be erected on the east side of Fifth avenue, between Ninety-ninth and One Hundredth streets. One will be nine stories high, for use as servants' quarters; another will be three stories high, to be designated as the pathological building and dispensary; the third will be three stories high and be used as the children's dispensary and for outdoor patients.

New Hospital for Diphtheria in Brooklyn.—Bids for the construction of a new diphtheria hospital in Kingston avenue, Brooklyn, were advertised last week. The hospital will be under the direction of the Health Department and will be one of a group of buildings devoted to the treatment of contagious and infectious diseases. The new building will be three stories high.

Hospital Saturday and Sunday Association.—A distribution of $110,000 has been ordered by The Hospital Saturday and Sunday Association to the associated hospitals on the basis of the amount of free treatment given to the poor, regardless of race or creed. To the general hospitals $58,355 was given in amounts ranging from $9,519 to $250; to special hospitals, $18,931 in sums of $4,648 down to $250; to hospitals for women and children, $18,749 in sums from $4,498 to $363, and to homes for incurables and convalescents, $13,963 in amounts varying from $9,525 down to $281.

Dr. John W. Wainwright has become a member of the editorial staff of *American Medicine,* having charge of a department of "Modern Remedies."

Dr. Samuel G. Dixon of Philadelphia has been reappointed by Governor Brumbaugh Pennsylvania State Commissioner of Health. This is Dr. Dixon's fourth term and he has just completed ten years of service. Under his able direction the Pennsylvania Health Department has been placed in the front rank of public health organizations.

Dr. Roy K. Flannagan of Richmond, Va., has been appointed assistant commissioner of health of Virginia, succeeding Dr. Allen W. Freeman, who resigned to accept the position of epidemiologist in the United States Public Health Service.

Dr. Benjamin Schwartz of New York City has been appointed Coroner's physician to fill the vacancy made by the appointment of Dr. Otto H. Schultze as medical examiner to the district attorney.

Dr. Thomas F. Harrington has been elected deputy health commissioner by the Massachusetts State Board of Labor and Industries.

Dr. Abr. L. Wolbarst was the guest of honor at a dinner given on May 12 at Wallick's Hotel by the physicians who had attended his Thursday night Genitourinary Clinic at the West Side German Dispensary and Hospital during the winter session. About twenty-five physicians were present and Dr. S. C. Grudberg acted as toastmaster.

The British Cancer Research Fund.—Dr. J. Alexander Murray has been appointed superintendent of the Cancer Research Fund and director of its laboratories in succession to Dr. E. E. Bashford, who recently resigned.

The California State Board of Health.—The California Legislature has passed a bill requiring the Governor to fill future vacancies on the State Board of Health by the appointment of practitioners of any or all the recognized systems of healing. The schools which seek representation are the homeopath, eclectic, and osteopath.

New York City's Death Rate.—There were 1,472 deaths in this city during the week ending May 15, making a rate of 13.23 per thousand of population. In the same week of 1914 there were 1,533 deaths.

There was a considerable increase in the deaths of children under 5. All other age groups showed a decrease. The death rate for the first twenty weeks of 1915 was 14.63, a decrease of .72 of a point from last year's figures for the same period.

American Association of Anesthetists.—The third annual meeting of this association will be held in San Francisco on June 21, under the presidency of Dr. Charles K. Teter of Cleveland, O. The secretary, from whom further information may be obtained, is Dr. James T. Gwathmey, 40 East Forty-first street, New York City.

Registry of Wet Nurses.—The Department of Health of New York City has made arrangements by which the names and addresses of women willing to give wet-nurse care, shall be reported to the Central Office of the Babies' Welfare Association. This information will thus be available to any physician in the city.

Charitable Bequests.—By the will of the late Emma L. Murphy of Philadelphia a contingent bequest of $5,000 is made to the Hahnemann Hospital for the endowment of a free bed in the name of Philip Potter Murphy.

By the will of the late Miss Josephine Lewis of Philadelphia a bequest of $1,000 is made to the Home of the Merciful Saviour for Crippled Children and residuary bequests to the Hospital of the University of Pennsylvania and the Episcopal Hospital.

By the will of the late Miss Sallie Roberts Smith of Philadelphia contingent bequests are made as follows: Hospital of the Protestant Episcopal Church, $10,000; Pennsylvania Hospital, $5,000; Protestant Episcopal Home for Consumptives at Chestnut Hill, $5,000; Christ Church Hospital, $10,000.

By the will of the late Patty D. Neill of Philadelphia the sum of $5,000 is bequeathed to the Hospital of the University of Pennsylvania for the endowment of a free bed in memory of her father, the late Dr. John Neill.

By the will of the late Elizabeth L. Roberts of Philadelphia bequests are made as follows: To the German Hospital $5,000 for the endowment of a bed in the names of Albert C. Roberts, Jr., and Elizabeth R. Roberts; to the Hospital of the University of Pennsylvania, $5,000, for the endowment of a bed in the names of Charles and Annie G. Parker.

By the will of the late Mrs. Emma Paul of Philadelphia a contingent bequest of $5,000 is made to Hahnemann Hospital and Medical College.

The will of the late Miss Helen Collamore of Boston contains a bequest of $200,000 to the Massachusetts Homeopathic Hospital for the erection of a new building, to be known as the Collamore Building. A further sum of $30,000 is also given to this hospital for the maintenance of three perpetual free beds. Bequests of $5,000 each are made to the Children's Hospital, Boston Instructive District Nursing Association, to the Perkins Institution for the Blind, to the Industrial School for Crippled and Deformed Children, and to the Boston University Homeopathic School of Medicine.

Medical Society Elections.—The South Carolina Medical Association at its annual meeting in Greenwood, April 20-21, elected the following officers: *President*, Dr. G. A. Neuffer, Abbeville; *First Vice-President*, Dr. A. B. Epting, Greenwood; *Second Vice-President*, Dr. J. J. Cleckley, Bamberg; *Third Vice-President*, Dr. Coleman Barnwell; *Secretary-Treasurer*, Dr. E. A. Hines, Seneca; *Councillors*, First district, Dr. A. E. Baker, Charleston; Third district, M. J. Walker, Yorkville; Seventh district, Dr. S. G. Baker, Sumter. The next meeting will be held in Charleston.

The Georgia Medical Society at its meeting in Macon, April 22-23, elected the following officers: *President*, Dr. W. S. Goldsmith of Atlanta; *First Vice-President*, Dr. O. H. Weaver of Macon; *Second Vice-President*, Dr. George Smith of Rome; *Secretary-Treasurer*, Dr. W. C. Lyles of Augusta; *Councillors*: Tenth district, Dr. J. A. Price, Milledgeville; Eleventh district, Dr. Lee Howard, Waycross; Twelfth district, Dr. E. T. Coleman, Graymont; *Delegates to the A. M. A.*, Drs. M. A. Clarke and C. C. Harrold. The next annual meeting will be held in Columbus.

The Tennessee State Medical Association at its annual meeting in Nashville, April 14-15, elected the following officers: *President*, Dr. E. C. Ellett of Memphis; *Vice-Presidents*, Drs. J. G. Price of Dyersburg, R. E. Lee Smith of Doyle and J. W. Johnson of Chattanooga; *Secretary-Treasurer*, Dr. Olin West of Nashville; *Delegate to the A. M. A.*, Dr. Jere Cook of Jackson; *Alternate*, Dr. J. McC. Hogshead of Chattanooga; *Councillors*, Drs. S. R. Miller of Knoxville, Scott Farmer of Cookeville, J. F. Gallagher of Nashville, A. B. Dancey of Jackson, and J. L. Andrews of Memphis. Knoxville was selected as the convention city for 1916.

The Brocton (Mass.) Medical Society, at its annual meeting on April 8, elected the following officers: *President*, Dr. Ezra W. Clark; *Vice-President*, Dr. M. F. Barrett; *Treasurer*, Dr. Joseph E. Brady; *Secretary*, Dr. Samuel W. Goddard; *Executive Committee*, Drs. F. H. Burnett, H. A. Chase, and C. D. McCann.

The Plymouth District (Mass.) Medical Society, at its annual meeting in Brocton on April 15, elected the following officers: *President*, Dr. N. C. King of Brocton; *Vice-President*, Dr. Nathaniel K. Noyes; *Commissioner of Trials*, Dr. Francis J. Hanley of Whitman; *Secretary*, Dr. Alfred C. Smith of Brocton; *Censors*, Drs. Fred J. Ripley of Brocton, W. W. Fullerton of Brocton, R. B. Rand of North Abington, Joseph Frame of Rockland, and James H. Drohan of Brocton; *Councillors*, Drs. A. Elliot Paine of Brocton, Frank G. Wheatley of North Abington, Gilman Osgood of Rockland, Alfred A. MacKeen of Whitman, and Fred J. Ripley; *Orator*, Dr. G. Ambrose Buckley of Brocton.

The Decatur County (Ga.) Medical Association, at its annual meeting at Bainbridge on March 31, elected the following officers: *President*, Dr. G. T. Clark of Bainbridge; *Vice-President*, Dr. B. Whisnant of Brinson; *Secretary-Treasurer*, Dr. Gordon Chason of Bainbridge.

The Rock Island County (Ill.) Medical Society, at its annual meeting held April 13, elected the following officers: *President*, Dr. J. M. O. Bruner, Port Byron; *Vice-Presidents*, Drs. W. G. Wiggins, Milan and H. A. Beam, Moline; *Secretary* Dr. A. E. Williams, Rock Island; *Treasurer*, Dr. A. P. Liepold, Moline; *Delegate to State Society*, Dr. J. W. Seids, Moline; *Alternate*, Dr. W. D. Chapman, Silvis.

The Hancock County (W. Va.) Medical Association, at a meeting held April 20 at Weirton, elected the following officers: *President*, Dr. H. R. Cramer of New Cumberland; *Secretary*, Dr. L. O. Schwartz of New Cumberland; *Treasurer*, Dr. G. E. Lewis of Chester; *Delegate to the State Society*, Dr. G. W. Wentz of Chester; *Alternate*, Dr. J. E. Richmond of Holidays Cove.

The Northeast District (Kansas) Medical Society, at its annual meeting in Lawrence on February 25, elected the following officers: *President*, Dr. G. W. Jones of Lawrence; *Vice President*, Dr. J. J. Brady of Frankfort; *Secretary-Treasurer*, Dr. Everhardy of Leavenworth.

The Long Island College Hospital, Brooklyn, will graduate eighty men on June 3. The annual clinical meeting of the alumni of the college will be held June 2 and 3.

The Jefferson Medical College, Philadelphia, will hold its ninetieth annual commencement at the Academy of Music on June 5, at 12 o'clock. The valedictory address will be delivered by Dr. Victor C. Vaughan, president of the American Medical Association.

The Army Medical School, Washington, will hold its closing exercises at the school, 721 Thirteenth Street, N. W., on June 1, at 2 o'clock.

Obituary Notes.—Dr. Thomas J. McLoughlin of Jersey City, N. J., a graduate of the College of Physicians and Surgeons, New York, in 1869, a member of the American Medical Association, the Medical Society of New Jersey, and the Hudson County Medical Society, medical director of St. Francis' Hospital, Jersey City, and for twenty-five years a member of the staff of the Jersey City Hospital, died at his home on May 12, aged 70 years.

Dr. Marshall L. Price of Boise City, Idaho, died of gastritis while returning to this country on the *St. Paul* on April 16. He was born in 1878 and was a graduate of the University of Maryland School of Medicine in 1902. He was buried at sea off the coast of Long Island within sight of his native land.

Dr. James Brainerd Field of Lowell, Mass., a graduate of the Harvard University Medical School in 1884, for twenty years treasurer of the Association of Massachusetts Boards of Health, and a member of the American Medical Association, the Maine Medical Society, and the Middlesex North District Medical Society, died at his home from pneumonia, on April 15, aged 56 years.

Dr. John Smallwood Patterson of Boulder, Col., a graduate of the University of Colorado, School of Medicine, Boulder, in 1902, died at his home on April 16 as the result of injuries received in a mine accident three weeks before, aged 36 years.

Dr. Fred Milton Smith of Portland, Me., a graduate of the Medical School of Maine, Portland, in 1905, and a member of the Maine Medical Association, and the Cumberland County Medical Society, died at his home, suddenly, on April 24, aged 36 years.

Dr. E. F. Sheehan of Ossining, N. Y., a graduate of the Albany Medical College, Albany, N. Y., in 1888, and a member of the New York State and Westchester County Medical Societies, died suddenly at his home on April 25 from heart disease, aged 55 years.

Dr. Archibald E. McDonald of Boston, Mass., a graduate of the Harvard University Medical School in 1865, formerly surgeon of the Ninth Massachusetts Regiment, and a member of the Massachusetts Medical Society, died at his home in Jamaica Plain, on April 27, aged 88 years.

Dr. Marmaduke Allen Wood died at Philadelphia on April 28 at the age of 65 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1874.

Dr. James Wilkes O'Neill, Mayor of Bergenfield, N. J., died on April 25, at the age of 61 years. He was a charter member of the American Red Cross Society, and he was formerly a bridgade surgeon in the Pennsylvania National Guard and at one time a United States Pension Examiner.

Dr. Henry B. Brusstar died at Philadelphia on April 25 at the age of 65 years. He was graduated from Jefferson Medical College of Philadelphia in the class of 1873. He was at one time quarantine physician to the Port of Philadelphia.

Dr. Isaac Welch Brown died at Philadelphia on April 28 at the age of 32 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1907.

Dr. James L. Terry of Lyme, Conn., a graduate of the College of Physicians and Surgeons, New York, in 1871, and formerly a practising physician of New York and of Philadelphia, died suddenly from heart disease at his home on May 2, aged 69 years.

Dr. William B. Rice of Lockport, N. Y., a graduate of the New York Homeopathic Medical College and Hospital, New York, in 1863, died at the residence of his daughter in Buffalo, N. Y., on May 1, aged 88 years.

Dr. William Austin Polglase, deputy superintendent of the Kings County Hospital, Brooklyn, N. Y., a graduate of the Chicago Homeopathic Medical College in 1878, a member of the American Institute of Homeopathy and the Academy of Pathological Science, New York, and formerly assistant superintendent of the Cumberland Street Hospital, Brooklyn, and the Metropolitan Hospital, Blackwells Island, died at the Presbyterian Hospital, New York, on May 4, aged 59 years.

Dr. George P. Griffing of Brooklyn, N. Y., a graduate of the Bellevue Hospital Medical College, New York, in 1873, and a member of the New York State and Kings County Medical Societies, died at his home in South Jamesport, Long Island, from heart disease, on May 5, aged 62 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

ENTERIC IN THE EXPEDITIONARY FORCE—OPHTHALMOLOGY CONGRESS—EYE INJURIES IN WAR—PUBLIC HEALTH IN AUSTRALIA—THE LATE SIR W. R. GOWERS.

London, May 7, 1915.

The House of Commons was officially informed on Tuesday that the statistics of enteric fever among the British Expeditionary Force showed that 966 cases had occurred. Of these 780 had been analyzed; 142 were among those inoculated fully with two doses of vaccine, and there were 10 deaths, giving a case mortality of 7 per cent.; 157 had occurred among those who had only had one dose, among whom were 10 deaths, or a case mortality of 6.36 per cent. Among the men who were not inoculated there were 481 cases with 100 deaths, giving a case mortality of 20.9 per cent.

In order to appreciate the full import of these figures it must not be forgotten that 90 per cent. of the troops had been voluntarily inoculated and therefore among the 90 per cent. there had been 299 cases with 20 deaths, and in the other 10 per cent. 481 cases with 100 deaths.

The Annual Congress of the Ophthalmological Society was held on Thursday, Friday, and Satur-

day of last week under the presidency of Mr. Richardson Cross, F.R.C.S., of Bristol. There were many interesting papers brought forward and two set discussions were well sustained. One of these on "Ophthalmic Injuries in Warfare" was opened by Mr. Walter H. H. Jessop, who dealt with cases he had seen from the present war at Base Hospital No. 1 and at St. Bartholomew's Hospital. As most of the fighting was in the trenches the proportion of head and face injuries was larger than usual. The steel or cupro-nickel mantle of the bullet was often chipped, when a fragment might penetrate the cornea. The high initial velocity of the bullet might be reduced by ricocheting, in which case the wound might be more serious rather than less. There had been cases of bullets in the orbit without bursting of the eyeball, which he thought were probably due to ricochet. They showed mostly intraocular hemorrhage, choroidoretinal change, and detachment of the retina, generally complete. The most distressing cases were those in which the bullet passed transversely through both orbits. He had had some fifty of such and supposed they were caused by enfilading fire. If a wound was made in the orbital roof, the brain substance would fill it up, sepsis could not be prevented so it was best to leave it alone. If eyeball and orbit were much injured it was best to foment the wound, keep it clean with solution of sodium chloride, and delay removing the eyeball until the inflammation abated, but always remembering the risk of sympathetic ophthalmitis in the other eye—if a good one. In cases of destruction of both eyes it was better to wait until the danger of sepsis was over before removing the destroyed eyeballs in fear of meningitis. Injuries to the eyelids were very common, but they should be carefully examined, for the ball also was mostly involved. There was much edema and sutures should not be inserted. Conjunctivitis was not very prevalent in this war. In the Franco-German war sympathetic ophthalmitis developed in 55 per cent. of eyeball injuries; but in the American Civil War in only 16.14 per cent. Mr. Jessop said he had not seen such a case in this war—a result he attributed to the care in diagnosis and treatment, especially to the early enucleation of a ruptured globe. He had seen one wound implicating ocular nerves, caused by a ricochet bullet. Wounds of the skull vault were generally depressed and papilledema was present with increased intracranial pressure. Skull fractures near the occipital lobes often set up hemianopsia. At the beginning of this war he had many cases of complete blindness following great explosions, but sight returned on different days up to about a week. Deafness was similarly caused and in rare instances dumbness. Three men had extreme blepharospasm, so could not open their eyes for days. It seemed that the initial shock in these cases produced loss of consciousness; when this returned, sight, hearing, and speech returned also.

Colonel T. D. Lister, F.R.C.S., contributed the second paper in which he said the outstanding features of eye injuries in the present war were severity and for the most part the impossibility of employing conservative surgery. He grouped the cases as contusions, wounds, foreign bodies, functional cases, and head cases. In concussion if the bullet did not go through the orbit the fundus showed no changes. Ruptures of the choroid were rather frequent and might seem star-like or arranged in definite groups. The rest of the retina showed some pallor. Penetration of foreign bodies formed a most unsatisfactory group; many particles did not give a sensible *x*-ray shadow and if they did many fragments were non-magnetic. Two factors increased the poor look-out: (1) presence of more bodies than diagnosed; (2) friability of bodies so that they broke off when caught in the forceps. It was difficult to decide what to do when the sight continued useful. He considered that although a foreign body was contained, if there was no prolapse nor entanglement of the uvea or lens capsule, the risk of sympathetic ophthalmitis was *nil*. Though the eye would degenerate, useful vision might continue for a considerable time. But if signs of irritation did not abate he would remove the eye. Some interesting functional cases were then related, after which head cases injuries. Papilledema occurred in more than half the cases, but two-thirds of these only produced a blurring or slight swelling. The greatest swelling was met with in cases of cerebellar abscess. He did not regard hemorrhages or exudations as very important. Increasing swelling was the significant factor. From the examination of a number of cases Col. Lister and Dr. Gordon Holmes concluded (1) when the lesion occurred over the occipital cortex of one side only, the result was either hemianopsia or homonymous quadrantic defect on the opposite side; (2) when the bullet passed through both occipital lobes there was at first complete blindness, but in several cases this had gradually cleared centripetally after an interval varying from hours to days, leaving a central scotoma.

Dr. Perrin Norris, chief medical officer of the Australian Commonwealth Medical Bureau, gave a lecture this week before the Royal Sanitary Institute on the Evolution of Hygiene and Public Health in Australia, in which he told us that instead of administering a health department through a lay under-secretary, who might not be in sympathy with, or have a full understanding of the work, they put the matters in the hands of a professional man. They considered a minister of public health a necessity; that it was impossible for one municipality to control efficiently another's milk supply; that prosecution of a manufacturer of adulterated goods was more effective than that of the retailer; that instead of sanitary inspectors who measured success by the number of prosecutions it was better to have superiors whose standard would be reduction of adulteration. Their results in Australia were reduction of infant mortality as low as 60 in one State and 70 in others. Typhoid deaths reduced by 80 per cent., tuberculosis 50. From all causes reduced to 10.35—the lowest in the world, except in New Zealand.

Sir Wm. R. Gowers died on Tuesday. Born in 1845 he entered the profession in 1874, was associated with University College Hospital, and with that for the paralytic and epileptic. In 1879 he published his paper on "pseudo-hypertrophic paralysis" now called after him "Gowers' disease." In 1885 he gave the Lettsomian Lectures. In 1897 he received a knighthood in recognition of his eminent contributions to medical science and practice. He was elected F.R.S. and received a number of other honorary distinctions, both British and foreign. Of late his original work had been somewhat restricted by failing health, but there is much to his credit, especially as to diseases of the nervous system.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

RESIGNATION OF THE DIRECTOR OF HEALTH—DR. HEISER'S WORK IN THE PHILIPPINES—HIS ACCEPTANCE OF THE POSITION OF DIRECTOR IN THE ORIENT OF THE ROCKEFELLER FOUNDATION—HOSPITAL SHIP FOR THE MORO ISLANDS—BISHOP BRENT'S HEALTH WORK IN THE SULU ARCHIPELAGO—METHODIST HOSPITAL IN NORTHERN LUZON—EPISCOPAL HOSPITAL IN SAGADA.

MANILA, April 5, 1915.

THE most noteworthy and regrettable event for a long time in medical annals in the Philippines consists in the resignation of Dr. V. G. Heiser as Director of Health, which took effect recently. Dr. Heiser has been in the islands for about a dozen years, for a decade of which he was Director of Health. Taking over the organization for health matters created under the military government, Dr. Heiser developed and added to it until it reached a degree of efficiency which made it a model in the sanitation of the tropics everywhere. Able, tireless, fearless and with a broad grasp of the situation, his achievements were such as not only to bring honor to himself but to be regarded with the keenest pride by all Americans here. Sanitation lies at the basis of all industrial efficiency in these islands, and in Dr. Heiser the business interests felt they had the best of protection. For the home he was the shield of domestic health and happiness. His name will always be associated with the great sanitary regeneration of these islands, and such an institution as the Philippine General Hospital, which he created, will stand through time as the best of monuments. Under him, the great leper colony took form, practically universal vaccination was carried out, charitable institutions established, sanitary laws passed, and sanitary organizations created and expanded. A campaign of sanitary education has brought its gratifying results in every corner of the archipelago, and shows how ignorance and inertia can be made to yield to patient energy and unfaltering purpose. For a decade, every step in applied sanitation over here was associated with his name. He justly enjoyed the confidence and support of a succession of governors and members of the commission, and especially in Dean C. Worcester, the late forceful Secretary of the Interior, he possessed a tower of strength which enabled him to make great dreams come true. Dr. Heiser had refused many flattering offers for work elsewhere, which implied his separation from his life work here. In accepting the position of director for the Orient of the projects of the Rockefeller Foundation, for whom he is now agent, the Philippines still remain within his wider field of usefulness, and doubtless will be given careful attention and every legitimate advantage. Before leaving, Dr. Heiser was waited on by the officials and employees of the bureau over which he had so long presided and presented with a fine watch and chain as a token of appreciation and remembrance. It is understood that his itinerary will carry him to Borneo, the Federated Malay States, the Dutch East Indies, Eastern Africa and Egypt, where he will look into and report upon various sanitary projects which have been proposed, and within a year he expects to revisit the Philippines for the furtherance by the Rockefeller Foundation of sanitary work there. His brilliant services and achievements here have added a chapter in the progress of tropical hygiene and sanitation, of which the American profession and people will always be proud.

A bill passed the recent Assembly providing for a hospital ship for service among the Moro Islands of the South, to be operated along the lines of Dr. Grenfell's hospital ship work in Labrador. It is to meet the needs of the many out of the way places and islands that now never have seen a doctor or medicine that this floating medical service is to be organized. The general plan includes an agreement between the Philippine Government and a private philanthropic organization, understood to be the Rockefeller Foundation, for the cooperation of both in the above purpose. The Government is to give the use of one of its coast guard cutters, and the private agency is to appropriate 50,000 pesos to outfit it for hospital purposes. The Government is then to provide for the running of the ship, and the private agency is to appropriate 25,000 pesos per year to maintain the personnel and supplies of the hospital. This arrangement is to continue five years. The management of the medical work of the boat is to be under the Director of Health, but its operations are practically to be limited to the Moro Islands. The boat will doubtless prove a great civilizing agency and do much toward allaying the hostility of the fierce islanders toward the first outside government that has ever brought them under domination. The plan is to have a general itinerary among the outlying islands, stopping at various dispensaries and other points for collection of the sick and treating and operating on cases requiring the same and then going on to the next point. Any very serious cases may be carried along and brought to Jolo for transfer to the hospital there, where prolonged treatment will be given. The boat is to carry an American physician and nurse and several Filipino nurses and will operate as a connecting link between the medical base in Jolo and the outlying islands and places of medical relief. The plan will doubtless go into effect as soon as the humanitarian agency in the United States has had an opportunity formally to accept its share of the burden. The plan was one which had previously been entertained by Bishop Brent, of the Episcopal Church, but which could not be carried out for lack of funds. The Bishop was a strong supporter of the new arrangement before the legislators, the bill being introduced through the initiative of Dr. Heiser, representing the Rockefeller Foundation.

Close upon this comes word that the governor of the Department of Mindanao and Sulu has offered to exchange the new Government hospital in Jolo for the hospital lately erected by Bishop Brent in Zamboanga. The Bishop now has his field of educational and relief work divided between the two places and desires to concentrate his medical work in the Sulu archipelago, where he is operating several schools and a dispensary or so, and is desirous of further expanding. The governmental authorities are equally desirous of operating the hospital in the capital at Zamboanga as part of the general official sanitary scheme, so it looks as if some agreement for exchange would be reached.

The Methodist Church has just established a hospital of about twenty beds at Apani, on the northern tip of Luzon, under charge of Dr. H. G. Nickles. A hospital has long been needed here, since this large community opens up a vast hinterland without medical provision or assistance.

The Episcopal Church also has a fine stone hospital at its mission at Sagada, among the wild Igor-

rotes, nearly completed. It will have accommodations for about 40 patients and have a full medical and nursing staff and all modern appliances. A very flourishing dispensary service, operated by a trained nurse, is now in operation at Sagada.

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 13, 1915.

1. The Care and Treatment of the Wounded in the European War. R. Derby.
2. Report on the Allen Treatment of Diabetes. L. W. Hill and J. L. Sherrick.
3. Labyrinthitis Following Operation for Atresia. G. Berry.
4. The Diagnosis and Treatment of Some Rare Fractures. W. P. Coues.

1. Care of the Wounded in the European War.—R. Derby notes that in the treatment of wounds in the present war, a greater degree of conservatism has been shown than ever before, except in the case of compound infected fractures of the lower extremities. In these amputation is more early resorted to than formerly, with the idea of saving the individual many years of chronic bone disease. Otherwise, the methods employed are a combating of the infection by means of ample drainage and antiseptic irrigations.

2. The Allen Treatment of Diabetes.—L. W. Hill and J. L. Sherrick report that they have obtained good results with this method of treatment, which they regard as simple, safe, and efficacious in rendering and keeping a patient sugar free, in a much shorter time than is possible by the old method. The Allen method is characterized as the starvation treatment of diabetes. In carrying this out the two most important things to remember are the following: The diet should not be raised too quickly after starvation, and just as much attention should be paid to the protein intake as to that of carbohydrates. One should not be concerned if the patient loses weight; this loss will not hurt him.

3. Labyrinthitis Following Operation for Atresia.—G. Berry reports the case of a boy of fifteen operated on for a partial atresia with apparent improvement in hearing. Three weeks later and coincident with the springing up of troublesome granulation tissue in the tympanic cavity, a vertigo developed, which has persisted in spite of a radical exenteration and then a labyrinthine operation. Five weeks following this last operation, the closing off of the drainage from the meninges in the process of healing was attended by marked symptoms of meningeal pressure, which gradually subsided. The ear cavity became epidermatized in six weeks. Now, thirteen months after the first operation, the ocular nystagmus has become fairly well compensated, the hearing is apparently improved, but a muscular incoordination, though much better, continues. The consideration of the case naturally divides itself into two main headings, atresia and labyrinthitis, and is discussed as regards the age and operatve method for relief of atresia, the results to be expected, the cause of the vertigo in this case, and the time and the method for operating for labyrinthine vertigo.

4. Diagnosis and Treatment of Some Rare Fractures.—W. P. Coues discusses the following: Fracture of the trochlea of the humerus; children's colles fracture (subperiosteal fracture of the lower end of the radius); separation of the epiphysis of the first metacarpal bone; fracture of the carpal cuneiform bone; fracture of the fifth metatarsal bone by inversion of the foot, and the occurrence of the Vesalianum or bone of Vesalius in the foot, with its relation to mistaken diagnosis of fracture of the 5th metatarsal; separation of the lower epiphysis of the fibula; and fracture of the middle and external tarsal cuneiform. In many of these cases of obscure and unusual fracture, treatment does not differ from that in routine cases; but the diagnosis is all-important. Lack of recognition of seemingly slight fractures, particularly subperiosteal, may lead to deformity, even though at the time they seemed trivial affairs. This is particularly so of the long linear cracks in the bones of the leg. If these fractures are unrecognized harm may result in weight-bearing, causing spreading of the fracture and subsequent static deformity. Fragments may break through the periosteum, and excessive callus may form and cause trouble. Children often complain of surprisingly little pain in subperiosteal fracture; often there is very slight disability. There is no crepitus with a pure subperiosteal fracture. In a few cases, such as trochlea fracture, correct treatment is only by operation, for the joint will never renew its normal functions while the fragment is in it; and failure to make a correct diagnosis will lead to permanent disability.

New York Medical Journal.

May 15, 1915.

1. A Treatment for Inoperable Cancer. S. P. Beebe.
2. The Relation of Arteriosclerosis to Ophthalmology, Neurology, and Surgery. L. F. Bishop.
3. Arteriosclerosis as Seen by the Ophthalmologist. W. B. Marple.
4. The Field of Surgery in Arteriosclerosis. J. B. Bissell.
5. Epistaxis in Arteriosclerosis. C. E. Perkins.
6. Arteriosclerosis and the Control of Uterine Hemorrhage. W. P. Healy.
7. Arteriosclerosis with Relation to Prostatic Operations. J. J. Valentine.
8. Arteriosclerosis in Its Relation to Life Insurance. J. D. Quackenbos.
9. An Emergency Medicine for the Soldier. H. H. Seelye.
10. The Relation of Diseases of the Nose and Throat to the General Practice of Medicine. H. Parrish.
11. Life Insurance and Laboratory Examination. J. Diner.

1. A Treatment for Inoperable Cancer.—S. P. Beebe reports a series of cases in which favorable results were obtained with this treatment which was originated by A. Horowitz. The treatment consists of the repeated application of a poultice to the affected parts and the administration internally in the form of an extract, either as a liquid or as a pill, of certain substances contained in the poultice itself. The application of the poultice is followed by an intense reddening of the skin and, if the application is prolonged in the beginning of the treatment blistering may be produced. It has the effect of active counterirritation. However, the effect goes farther than this. The malignant mass in many cases gradually becomes edematous, softer than before, and sections of tissue taken in and about the tumor show that the lymphatics are engorged with leucocytes, and if the skin is broken there is a profuse serous discharge. The exudate which later on is produced in considerable quantities in the treated area contains large amounts of broken down cancerous material, serum, and leucocytes. The leucocytes are mainly of the large and small mononuclear type. There is at the same time an improvement in the general condition of the patient, evidenced by the relief from pain, increase in appetite, and a marked improvement in the toxemia or cachexia accompanying the disease. Some of the patients examined by the author before the treatment was begun in the hospital, had large, open, ulcerated tumors which previously had been the seat of active infection accompanied by a disagreeable odor. The powder from which the poultice is made contains a considerable number of substances of plant origin. Seeds, roots, bark, and flowers taken from a number of different plants are prepared in the form of a powder which contains the

following substances: Menyanthes trifolinta, Melilotus officinalis, Mentha crispa, Brassica alba, Anemone hepatica, Viola tricolor, Anthemis, Fructus colocynthidis, Lignum quassiæ, Urtica dioica, Radix rhei, Hedge hyssop.

2. **Arteriosclerosis.**—L. F. Bishop has advanced a so-called cellular theory of arteriosclerosis, according to which theory there is a disturbance of metabolism that results in the irritation and destruction of cells. This destruction is most often the result of an anaphylactic reaction of the cells against certain proteins of dietetic or bacterial origin, to which the cells have become sensitized. The treatment of the disease is hygienic and dietetic and includes well regulated exercise and appropriate internal medication. The author refers to original observation concerning the gross appearance of the eye in arteriosclerosis. Eminent clinicians of former days spoke of the "shininess of the eye" in what was then called "chronic Bright's disease." The supposition was that this was caused by an edema of the conjunctiva. It was present in many cases in which there was no suspicion of edema elsewhere. The study of the bloodvessels in the eye for the early detection of arterial changes is often spoken of. The author believes that the change in the appearance of the eye in arteriosclerosis is a visible manifestation of the cellular irritation that he regards as the cause of arteriosclerosis.

3. **Arteriosclerosis as Seen by the Ophthalmologist.**—W. B. Marple states that the retinal vessels are suspended in a completely transparent tissue, and under normal conditions the vessel wall is quite invisible. The two conspicuous signs of arteriosclerosis (aside from hemorrhages and degenerative spots) are (1) narrowing of the blood current without very evident changes in the wall, or perhaps with silver wire arteries and banking of the veins; and (2) white lines along the vessels. The latter are due to a thickening of the connective tissue coat (a fibrosis) which encroaches more or less concentrically upon the lumen of the vessel while the former, indicated by a narrowing of the blood column, and not by any visible change in the walls, is due to a prolification of the endothelium, which is always eccentric, displacing the lumen to one side. The latter (disease of the intima) is most probably a response to a circulating toxin which would naturally chiefly affect the internal coat; the former (thickening of the connective tissue wall) is probably a strengthening of the wall to compensate for raised blood pressure. The venous narrowing at an arterial crossing is the result of a phlebosclerosis limited to the point caused by the mechanical interference with the blood current at the point of crossing of an artery, perhaps by the walls of the latter. The abnormally high tension of the arteries probably assists in the compression of the vein under it. The obstruction to the circulation dams back the blood, resulting in hemorrhages.

6. **Arteriosclerosis and Uterine Hemorrhage.**—W. P. Healy notes that the common form of treatment for persistent bleeding from sclerosis of the uterine vessels has been hysterectomy. The *x*-rays, however, are often effective in the control and cure of these hemorrhages and may be used without fear of any harmful effect upon the ovaries, as then patients are all at or beyond the menopause. Recently Kelly and Burnam have reported very excellent results in the cure of uterine hemorrhage by the use of radium. These patients should be given the benefit of treatment by radiation either with *x*-rays or radium, in which the danger of a serious complication is practically nil, before they are subjected to the risk of an operation as severe as a complete vaginal or abdominal hysterectomy which, under the best conditions, is apt to have a mortality of from two to three per cent.

Journal of the American Medical Association.

May 15, 1915.

1. Gastric and Duodenal Ulcer. Medical Cure by an Efficient Removal of Gastric Juice Corrosion. B. W. Sippy.
2. Acute Lymphatic Leucemia. An Occurrence of the Corynebacterium Lymphomatosis Granulomatosæ. C. E. Simon and C. W. Judd.
3. The Treatment of Closed Fractures. A Plea Against Unnecessary Operations. P. S. Campiche.
4. Mongolian Idiocy and Syphilis. H. C. Stevens.
5. Polydactylism as an Hereditary Character. J. W. Brandeis.
6. Multiple Cartilaginous Exostoses—Hereditary Deforming Chondrodysplasia. A Brief Report of a Little Known Disease. A. Ehrenfried.
7. The Celluloid Tube in Finger Injuries. Its Use in Adding Length to the Terminal Phalanx After Traumatic Loss of Tissue. J. S. Davis.
8. Subconjunctival Injections of Salvarsanized Serum in Ocular Syphilis. E. G. Seibert.
9. Hydrotherapy in the Treatment of Mental Diseases: Its Forms, Indications, Contraindications and Untoward Effects. J. A. Jackson.
10. The Diagnosis of Pregnancy. A Simple Method Based on the Presence of Specific Enzymes in the Urine. R. H. Malone.
11. A Diagnostic Sign of Gelatinous Carcinoma of the Breast. W. S. Halsted.
12. Sarcomatous Degeneration of a Uterine Fibroma Five Years After Roentgen-Ray Treatment for Pressure and Hemorrhage. G. E. Shoemaker.
13. Upper Bronchoscopy for a Foreign Body in an Infant Three Months Old. S. A. Friedberg.

1. **Treatment of Gastric and Duodenal Ulcer.**—B. W. Sippy details a mode of treatment which consists essentially in efficiently shielding the ulcer from the corrosive effect of the gastric juice. This is accomplished by maintaining an accurate neutralization of all free hydrochloric acid, thus rendering the digestive action of the gastric juice inert from 7 a. m. until about 10:30 p. m., or during the entire time that food and the accompanying secretion are present in the stomach. In addition, it is accurately determined whether an excessive night secretion is present. If so, this is removed each night until the irritability of the gastric glands has subsided. This applies almost entirely to cases of duodenal and pyloric ulcer that have been associated with stagnation of food and secretion for one or two months and longer. Such cases almost invariably are attended during the night by a more or less copious continued secretion which should be removed by aspiration two or three times each night, if necessary. Usually after three or four days of accurate control of free acidity the excessive night secretion disappears. Subsequently the normal quantity (about 10 c.c.) of gastric juice present in the stomach during the night is left undisturbed. The neutralization of hydrochloric acid is accomplished by frequent feedings and the use of alkalies in carefully regulated but adequate quantities.

2. **Acute Lymphatic Leucemia.**—C. E. Simon and C. C. W. Judd report the case of a patient presenting the clinical picture of lymphatic leucemia of the acute type, from whose glands there was isolated apparently the same organism which appears to occur so constantly in Hodgkin's disease. Since Steele found an organism of the same order in another case of lymphatic leucemia, which likewise appears to have been of the acute type (judging from the clinical history), this can hardly be a coincidence, and naturally raises the interesting question of a possible relationship between the two diseases.

6. **Multiple Cartilaginous Exostoses.**—A. Ehrenfried describes a condition characterized by the occurrence of multiple more or less symmetrical cartilaginous and osteocartilaginous growths within and upon the skeletal system, generally benign, and resulting from a disturbance in the proliferation and ossification of the bone-forming cartilage. In addition there are certain typical secondary distortions and deform-

ities of the skeleton. An hereditary factor can be demonstrated in a large proportion of the cases. Hyperostoses above the affected epiphyses are the rule, but true exostoses are less frequent, and of secondary consequence. The author applies to this condition the name "hereditary deforming chondrodysplasia."

7. **The Celluloid Tube in Finger Injuries.**—J. S. Davis refers to the use of a celluloid sheet wrapped around the end of the finger in the treatment of traumatic amputations, in order to produce a more satisfactory cosmetic and functional result. He uses sheet celluloid, 1/200 inch thick. The stump is painted with tincture of iodine and the celluloid, after being soaked in mercuric chloride solution, 1 to 1,000, for a sufficient time, is sponged off with ether or alcohol. It is then wrapped around the finger and secured as a slightly tapering tube with narrow adhesive strips. Properly adjusted, it closely hugs the edge of the wound, and gradually becomes larger until it impinges on the first interphalangeal joint. The celluloid may extend as far beyond the finger tip as is needful, and serves also as a splint for the finger and a protection for the wound. In cases seen early a blood clot is allowed to form in the wound and serves as a scaffold for granulations. If the soft parts are lacerated and spread apart they are gathered together and held by the tube. Effort is made to stimulate the granulations and train their growth along the tube. Any desired medication can be poured in the tube or packed in with gauze. A loose gauze plug is placed in the mouth of the tube and over all a simple dressing is secured by a bandage. This gives a longer finger with improved function and appearance. Cases seen soon after the accident give the best results.

11. **A Diagnostic Sign in Gelatinous Carcinoma of the Breast.**—W. S. Halsted observed this sign in four out of five cases of colloid carcinoma of the breast—cases in which the colloidal portion of the new growth was large enough and near enough to the surface to be palpable. There was conveyed to the finger on testing for elasticity a peculiar sensation which in the first instance made the author apprehensive lest he had ruptured a possible capsule of the nodule, although there was no apparent alteration in its size or shape. The tactile impression might be defined as a delicate swish or crush of a jellylike structure under tension with the suggestion of a delicate bursting. In no instance has the author obtained the sensation twice in the same case nor has any assistant felt it on making the examination before or after it had been made by the author. Presumably there is lost to the physical properties of the tumor a something essential to the production of the sign.

The Lancet.

May 8, 1915.

1. Arteriovenous Aneurysm. Sir William Osler.
2. The Etiology of Rickets: A Statistical Study of the Home Conditions of 400 to 500 Rachitic Children. L. Findlay.
3. Sir Almroth Wright's Lecture on the Treatment of Wounds in War. Sir W. Watson Cheyne.
4. Treatment of the Wounded on Board H.M.S. *Tiger* during the Naval Action of Jan. 24th. J. C. Kelly.
5. Epidemic Cerebrospinal Meningitis. F. E. Batten.

1. **Arteriovenous Aneurysm.**—Sir William Osler first presents an historical survey of surgery of the arteries which began with Rufus of Ephesus and Antyllus. The latter devised for the treatment of aneurysm an operation which is practised to this day. Arteriovenous aneurysm is the rarest of all forms of aneurysm. It comprises two types: aneurysmal varix, in which there is a simple tangential opening between an artery and a vein, and varicose aneurysm, in which there is a sac communicating with both vessels. The physical signs are distinctive. Inspection may show diffuse pulsation at the site of the communication and moderate swelling, but not necessarily any early venous engagement. On palpation the characteristic thrill is felt—vibratory, rough, continuous, and increasing in intensity with the diastole of the artery. On auscultation the second characteristic physical sign is heard—a loud, rough, humming-top murmur, continuous, with marked intensification during the cardiac systole. As regards the outcome of these cases the following are noted: The aneurysm may remain unchanged for years and interfere little, if at all, with the patient's health and vigor. Spontaneous healing may occur, the orifice closing between the artery and the vein. Sudden death may occur either from heart failure or from embolism. Rupture may occur with fatal hemorrhage. In the crural vessels progressive disability may result from the varicose veins, thrombosis, and ulceration. The vascular tissue involved in the aneurysmal area may take on a nevoid growth. As regards treatment the author agrees with Subbotich "that arteriovenous aneurysms should be operated upon, as they offer small prospect of spontaneous cure, although they often remain stationary for a long time and cause relatively little trouble." Urgency is greater in the case of the lower limbs.

2. **The Etiology of Rickets.**—By L. Findlay. (See page 903.)

3. **Treatment of Wounds in War.**—Sir W. Watson Cheyne, in discussing Sir Almroth Wright's recent lecture on this subject, states that while the latter's studies concern wounds as they reach him at the base hospitals, already in a highly septic state, and in a stage in which antiseptics as ordinarily employed are of no avail, there is a preceding period, which Wright does not come across, in which the septic process has not yet taken root in the wound, and in which it may be eradicated by the proper use of antiseptics. It is on this period that Watson Cheyne's researches are concentrated, and at this stage the use of antiseptics presents to his mind the only possible chance of success. His work and Sir Almroth Wright's are in no way antagonistic.

British Medical Journal.

May 8, 1915.

1. Sterilization of Water by Chlorine. J. J. H. Nelson.
2. Birth Palsy. H. Platt.
3. Decortication for Traumatic Empyema with Complete Collapse of Lung. W. G. Spencer.
4. Insects and War: The Mosquito. A. E. Shipley.
5. On the Curve of the Epidemic. J. Brownlee.
6. Foreign Body Impacted at the Bifurcation of the Trachea Extracted by Aid of the Bronchoscope. S. Jones.

2. **Birth Palsy.**—H. Platt states that for some time it has been held by most authorities that the lesion present in birth palsy is an injury to the brachial plexus in the neck; this occurs during delivery as a result of traction applied to the head with the shoulder fixed, or vice versa. The German school of orthopedic surgeons, most notably Lange and Vulpius, consider that a primary shoulder-joint or bone lesion is present, paralysis being either absent or of secondary importance. This view was originally propounded by Küster in 1889 who described the condition as a rotatory displacement of the upper humeral epiphysis. Last year Turner Thomas, of Philadelphia, brought forward new evidence in favor of the shoulder-joint lesion theory. Certain etiological factors are well established and accepted by all. In the vast majority of cases birth palsy is seen in an infant born after a prolonged and difficult labor in which there was a disproportion between the size of the child and the maternal pelvis. Statistics available show that the injury occurs more frequently in vertex than in breech presentations, but the exact relative proportions remain to be settled in the future from a large series of cases. Although there is at pres-

ent scanty evidence to support the theory expounded by Turner Thomas, there is a certain amount of evidence in favor of a primary epiphyseal or joint lesion in some cases of obstetrical palsy. It is probable that the combination of physical signs presented in birth palsy may be produced by a pure plexus lesion, a joint lesion, or an epiphyseal displacement. The differential diagnosis of the three conditions in a very young infant is well-nigh impossible. As the treatment is the same for all the diagnostic disability is happily not of great practical importance. Both Biesalski and Rosenfeld recognize two types—the primary nerve lesion and the joint lesion—but admit the difficulty of distinguishing between the two. It is a reasonable conception to hold at the present time that obstetrical palsy is in the majority of cases a primary plexus injury, but in a certain unknown proportion of cases is a shoulder-joint or epiphyseal lesion.

3. Decortication for Traumatic Empyema.—W. G. Spencer notes that in the present war cases which survive wounds of the thorax rarely develop empyema, and traumatic empyema does not now claim the attention devoted to it by the writers on military surgery in the past. The author reports a case in which empyema developed without obvious signs, the wound healing by first intention; nevertheless, in the course of three weeks from the injury the lung had become so bound down by inflammatory fibrous tissue that nothing but the modified Delorme's operation of decortication could have availed the patient. The discovery that the shelling out of the compressed lung from its inflammatory capsule is possible in recent non-tuberculous cases was made by Delorme, who described his operation of decortication of the lung in 1893. His method included the turning upwards of a large parietal flap so as freely to expose the capsule covering the compressed lung. This operation has been followed in a series of cases by a mortality from the operation of 15 per cent., which is much the same as the mortality after Estlander's operation. But Delorme's operation in its full extent is only needed for old-standing cases of empyema, although it has been reported that an operation combining removal of part of the chest wall with removal of the capsule compressing the lung was followed by re-expansion of the lung four years after the onset of the empyema.

Berliner klinische Wochenschrift.

April 12, 1915.

Uremia.—Strauss states that within the past eighteen months our conception of this subject has been notably modified as a result of continuous study, which goes back a dozen or more years. The conception which then obtained has now become verified, and the result of a study of 200 cases seems to prove beyond a doubt that uremia is an intoxication which stands in close relationship with retention of nitrogen in the blood. Despite overwhelmingly positive statistical finds, however, the author is forced to confess that in a few cases uremia occurred without nitrogen retention. As a rule, the healthy man retains from 20 to 40 mg. in 100 c.c. blood serum, while in the uremic man the figures are 60 to 130 mg., according to whether the vascular or tubular form predominates. These facts are now commonly admitted. There are minor points in which authors are not in agreement. For example, the destruction of the kidney in sublimate poisoning is not, as a rule, accompanied by uremia. The latter must be made to signify nitrogen retention in the blood, irrespective of all collateral manifestations. To what extent may this N-retention be manifested clinically? The answer is that only very high values of N-retention may be depended on to give clinical results. Retention of 150 mg. indicates a high degree of renal insufficiency, and is manifested clinically in a variety of ways —coma, convulsions, dyspepsia, asthenia. Recent authors have devised new varieties, new names, etc., as a result of which a number of conditions have been isolated which resemble true uremia and are known collectively as pseudouremia. The author believes that this division is at present sufficient. The main difference lies in the degree of retention. If this is 150 mg., or upwards, true uremia is present. We may also find the latter with retention as low as 120. Pseudouremia is characterized by retention nearly normal—not above 80. In the true uremia group we find clinically either asthenia or dyspepsia. Volhard mentions a tic-like form. In this true form convulsions need not occur. So-called pseudouremia comprises both convulsions, and mental states associated with high blood pressure. Uremic convulsions are those which accompany nephritis and nephrosis and for simplicity are called eclampsia. Here we find, as already stated, no extreme retention of nitrogen in the blood; yet dyspepsia is not infrequently seen in either form. In the comatose form bilateral twitchings are encountered. In pseudouremic eclampsia the convulsions often succeed one another rapidly, not only in the acute and subacute nephritis of childhood and adolescence, but also in tubular nephritis or nephroses. Puerperal eclampsia belongs in this category, for the normal retention of nitrogen in the blood is seldom increased. The mental anomalies of the so-called hypertonics lead us to the relationship which subsists between hypertension, arteriosclerosis, and renal disease in elderly subjects. This type may be left out of consideration here.

Scarlatina and Diphtheria as Social Plagues.—Benda emphasizes the relationship of disease plagues to the various strata of society. Thus tuberculosis is a disease of miserable social status, of starvation, filth and vermin. Diphtheria (in the U. S. A., at least) is regarded as a filth disease, perhaps without warrant. In Germany the author sought proof of the social status of diphtheria and found but little to help him. Older authors stated that it attacks all strata alike, although the poor must necessarily suffer most. According to Baginsky there is a "poverty component" in diphtheria. An entire group of experts state in effect that the lower the scale of prosperity the greater the incidence of the disease. This is offset in part by the fact that with modern arrangements for dealing with the poor patient the latter does not suffer as he once did. A final conclusion is that the prosperous and proletariat may be attacked with equal frequency, although the former must necessarily show a smaller mortality. In regard to scarlet fever, figures show abundantly that whatever the incidence the mortality was less in the well-to-do. The author now reports the results of an individual, prolonged investigation of figures and concludes that in diphtheria the danger of infection is least among the well-to-do, who live in sparsely populated neighborhoods and observe hygienic procedures. In scarlatina none of these factors play a dominant rôle, and the children of the well-to-do seem more exposed than those of the poorer classes.

Regeneration Following Renal Lesions. — Alfonso Papa finds that a lesion causing an interruption of the excretory tubules in the medulla is not followed by a cystic dilatation of the peripheral portions of these tubules which in the course of thirty days degenerate and are substituted by connective tissue. There then occurs a regeneration of tubules and a formation of new glomeruli.—*Giornale Internazionale della Scienze Mediche.*

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN" BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 746.)

An investigation along these lines was instituted and Table III gives the results. It shows that it is quite immaterial whether the interval between acceptance and death is one to five or twelve or more years; the group of those who died of tuberculosis remains inferior and does not attain the constitution values of the controls. It is differentiated in itself according to the duration of insurance, but not more than is natural through the great hazard according to the high degree of *habitus phthisicus*. The constitutional inferiority (*habitus phthisicus*) is not the result of the tuberculous affection, it is the cooperative cause.

TABLE III.—AVERAGE MEASUREMENTS AND WEIGHTS OF RISKS DYING OF TUBERCULOSIS, GROUPED ACCORDING TO THE LENGTH OF INSURANCE

(Only Persons Between the Ages of 25 and 67 are Included in these Statistics)

Insurance Year in which Death Occurred	Number Dying of Tuberculosis	Average Age at Insurance	Height (Inches)	Chest			Weight (Pounds)
				Full Inspiration (Inches)	Full Expiration (Inches)	Abdomen (Inches)	
1-6	464	34.8	66¾	36½	34¼	32¼	156½
7-11	368	34.8	67⅛	37	34⅝	32⅝	159½
12 and over	395	36	67+	37—	34⅞	32⅝	161¾

Why, however, are the years 15-19 and 20-24 an exception? (Table II) The constitutional inferiority is not absent, but appears here under a different form than in the later years. All body measurements depend upon the height of the body as a fundamental measure; without a relation to the height of the body all measurements are worthless, and if the body height changes all the measurements likewise change. While, however, in our series of investigations the height in the ages from 25 upward shows such an insignificant variation that it may be assumed to be alike for all ages, it springs up during the youthful period, 15-19 and 20-24, of the tuberculous cases 3.7 and 1.8, respectively, over the height of the control cases; and consequently, with an average height of 167.3 and 171.2, the chest and abdominal measures and weight are quite different from those found in controls with a height of 163.6 and 169.4, respectively, for the same ages. The preponderance of bulk in the tuberculous is therefore only apparent, and in reality this remains quite considerably behind the values which assert themselves in normal human subjects of the same size. The constitution is just as inferior as in later years. Highly noteworthy, however, remains the fact that the height in the tuberculosis hazard plays a special rôle only in increasing years. In the fully developed organism there appears a complete equality in height among the controls, and here the other measures first come clearly in the foreground. Then, however, they speak, as Table II teaches, a very eloquent speech—the more eloquent the more the accession age advances. It is shown that these tuberculous subjects do not show the slightest tendency to strengthen in the ages in which strengthening is physiological. These organisms lack a "something" which does not lend itself to definition, but which is responsible for this backwardness, and becomes a superior culture medium for the tubercle bacillus. It is—we may once more emphasize—not "up to" us to get to the bottom of this pathological-anatomical or chemical-physiological "something." That is a task for pathological anatomy and its accessory sciences. Our duty ends at the moment in which we, by the aid of our method of statistical research, have recognized this "something," this insufficiency of the organism, as the undoubted proximate and important concomitant phenomenon of the tuberculosis hazard. For in this we have the handle which makes it possible for us to weed out tuberculous applicants—makes it possible, indeed, but does not guarantee it, for the results attained represent no more than averages from which deviations to the positive or negative side will occur in the individual, to whom in the last analysis the selection must pertain. Hence, along with the constitution values as many other factors as possible will have to be adduced which come into question according to other experiences or investigations with reference to the tuberculosis hazard.

Naturally it was of greatest interest and of importance for the alleged significance of the constitution in the tuberculosis problem to learn the actual deviations in our material from the general average of the normal risk as to degree and frequency. But this kind of investigation can be instituted only when a normal table can be procured which states for every age and every height the appertaining average for measure and weight. For only then does it become possible to state the deviation from the normal type of the individual case. But such a table was not at hand; there existed only a similarly computed table for weight alone which originated in American observations, and I owe it solely to the chief actuary of the Gotha Bank, Professor Dr. Karup, that I was able to carry out the investigation, for he constructed a table which I reproduce here as the first normal table computed for all body measurements (Table IV). Based upon this table we have another showing the individually observed deviations in their extent and frequency, both for those dying of tuberculosis and for the controls.

(*To be continued.*)

Results of Influenza from the Insurance Point of View.—Dr. De Haviland Hall suggests the difficulty of diagnosis with a given set of symptoms from the same conditions which may exist normally in an applicant. We see the applicant before us and we have no opportunity of knowing what his standard of health has been in the past; we have to take him as he stands before us. Possibly we find that he has a soft, feeble pulse, but a great many people, especially those who may live a long life, have a soft, feeble pulse. How are we to differentiate the soft, feeble pulse which is the result of previous attacks of influenza from that of a person in whom this pulse is habitual, and who has a better promise of longevity than a person with a fuller and more frequent pulse? The family doctor can recognize at once the altered condition in his patient, but not so the insurance examiner. Hall is convinced that influenza has a great effect on the myocardium, and that the cases one sees from time to time of sudden heart failure are undoubtedly due in their origin to influenza. Investigation should be made of the first sound of the heart and of the impulse to see if there are any signs of heart failure.—Life Assurance Medical Officers Association.

Book Reviews.

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. STITT, A.B., Ph.G., M.D., Medical Director, U. S. Navy; Professor of Tropical Medicine, Georgetown University, etc. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co., 1914.

THIS small book takes up the subject of tropical medicine from the point of view of the teacher. It is designed to be a companion volume to the author's work on "Practical Bacteriology," but nevertheless includes an ample section on laboratory diagnosis in the consideration of each disease. The first part of the book is divided into sections on diseases due to protozoa, bacteria, filterable viruses, food deficiency and on helminthic infections, infectious granulomata, and tropical skin diseases. The second part is devoted to the diagnostics and takes up the blood, urine, temperature, etc., in order. The subjects are handled admirably. The author has a sane point of view and is obviously familiar with the literature of his specialty. The small size of the book is made possible by the liberal use of fine type. The subject of tropical diseases is of great importance not only in the tropical possessions of the United States but also in the Southern States, and should receive much more attention than it does at the hands of the average practitioner. To all who wish to increase their knowledge of this topic, this book can be safely recommended.

INTERNATIONAL CLINICS, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc. Edited by HENRY W. CATTELL, A.M., M.D. Volume IV. Twenty-fourth Series, 1914. Price, $2.00. Philadelphia and London: J. B. Lippincott Company.

THIS volume of International Clinics contains twenty-nine articles on Diagnosis and Treatment, Medicine, Surgery, Legal Medicine and Illustration. Most of the articles are extremely short, the one on the Abderhalden test being too short to be of value to the laboratory worker though containing many details which are of no use to the clinician. In three successive articles there are recommended three distinct methods of treatment for lobar pneumonia and in them are found some statements which have not been accepted by the scientific world. Mays says (page 34) that strychnine "is equal to digitalis in enhancing the function of the heart." Francis' brief contribution is wholly fantastic. Swan in a long article gives an adequate presentation of the subject of auscultatory blood pressure determination. The Medicolegal articles are of great interest. They are two, one on Expert Testimony by J. E. Willetts and one on Performing an Operation Without Consent by L. D. Bulette.

A NURSING MANUAL FOR NURSES AND NURSING ORDERLIES. By DUNCAN C. L. FITZWILLIAMS, M.D., Ch.M., F.R.C.S., Surgeon in Charge of Out-Patients and Lecturer in Clinical Surgery, St. Mary's Hospital; Senior Assistant Surgeon, Paddington Green Children's Hospital; Captain First City of London Field Ambulance, etc. Price, $2.00. London: Henry Frowde and Hodder & Stoughton; New York: Oxford Press, 1914.

FOR nurses, orderlies, and Red Cross workers this is as useful a book as we have seen. It contains all the essentials of the subjects which these people should know; and, if these essentials are grasped, much suffering will be relieved and the nursing and other help rendered will be more efficient. The volume is small, unpretentious, and decidedly practical, and the author clearly indicates the class of nurses for whom his book is intended when he says: "The 'doctor-nurse' is an abomination, while the highly trained, unsympathetic machine is useless." Many of our readers will be glad to have their attention drawn to this admirable volume.

RÖNTGEN-THERAPIE (Oberflächen- und Tiefenbestrahlung). Von Dr. H. E. SCHMIDT. Berlin. Vierte umbearbeitete und erweiterte Auflage. Mit 83 Abbildungen. Price, 6 Marks. Berlin: Verlag von August Hirschwald, 1915.

THE exhaustion of the third edition of this work in 1913 gave the author an opportunity to rewrite it and incorporate therein the vast amount of recent accessions to our knowledge. The physics of the *x*-rays and their physiological, pathological, and therapeutic possibilities, with full elaboration of technique, constitute a sort of first part, the balance of the work being devoted to the indications for use. Dermatology naturally heads the list, for the rays have been used in the great majority of chronic dermatoses. In internal medicine the chief use of the rays has been in certain diseases of the blood and ductless glands. The so-called surgical indications comprise those for tumors and granulomata, with especial emphasis on surgical tuberculosis and malignancy; and certain hypertrophies and neoplasms affecting some of the ductless glands. In ophthalmology the rays are used chiefly for neoplasms. In gynecology the indications show no change, but the technique here, as in all deep radiation, has undergone notable progress. The book, of pocket size and with flexible covers, is of especial value to the student or practitioner who utilizes spare moments.

ANIMAL EXPERIMENTATION AND MEDICAL PROGRESS. By WILLIAM WILLIAMS KEEN, M.D., LL.D., Professor Emeritus of Surgery, Jefferson Medical College, Philadelphia. With an Introduction by CHARLES W. ELIOT, LL.D., President Emeritus of Harvard University. Price, $1.75. Boston and New York: Houghton Mifflin Company, 1914.

THIS volume is of exceptional interest; it gives the truth about animal experimentation and its value to scientific research, and it also shows "the unreasonableness, inaccuracy, and indifference to truth and justice manifested by the antivivisectionists in selecting the premises of their argument against animal experimentation." To quote from President Eliot's brief introduction: "How many rabbits or guinea-pigs, is it justifiable to incommode or kill, in order to save the life of a child attacked by diphtheria? How many monkeys a competent experimenter be justified in sacrificing, in order to find a sure treatment for infantile paralysis? How many rats is it justifiable for men to kill, in order to protect a city from an epidemic of bubonic plague? Dr. Keen suggests at many points the reasonable answer to all such questions as these." Physicians, teachers, students, and laymen in general will find this volume of the utmost educational value; and in collecting these papers into one handy volume Dr. Keen has performed a real service to the profession and the public.

CORNELL UNIVERSITY MEDICAL BULLETIN. Vol. IV, Number 2, October, 1914. Studies from the Department of Neurology. Published by Cornell University in New York City.

THIS volume is made up entirely of reprints of studies issued from the department of neurology of the Medical Department of Cornell. The articles appeared first in various medical journals. They are classified under the following subjects: Historical, Diagnosis, Neuro-Physiology and Pathology, Psychopathology and Psychoanalysis, Neurological Economics, and Clinical. Of special interest to the general medical reader may be mentioned: "Mental Tests," by Dr. C. L. Dana (from the MEDICAL RECORD, January 4, 1913); "A Plea for the Recognition and Regulation of Venereal Diseases by the State," by Dr. R. T. Kennedy (from the Proceedings of the National Conference of Charities and Correction, Cleveland, Ohio, June, 1912); "The Occupational Neuroses," by Dr. Dana (MEDICAL RECORD, March 9, 1912); "The Effects of Narcotic Drug Addiction," by Dr. Kennedy (*New York Medical Journal*, July 4, 1914); and some of the articles on Psychoanalysis by Dr. H. W. Frink and Dr. C. P. Oberndorf.

AUGENPFLEGE. Von Prof. Dr. ELSCHNIG, K.K., Universitäts-Professor und Vorstand der Deutschen Univ-Augenklinik in Prag. Mit 21 Abbildungen im Text. Berlin: Verlag von August Hirschwald, 1915.

THIS well written monograph of 56 pages takes up briefly the consideration of illumination; use of eyes; cleansing the eyes; methods of applying remedies; bandaging; use of shields and protection glasses; prophylaxis in ophthalmia neonatorum; removing foreign bodies, etc. The work is of particular value to general practitioners and nurses.

DIE SYMPATHISCHE OPHTHALMIE. Erweiterte Probevorlesung von Privatdozent Dr. A. JESS. Price, 1 Mark. Halle a. S., Carl Marhold, 1914.

THIS brochure of 33 pages is a general review of the subject, practically beginning from the year 1835 when Mackenzie first published a classic description of the disease, and extending up to the present time. Theories of origin, modes of onset, and therapeutics are fully considered. A comprehensive biography is appended.

Society Reports.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held March 22, 1915.

THE PRESIDENT, DR. HOWARD LILIENTHAL, IN THE CHAIR.

Symptoms, Diagnosis, and Treatment of Chronic Intestinal Stasis.—Dr. G. REESE SATTERLEE read this paper which dealt with the borderline cases of chronic intestinal stasis rather than with acute surgical conditions. Intestinal stasis should not be confounded with constipation. The "Lynch-Draper-Saterlee-LeWald" conception was that stasis was a diffuse toxemia of the body cells, the result of aberrant biochemistry, usually but by no means always bearing a measurable ratio to the delay in the onward passage of the intestinal contents as visualized by the *x*-ray. Coombe said it was usually but by no means always due to the toxine resulting from the action of the proteolytic anaerobic bacteria on the end products of protein digestion. There were five important local factors in the etiology of stasis, namely: (a) constipation, (b) congenital malpositions and anomalies, (c) inflammatory and non-inflammatory adhesions and bands, (d) infection, and (e) functional disturbances of the epithelial cells of the gut, closely allied to the so-called disturbances of internal secretion. It was impossible to say which cause was uppermost, but given a combination of two of the first three factors, it was not difficult to understand how the colon might become a fruitful soil for infection. Evidences of intestinal stasis were classified by Coombe as physical and mental. The physical signs were a sallow skin, usually dry with tendency to urticaria or eczema, breath with the odor of gastrointestinal tract in the cadaver, and tongue soft, especially on the edges, and the dorsum coated. The nasopharynx might show chronic congestion and the patients be subject to frequent colds. In severe cases, pigmentation of the skin, especially around the orbits, might be seen; the hair might become brittle and seborrhea might be present. Some symptoms of stasis might be strikingly like those of hypothyroidism. Myalgia and neuralgia were very common and neuritis and disturbances in the function of the nerve ganglia were not infrequent. A large number of skin eruptions were probably the direct result of stasis or were influenced by it. In the heart and arterial system might be found cardialgia, pseudoangina, tachycardia, bradycardia, and arrhythmia. Flatulency was a fairly common symptom. The question as to the ability to pass gas *per rectum* should always be asked and the ability to take and pass an enema painlessly in the normal way. If either of these things were at fault there was strong probability of a partial obstruction. The mental symptoms were sadness, fatigue, irresolution, depression, lack of ambition, loss of memory, headaches, multiple phobias, vertigo, visual disorders, and ringing of the ears. The author discussed special conditions, dilatation of the cecum, megacecum, intestinal kinks and volvulus, ileal constipation, micro- and macra-colons, diverticula, the nonrotated colon, sigmoid disease and adhesions giving the special signs in each. He called attention to the frequency with which dilatation of the cecum was diseased as appendicitis and the appendix removed whether diseased or not while the diseased cecum remained. It was important to radiograph every case in which there was a long standing history of intestinal trouble, however simple it might seem. The medical treatment of simple cases of stasis without ptosis consisted in emptying thoroughly the intestinal tract, usually by the administration of castor oil in one or two ounce doses, repeated for three nights. The colon was then irrigated with ox-gall or hydrogen peroxide and normal saline solutions. Two quarts of the stronger solution were given with the patient in the dorsal position and then two quarts of the saline with the patient on the side, and then in the knee-chest position. From six to eight quarts in all were given by a competent nurse. Five or six inches was far enough to insert the rectal tube, as the tube might bend on itself if inserted further. All laxative medicines were forbidden and a laxative diet prescribed. The ordinary hygienic rules for constipation were strictly adhered to. Further treatment depended upon the character of the constipation. In patients having atony of the colon, proper massage and vibration would give good results if given daily for two weeks and every other day for two weeks more. This should be done by the physician himself or an attendant skillfully trained. The ordinary massage was useless. In the spastic type manipulation of the large intestine was harmful. Belladonna was administered three times a day and if necessary small doses of codeine. Rest was enjoined and hot applications to the abdomen, previous to the daily time for stool. It was important to urge this class of patients not to worry about their bowels and not to take any kind of cathartics or enemata. In the spastic type an enema of one pint of hot water was allowed at intervals. In the atonic type, strychnine or arsenic were useful in some cases. Electricity had its advocates. If the feces were dry, plain agar agar was given with meals as a routine, and plain water or oatmeal water in addition to other fluids were given at meals. Russian mineral oil was regarded as an adjuvant and given at first in severe cases. It was not a cure and should be eventually stopped. Relapses were not uncommon and should respond well to a short time treatment. In the treatment of intestinal stasis with ptosis, the same preliminary cleansing of the colon by catharsis and irrigation was employed, and also the same diet, hygiene, and colon manipulations. Abdominal support was imperative. Abdominal supporting belts or the Lane-Curtis abdominal plate might be permitted for the maternal coloptosis type in men but the corset was safer for women. Patients were instructed to elevate the foot of the bed gradually up to a foot or eighteen inches, thus giving the patients the advantage of gravity for one-third of the time. Radiographs had demonstrated a permanent elevation of the stomach and colon of two inches by these methods, which amount might measure the difference between sickness and health. The rule was abdominal support at all times when the patient was on the feet. The Wier Mitchel rest and feeding treatment and acto-toxic diet seemed to be a necessity in some cases, but as a rule it was better to keep these patients on their feet. The administration of autogenous colon vaccines in these stasis and toxic conditions was an important aid. The results were sometimes remarkable both on the general toxic condition and locally on the infected bowel. In cases of long standing that had resisted medical treatment those suitable for operative measures should be picked carefully. The amount of toxicity was no contraindication, but rather the age of the patient. The skill and experience of the operator and the type of operation must also enter into the question. A very much diseased colon should be removed. Partial colectomy seemed to be the operation of choice as the operation of complete colectomy was severe and the outcome uncertain. The after treatment was as necessary as the operation itself. Dr. Satterlee stated that in all his picked cases the operation and results had been successful.

Developmental Reconstruction of the Colon.—Dr. JOHN W. DRAPER presented this communication, in which he called attention to some of the fundamental facts of biology showing that complex vertebrates, with man at their head, were controlled by two factors, enzymes and nervous system; one inherited from antiquity, the other developed in relatively recent times. These two factors could not be expected always to work harmoniously, particularly when environmental and hereditary conditions were unfavorable. In the evolution of man nature was obliged to provide for the maintenance of equilibrium between these and many other factors of divergent origin, so that their convergence as compelling forms in the life of the individual today should, under favorable circumstances, not cause friction and consequent mechanical derangement. The author cited instances showing that with the over-development of one system frequently came the under-development of the others, and thus, as a result of changing environment and divergence or misdirection of atavistic pressures, humans, as well as other vertebrates, had modified the configuration of their bodies and recast the activities of their minds. Surgeons with their knowledge of biology should be the first to acclaim that stasis was by no means a simple mechanical condition, but in reality a profoundly interesting evolutionary problem which dealt with what might ultimately prove to be either an effort on the part of nature to weed out undesirables, or actually a chapter in the decadence of primates. It was well known that as a species attained high specialization, it tended to extinction. These phylogenetic considerations were one side only of the problem, but one of great interest and import. They

led directly to a consideration of ontogeny or the development of the individual. In general the influence of heredity upon stasis was prenatal, of environment post-natal. The fetus was entirely at the mercy of his ancestors; the growing child of his parents. Even though deficient at birth, many ancestral deficiencies might be compensated for. What slight evolutionary tendency to torsal change there might be in man was giving away to the flat chest and broad costal angle. There was an interesting correlation between the development of the stomach and cecum, both developing by diverticula from a preexisting simple undifferentiated tube. In some animals the cecum was highly developed and the stomach simple; in others the reverse was true. Up to the fifth week the human fetus could not be differentiated except by careful study from that of the dog or the pig. What wonder, therefore, that in adult man one should meet with final arrangements of the gut, which conformed on one hand to the carnivorous type, and on the other to the herbivorous. In man the terminal portion of the cecum was degenerated as compared with that of the rabbit; it was a vestigeal remnant of the herbivorous type. The developmental trend of the average human being was towards the omnivorous type. Modern embryology discarded the midgut. In the adult no dividing line could be seen, but it was located about 50 cm. oral to the ileocecal valve. Until the sixth week of fetal life, the canal was an undifferentiated tube, the large bowel being slightly smaller than the small. This ratio persisted until the fifth month. At the end of this time a diverticulum appeared in the posterior limb of the U-shaped tube. This marked the morphological dividing line between the large and small gut and from this diverticulum was developed the future cecum and appendix. Shortly after rotation took place, this being due to pressure from the rapid over-development of the small gut as compared with the great. After the cecum reached its resting place over the right kidney it was virtually quiescent until birth, when it gradually migrated to the iliac fossa. Perfect fusion of the different layers of the peritoneum was unusual. This often counted for the extraneous bands and veils found at operation. Furthermore, this failure of fusion left occasional spaces in the omentum or mesentery which might account for cysts of these organs if the lymphatic drainage was deficient. It might also lead to very unusual distribution of the gut in specialized cases. Fixation of the cecal colon through adhesion of its mesentery usually took place shortly after birth and was a physiological adhesion. Any departure from the normal was likely to result in the formation of adventitious membranes. This the author believed to be the universal origin of the many sponsored bands and kinks. Cecum and sigmoid were two of the most variable organs in the body, and, when ill-developed, were often responsible for grave functional disorders elsewhere. Efforts to standardize the form of man had been fruitless; in other words, variation was wide. There were many misconceptions as to the physiology of the colon. These had afforded plausible but erroneous bases or ill-advised surgical therapeusis of the organ. The colon must be considered as related to the small gut. The duodenum was the crucible in which the forces of life were fused. The importance of the vital functions of the stomach and the great gut had been grossly exaggerated. Much that appeared to be stomach was functionally and surgically duodenum. The entire hydrolysis, amylolysis, and emulsification, which accompanied the preparation of all food, was begun and ended in the duodenum. Stomach and cecum and small gut might be resected without threatening life, but this could not be said of the duodenum. All the chatter about indiscriminate unphysiological operations for stasis was futile in view of the limited knowledge of the duodenum and of the chemistry of carbohydrates and fats. In a previous paper the author had shown that some former conceptions of the physical condition of the contents of the colon were erroneous and he had also called attention to the inhibitory activity of the terminal ileum and its great surgical import. Ileac inhibition, normally complementary to the ileocecal valve, might under stress become supplemental to it. Barber had shown that this same law held in the case of the ureter and the utero-vesical valve. Barber had also shown experimentally and they had verified it in some of their cases, the pernicious influence of partial peripheral obstruction upon the cecum and duodenum. In general, then, they had not yet reached any definite conclusions or found any single method which adequately met all the intricate associated biological requirements outlined, or could they hope to do so until such a time as the chemistry of alimentation was better understood. The writer said he wished to go on record as protesting against the indiscriminate non-physiological, mechanical operative interference with the alimentary canal which was so much in vogue today. Surgical therapeusis to succeed must be based upon inductive study of the physiological mechanism and chemistry of the parts.

The Lynch-Draper Developmental Reconstruction: A Further Study.—Dr. JEROME MORLEY LYNCH read this paper in which he stated that the authors wished to present a further report of their studies upon the surgical physiology and therapeusis of the colon. They defined stasis as "a diffuse toxemia of the body cells, the result of aberrant biochemistry, usually but by no means always, bearing a measurable ratio to the delay in the onward passage of the intestinal contents as visualized by the *x*-ray." They considered the unexplained morbid biological processes, which caused death in acute intestinal obstruction, to have some probable relation to the condition known as stasis, and emphasized the fact that this symptom complex should not be confused with constipation. In their experience, true diarrhea rather than constipation, had often existed as an accompaniment of genuine stasis. In the introductory portion of the paper they dealt with the important relationship of biology and heredity to the general subject of gastroenterology, and cited numerous instances from the literature of biology as well as from the personal studies of the authors, in human beings. They considered it probable that impaction of feces, almost always known to accompany enteric cancer, was evidence of a reflex inhibition of peristalsis by an enzyme from the growth or through other biological media, probably representing an effort on the part of nature to splint the gut and allow a natural curative process full play. In the authors' experience the greatest amount of impaction accompanying such cancers was not present because of mechanical obstruction, but occurred in the presence of small malignant nodules, laterally placed and incapable of impairing the size of the lumen by their mere presence. They contended that the generally accepted laws for the transmission of malformations of the alimentary canal held good in the same ratio as had been demonstrated in the better known deviations form the normal. The essayists furthermore discussed the interesting correlation that existed between the development of the stomach and cecum, and showed that it was logical to expect some adults, coming perhaps from a herbiverous line of ancestors, to present a cecum suited in general to that type, but ill-supported for accommodation to man's upright condition and lacking also the delicate mechanism of the true herbivorous form. A high degree of specialization carried with it frequent changes or limitations within the organism, which were not always compatible with its environment. This was true in man and might be cited as an instance of the familiar biological aphorism, that as a species tended to specialization, it tended also to extinction. From the standpoint of therapeusis, the essayists showed that they had tried all of the many surgical procedures which had been advocated for the treatment of stasis, but none in their hands had given as good results as the developmental reconstruction of the colon, which operation they had performed twelve times. This procedure entailed the removal of sufficient of the terminal ileum to include, if possible, the inhibitory segment, or at least a portion of it, the appendix, cecum, and ascending colon, and a portion of the transverse to the region of the middle colic artery, *en masse*, the ileum being inserted into the transverse colon. It was called a reconstruction operation because it replaced the ileocolic stoma to the hepatic region, namely, to that which it occupied at birth after rotation and before descent.

The authors showed a number of cases, all of whom had been human derelicts and over whom a gratifying clinical change had come since the operation. Pathological reports of the twelve ceca showed in every case marked departure from the normal; in three polyposus was well advanced; in several the fibers of Auerbach's plexus had vanished, and in others the mucosa was virtually destroyed.

Roentgen-Ray Diagnosis (with Lantern Slides).—Dr. LEON T. LEWALD presented this communication and said that this study of intestinal stasis was of special interest to him. The cases referred to the Roentgenologist should not have the Roentgen ray examination limited to examination after injection of the colon only.

The examination by means of the opaque meal would throw much light upon the subject, as the question of pathological physiology was as important as one of pathological anatomy.

The first case illustrated the necessity of a most thorough Roentgen examination. The patient was emaciated and constipated, but the cause of the trouble was located high up in the digestive tract. He had a most pronounced cardiospasm which had existed for some thirty years and be constantly regurgitated large amounts of food and liquids so that the stomach and intestines were receiving so limited an amount of material that after absorption of the nutritious parts little residue was left. The patient had responded to mechanical dilatation. The next case was one of extreme ptosis of the stomach, water-trap type, with a large residue remaining in the stomach at the end of the sixth hour. There was also a marked ptosis of the transverse colon. A carefully performed suspension operation by Dr. Draper benefited this patient greatly. The slides showed the stomach and colon remaining in good position nearly a year after the operation. The constipation in this type of case appeared to be relieved by the suspension operation. In conjunction with this case were shown slides illustrating this woman's daughter, 18 years of age, who showed ptosis of the stomach and colon almost commensurate with that of the mother. Dr. LeWald believed that most of the cases of ptosis of this type have a congenital origin. In this connection Dr. LeWald also showed slides of two brothers with similar degrees of ptosis of the cecum. A series of slides were then shown illustrating delay in the ileum. The cases were all due to definite peritoneal bands of adhesions resulting from some previous inflammatory process. Dr. LeWald had seen very few cases of so-called "Lane's Kink."

The next group of slides illustrated cases of non-rotation of the colon. The correct diagnosis of this condition was at times of vital importance prior to undertaking an abdominal operation. The condition had been described by Huntington from an anatomical standpoint, and surgical cases had been reported by Lynch, Downes, Mayos, Vosburgh, Delatour and others. Dr. LeWald had encountered five cases. The condition was entirely different from complete transposition of the viscera, twelve cases of which had come under his observation. A series of slides showing extreme variations in the length of the sigmoid flexure were next shown. This offered a new field for surgery. Many cases had been benefited by reconstruction of the colon after the method of Lynch and Draper; the shortening of the proximal colon compensated for the long sigmoid and seemed to overcome delay there. Other cases seemed to require resection and end-to-end anastomosis. A slide was shown of an enterolith which had formed in one arm of a greatly elongated sigmoid loop. Two cases of diverticulitis and one of fluid in the peritoneal cavity were shown. A series of slides showing the appearance before and after the reconstruction operation of Lynch and Draper completed the demonstration. The absence of the ileocecal valve did not seem to materially influence the motor functioning of the intestinal tract in these cases. A case was shown of vicious circle in the colon due to anastomosis of the cecum and sigmoid. Dr. LeWald believed that partial resection of the colon was better than a short circuiting operation. He had known of a case where the tip of the appendix had been literally blown off one week after an ileosigmoidostomy.

Dr. Fenton B. Turck said that if any lesion of the stomach or duodenum occurred following the intravenous or subcutaneous injection of cocci or bacteria, it invariably appeared in the solitary lymph follicles, which acted as excretory channels in the same way as did Peyer's patches in the small intestine. Toxins as well as injected bacteria produced an inflamed appearance, an elevated irregular ring with a central indentation bearing a resemblance to a peptic ulcer. On microscopic section this might show a smaller or larger collection of lymphoid cells with some necrosis and perhaps round-celled infiltration, but these all healed up and were not peptic ulcers. The photographic reproductions in the published report of Dr. Rosenow's work showing this appearance of elevated lymph follicles had led Mayo to say that Rosenow's work required further experiment, for the injected streptococci had not produced chronic ulcer. Holman's objections were based on the fact that, owing to the ease with which streptococci entered the tissues from the normal intestine or respiratory tract, isolation of streptococci from experimental animals could not be used as proof that they were the same as those injected. He further showed that injections of bacteria, particularly streptococci derived from the normal alimentary or respiratory tract, brought about invasion. Canavan and Southard questioned the effect of the cocci forms and claimed that while these might produce some irritative effect they produced no destruction. The blood vessels might be injured by streptococci. In this connection Klotz found that in twenty cases of infection having a destructive effect upon the vessels ten were caused by the bacteria of the colon group, five by the pneumococci, and only three by streptococci. The paratyphoid bacillus had been obtained in culture from many typical ulcers of the stomach and duodenum but no streptococci. No agglutination occurred with the streptococci, only with the paratyphoid bacilli. These typical peptic ucers might have been considered as due to streptococci, perhaps originating from the mouth. Great caution must be exercised, as Billings had recently stated, not to diagnose a condition of the patient and say outright that the mouth was related to it, for Pickerill and Champlaton found the same flora in the mouth of Maori children as in the European subject, and yet the Maori children were free from dental caries or systemic diseases, so that the immunity was not a question of the type of oral microorganism. It had been argued that the streptococci might undergo some changes in the tissues and assume a pathogenic character, but Theobald Smith had shown that no such mutation occurred. This agreed with the work of Holman, Cecil, and others. It was difficult to assume the pathogenetic rôle of these strains of streptococci from the mouth in peptic ulcer. The speaker said that in 1895 he had published the results of three years bacteriological work which indicated some relation of the mouth, nose, and throat to gastric disease. This had led to a more definite study of the intestinal flora in relation to diseases of the stomach and duodenum which indicated that the intestinal flora played an important rôle in the etiology of peptic ulcer. Recent developments showed (American Gastroenterological Association, 1914), that the bacteria passed into the submucous tissue and were there destroyed, creating by this destruction an alteration in the circulation, a reduction in the anti-ferments, and, as the process continued, ulcers in various stages, depending upon factors that permitted either constant or periodic invasion from the intestinal lumen.

Dr. Dudley Roberts of Brooklyn said that it was impossible in the few minutes permitted him to more than briefly touch on a few of the interesting points that had been brought out by the presentation of this remarkable symposium on "intestinal stasis." In the first place he thought it was well for them to realize that they knew very little about the toxemias that were said to arise from the intestinal tract. It was distinctly a fad at the present time and he was of the opinion that it was far less frequent in its occurrence and less important in its results than some would have them believe. From his own study of these cases it seemed to him that many of them were of small intestinal origin rather than colonic and neither stasis nor putrefaction was responsible for their occurrence. They knew very well how toxic was the secretion of the traumatized duodenum. They knew, it was true, very little about the toxic possibilities of products of digested food substances and the influence of functional sufficiency of the liver. He thought they should find that, after the removal of the colon, the toxic symptoms frequently persisted. So far as treatment was concerned, he emphasized the fact that it was incorrect to say that because a case had been treated by a reputable medical man without success, surgery was justified. Internists who might be thoroughly competent in treating many other conditions had frequently given the study of these cases scant attention and made only the most superficial efforts over a short period to correct the suspected abnormality. He recently saw a young woman who had long been under observation in one of their best hospitals treated for a supposed neurosis by a rest and forced feeding. Their examination disclosed the fact that she had an enormously dilated colon with a kinked sigmoid flexure entirely sufficient to account for her local complaints and general condition. On the other hand, they did not as yet know what to do for many of these cases because they did not know just what was responsible for the pathological conditions and symptoms. They were not dealing with a single variation from normal but a wide variety of abnormalities. He believed that they would see medical measures devel-

oped in the course of the next few years to a point of efficacy far beyond that of the present time. As an example of this might be mentioned colon massage which, as ordinarily practised, was of comparatively little value as the operator did not know where the bowel was or where the seat of partial obstruction. It had been his practice in recent times to have the trained masseur study the colon with him fluoroscopically when a case was to be so treated and observe in what position it was necessary to put the patient to make colon manipulation possible. For example, the pelvic cecum which retained fecal residue could only be brought under the fingers with the patient in the exaggerated Trendelenburg posture, while the high lying hepatic flexure required a sitting posture. So far as surgery was concerned, he felt they must recognize that it was necessarily accompanied with a considerable degree of mortality if any resections or anastomoses of the bowel were carried out. There was a great deal of doubt whether supposed toxic conditions were any indication whatever for operation even when there was evidence of intestinal stasis. It was hardly justifiable to submit a patient with a minor disability to any surgery having a high degree of mortality particularly if the end-results were doubtful. He was convinced that surgery was required for the relief of a fairly large group of patients with lower abdominal disability accompanied frequently by gastric symptoms. Many of these patients had been subjected to appendectomy with no relief of their complaints. But he knew of no field of surgery in which greater operative experience and judgment was needed to determine what was best to be done even when cases had been very thoroughly studied before operation. Some type of anastomoses or resection was needed in the occasional case but he had been surprised to find what excellent results were possible by simply cutting bands of adhesions and fastening the prolapsed cecum in the right iliac fossa. Until he had had the opportunity of watching some of these cases post-operatively that had been observed for long periods before operation it did not seem possible that such a simple procedure, comparatively free from mortality, could give such perfect relief from disability. It must be recognized that their knowledge of the whole subject was still very incomplete and that their conclusions as to some of the functional incapacities of the bowel as shown by the *x*-ray had not as yet been checked up by the study of large series of cases free from abdominal disability or disturbances of health. He had been surprised to see what perfect health and comfort might be enjoyed by some patients afflicted with general adhesions and definite functional incapacity of the intestine shown by radiographic study. In others of this group they had found the relief of minor disability and failure of bowel function were relieved entirely by the institution of the proper dietetic regimen. In other words, that the bowel could compensate for structural abnormalities and functionate properly without local or general disturbances of health. It seemed to him that they were dealing with a class of conditions so varied and complex in their nature as to require the most thorough and persistent study before they were dismissed as incurable or submitted on the other hand to radical alterations of their anatomy.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

Two Hundred and Sixty-ninth Regular Meeting, Held March 5, 1915.

Dr. Thacher in the Chair.

Case of Plastic Operation on the Nose. — Dr. Abbe showed a patient after completed plastic repair, following extensive removal of cancer of the nose. For a year a bleeding, warty growth on the patient's nose had been treated by acid nitrate of mercury and salves, growing worse rapidly until the entire surface of the nose from between the eyes to the nostrils and from cheek to cheek was diseased and eaten away. The patient was referred to Dr. Abbe by Dr. J. B. Murphy of Chicago. The disease was recognized by microscopic and clinical observation as squamous celled epithelial cancer, which neither radium nor Roentgen ray therapy would affect favorably. A wide excision left a large defect to be covered, possibly by a disfiguring flap from the forehead. Preference was given to the double transplantation flap method of Steinthal, on account of the ample flap to be obtained. Two vertical incisions, three inches apart, were made over the upper sternum, five inches long, the lower ends joined by a cross cut and a thick flap raised which included periosteum and a strip of bone chiseled up with the flap. The left forearm was brought up so that the hand rested on the right shoulder, and an incision was made in the skin of the forearm, corresponding to the lower edge of the sternal flap. Close suturing of this flap edge to the edge of the forearm cut was made and the arm and hand fixed to the chest and shoulder by adhesive and plaster of Paris dressing. In two weeks the nutrition of the chest flap was well sustained from the forearm end, permitting division of the upper end from the sternum. Three days were given to promote the best circulation from its forearm attachment and it was then stitched by its freshened edges to the freshened edges of the nose defect, and the forearm fixed to the head by laying the hand flat on a previously applied helmet of plaster of Paris. The entire forearm, shoulder and head were encased in a light plaster of Paris bandage. The patient fed himself as his mouth was free below his fixed hand. In eighteen days the flap had acquired ample nutrition from his face and it was cut away from his forearm. It had a fine vascularity after this second transfer and was now stitched throughout its entire margin to the nostrils and cheeks. After this second transference had been safely accomplished two minor trimming and suturing operations were done under local anesthesia and the present excellent, living, healthy, ample new nose had been accomplished. The advantage of this method for this case was in having unlimited freedom to cut away the disease, as a flap as large as necessary could be brought up. The disadvantages of the method were—first, a tedious and almost exhausting confinement in plaster casings; second, a not altogether sightly, though healthy, ample flap repair. The disadvantage of these transferred flaps, of which he had made many, was that being cut off from all their original margins they lost their vasomotor supply and also underwent some fibrosis, thus giving them an unnatural waxy pallor, which contrasted with the skin of the face. This did not occur with the large flaps of the forehead, turned down on a pedicle between the eyebrows, which were fed by the supraorbital and nasal arteries without loss of vascular continuity, and hence in proper nerve relation with the general vasomotor system. In proper cases Dr. Abbe said he would, on the whole, prefer the so-called Indian method of forehead flap.

Dr. Abbe, replying to question, said the transfer from the arm was done four weeks ago. It had shrunken already. The requisite graft was too extensive to take from the arm; a large amount was needed and one could take an enormous mass from the chest. The graft would probably always appear anemic. He said he had cut the cancer very widely away. The cosmetic effect was important. In one case of a lady, eighteen years ago, he had done the flap operation and there was no recurrence of disease. If one stitched the chest flap to the arm alone for ten days it got enough nutrition. There was at present a healthy mucous lining on the under side. This case was one of squamous celled cancer and radium would not affect it.

Arteriovenous Aneurysm of the Carotid.—Dr. J. A. Miller presented this patient. He said he felt he ought to apologize to surgeons for presenting this case. The woman had not really come in the capacity of a patient. He happened to see her when she brought her boy to the clinic and he noticed a swelling on her neck. Patient said it had been there for sixteen years. She was a bystander in a quarrel and was struck with a knife below the angle of the jaw. She had considerable shock and felt faint almost immediately with profuse bleeding from the ear which saturated all her clothing. She was removed to a hospital. She recovered soon from the shock and went home. After the injury she heard a pulsating, roaring noise. Her eyes became crossed, she did not remember how. At first she had no swelling, but the roaring noise persisted. The trouble with the eyes subsided. Six years ago, after childbirth, she had a very decided increase in the tumor. Since then the swelling had slightly increased, but she had had no pain or inconvenience except the roaring, which she had become accustomed to. At present there was a pronounced thrill, most marked in systole, and a marked swelling of the vein down to the clavicle with a murmur heard all over. There was nothing to be heard below the clavicle. The pulsation could be seen internally in the mouth in the carotid. There must

have been a wound of the artery and vein. There had been no exophthalmos at any time. There must have been an injury to the sixth nerve, although the fourth was the one most often involved. The question was, what was the hemorrhage from the ear? Often cases of the cavernous sinus were associated with fracture of the base communicating with the outer canal.

Dr. ABBE asked if it ran up to the temporal vein. He said the anatomical problem would have to be studied. It might be a mastoid branch. There might be an opening between an artery and vein of small size which enlarged the veins about them. The artery was small. The vein was not the jugular.

Dr. KNAPP asked if the woman were deaf, and if the tinnitus had kept up. He said he thought the sixth nerve must have been injured at the apex of the petrous pyramid; the fracture possibly involved the anterior boney wall of the auditory canal, thus the labyrinth escaped. If it had struck the cavernous sinus she must have had exophthalmos.

Dr. MILLER asked the meeting if they thought the hemorrhage was due to a fracture; the woman had not become unconscious; she was dazed. To have affected the nerve the injury must have extended into the artery. He would like to know how they would account for her being cross-eyed about a week. That must have been in the carotid with involvement of the cervical nerve. There must have been pressure inside of the skull. A very puzzling feature also was the hemorrhage. In answer to Dr. Potter he said that after the injury the patient was stiff, and black and blue.

Case of Goiter.—Dr. ROBINSON presented this case. The patient, Mrs. C., twenty-eight years, widow, came under his care some weeks ago. She had a moderate sized goiter, the cause undetermined, unless grief and care of a sick husband, who died of tuberculosis, explained it. The husband had died a year previously. She noticed swelling of the neck six or seven months ago. At times the neck swelled considerably, up to 13.5 or 14 inches, then it would diminish to 11.5 inches. The cause was undetermined. There was no occular trouble, no bowel trouble, no irregularity of menses. The last period was very profuse for no apparent reason. She had a slight cold at the time. She had fairly good health previous to her husband's illness. At present there was marked acne of the face. The appetite was good. She complained somewhat of nervousness and tightness in the chest. The heart's action was slow and somewhat feeble, the pulse slow and rather weak and irregular. There was a soft blowing murmur at the apex of the heart, systolic. No blood examination was made, but she was apparently anemic. The patient had been taking arsenoferratose for some weeks with much benefit. She was less nervous, had a better color. Dr. Robinson said he was not quite sure whether he had to do with a simple case of goiter, or with incipient Graves' disease.

In answer to questions, Dr. Robinson said the circumference of the neck had diminished from 14.5 to 11.5 inches. He had taken the patient's own measurements. There was general nervousness and a slight blowing murmur with irregularity of the heart. He did not think the symptoms were those of Graves' disease. There was no trouble with the teeth.

Dr. MILLER said he wanted to ask Dr. Abbe the facts in regard to removal of the thymus, as reported from Germany.

Dr. THACHER said that in New York City a case had been tried where part of the thymus had been removed and the *x*-ray applied to the thymus with good result. He thought, however, that results of *x*-rays were variable. He asked Dr. Abbe if it were better to attack the thymus first.

Dr. ABBE, in reply to Dr. Miller, said the thymus was removed only in bad cases. With radium and with *x*-rays the gamma rays went through. It was difficult to watch patients and get reliable records, but one generally got results with *x*-ray and with radium. As to operative technique, it was simple. Generally tying of ligatures was enough. It was not advisable to attack the thymus first. This case he considered a glandular hyperplasia. The symptoms sometimes subsided spontaneously. They often followed shock or grief. He had seen them go away spontaneously in young girls.

The Prognostic Significance of Changes in the Retinal Vessels.—Dr. ARNOLD KNAPP read this paper. (See page 883.)

In reply to a question, Dr. Knapp said that the corkscrew character of the smaller vessels observed in the early stages became less marked in the course of the disease. The visible tortuousness of the temporal artery to which Dr. Abbe referred, was a different symptom, as the retinal vessels in which these early changes occurred were only a little larger than capillaries.

Dr. THACHER asked if they straightened out; if so they must shorten. He asked how they shortened.

Dr. KNAPP said the adjustment of the vessel wall caused the change. They shortened probably by the arterial wall becoming rigid. The corkscrew was not so noticeable in advanced cases.

Dr. POTTER said he would like to know if cases had been followed from the corkscrew stage to advanced cases. He would also like to know if the statement of Geiss as to prognosis of apoplexy, so striking in all 17 cases, would coincide with Dr. Knapp's experience. He thought the time was too short. He asked if, in the case of the young man quoted, there were any mental symptoms that showed involvement of the cerebral arteries, and if there was any kidney involvement. Dr. Potter said he had found Dr. Knapp's paper most illuminating and interesting. He thought it was difficult for practitioners to use the ophthalmoscope skillfully, but with training in the modern medical school, most men could use it. He found the finer changes so difficult to determine that he always relied upon an ophthalmologist and took his findings as conclusive. Even when such changes were pointed out to him they were difficult to appreciate. He thought that, unless trained more minutely and constantly, it was difficult for the clinician to see other than advanced changes. Those in young people were very difficult. The interest would largely depend upon what line of work a physician was concerned with, but more time would have to be taken with the average patient, if we were to work with the ophthalmoscope. He said as far as treatment of arteriosclerosis by the private practitioner, suggested by Dr. Knapp, was concerned, there were important points such as avoidance of worry, fatigue, etc., favoring elimination; and bringing the patient's work and routine down to a point suited to an older person; that is, making a person of 40 live like one of 60 years. As far as drugs were concerned, none seemed to be of special therapeutic value. The lack of early diagnosis was noticeable. If they could make a diagnosis 5 or 10 years earlier they could help intelligent patients. He asked Dr. Knapp if his experience of thrombosis was coincident with the percentages quoted. He felt that in cases of chlorosis the prognosis was extremely good. He was obliged to the Society for permitting him to hear this extremely interesting and instructive paper.

Dr. KNAPP said he believed that cerebral complications occurred much earlier than four years. The young man whose case was quoted was a freshman at college, getting on very well in his studies. Malaria and whooping cough were previous illnesses. In regard to percentages, he believed that in his records the percentages of a strictly localized lesion were larger.

Dr. ROBINSON said he, personally, was getting tired of hearing about hardened arteries as being the cause of all sorts of unpleasant manifestations. In many cases these were a protection to the individual. He did not believe in making sudden changes in the habits of healthy individuals simply because of high blood pressure. People felt well till they had their blood pressure taken.

Dr. BRANNAN said he appreciated Dr. Knapp's paper as they had been told so much in a few words. He was not sure what he meant when he said the general practitioner did not pay sufficient attention to vascular conditions. If anything, too much was paid, whether blood pressure was high or low. The insurance companies made such a point of blood pressure that some physicians made a practice of influencing it. As to treatment of arteriosclerosis—diet, exercise and hygienic mode of life gave the best results.

Dr. MEARA said that he had enjoyed Dr. Knapp's paper both in anticipation and participation. He was particularly interested in the first case of a young man who showed the early changes of the retinal arteries with no evidences of cardiac or renal involvement and in whom, two years later, nephritic changes were in evidence. He said that he had been accustomed to look upon this condition only as the expression of toxic changes in the whole cardiovascular system, with maximal incidence upon one or the other territories of this system, that gave the clinical picture to the disease; that is, if the kidneys were specially

affected one spoke of nephritis, if the heart, myocarditis, if there were vascular accidents, one spoke of arteriosclerosis. It seemed to him that in any case of cardiovascular disease it was one's duty to seek for the agent concerned in the changes and that while it was impossible to obtain results in many instances, still in some it would be found on the investigation of the blood that there was an excessive uric acid content, bespeaking a gouty state, responsible for renal or vascular disease; or that there was a focus of infection latent in some remote part of the body, tonsil, teeth, sinus, and so forth. He agreed with Dr. Potter with reference to therapeutic procedure, which was rest for the vascular system, and had felt that muscular effort was less responsible than mental effort and most important of all was the strain put upon the organs by the ordinary metabolic functions. The intake of food should be the minimum compatible with the physiological need. In his experience most gratifying results had followed upon the reduction of nitrogenous intake, salt intake and fluid. He called attention to the Pemberton treatment of arthritic changes by the reduction of proteid, carbohydrate and total calories, as finding the way possibly to the proper treatment of these cardiovascular changes. Opie stated that in the degeneration of the liver produced by chloroform or phosphorus, increase of nitrogen accelerated the degenerative changes, while the intake of carbohydrate greatly reduced them, acting almost as an antitoxin. Thus something could be done for the patient without the use of drugs. Dr. Meara had been much interested in Stengle's report of a group of cases of hypertension, occurring in people of middle life and robust habit, in whom the blood pressure was exceedingly high, and in whom there was a great paucity of symptoms referrable to the kidney. These cases gave a better prognosis than one had been willing heretofore to grant them on the assumption that they were expression of renal change. He knew very little about the ophthalmoscopic findings of these cases. He thought it would be an interesting study to investigate them. He believed that the ophthalmoscope should be used by the internist in the routine examination. He recalled the case of a girl, of 27, whom he went over very carefully and found no cardiovascular changes. The urine had not yet been examined; the ophthalmoscope, however, showed profound changes; the urine later was reported as showing slight changes. The ophthalmoscopic findings often gave the earliest diagnosis of cases of renal disease. He would like to ask Dr. Knapp how he differentiated the eye changes in diabetes, and the eye changes in cardiovascular disease. Dr. Knapp had stated that in diabetes there were characteristic hemorrhages and exudations which were not present in cardiovascular changes.

In answer to Dr. Meara Dr. KNAPP said that in diabetes there were hemorrhages and whitish spots in the retina; the latter were not present in cardiovascular changes. The shape of the hemorrhages depended upon the layer of the retina in which they took place.

Dr. PARK said he was very much interested in this presentation. He would ask one question, that was whether Dr. Knapp would not rather limit ophthalmoscopic work to men whose cases brought them in touch with it. A good many men might thus learn to understand the reports better when they saw them. The average man had not time to keep up these things. Most men depended upon the specialist.

Dr. KNAPP said he agreed with Dr. Park, but he thought the internist ought to be able to appreciate changes in the condition of the retina; the case would then be of much more interest and he could help the patient much better to change his mode of life in time to prevent serious vascular changes.

Dr. MILLER said he was a tyro in the use of the ophthalmoscope, but for 5 or 6 years he had made a routine examination of all cases together with Dr. Norrie, and it had added tremendously to the interest of the service. Gradually a man came to recognize the changes and to appreciate minor points. It was surprising what a help it was to internal medicine. They had a consulting ophthalmologist to check up Dr. Norrie's findings. It was only a question of practice. The corkscrew changes in the vessels were interesting. A neurologist who looked at the eyes with these changes had said that they were often due to syphilis. In some cases there seemed to be a positive ground for this statement, as the Wassermann bore it out, but not always. As regards the general question, the Commissioner of Health had planned an active educational campaign against arteriosclerosis. Dr. Huddleston and he had been over the matter and they had received some interesting contributions which showed there was beginning to be a literature on the subject. The matter of modifying diet in cases which showed beginning changes, and changing the protein intake would add considerably to health and efficiency in many cases. Interest was certainly aroused, but was not perhaps always well directed.

Dr. KNAPP said that changes due to syphilis were of a very different character. The syphilitic process was a round celled infiltration in the coats of the vessel, a perivaseulitis with exudation in the walls.

Dr. ROPER asked Dr. Knapp if examination of the eyes could afford any help in the cases of growing children with nephritis. He had seen cases of young boys, 14 and 16 years, with urinary symptoms of parenchymatous nephritis, but no changes in heart or blood pressure. Could one gather any warning from the retina in those cases. It was hard to exclude such cases from taking part with other boys in ordinary affairs. They were doing well, yet albumin and casts were constantly present.

Dr. KNAPP said that albuminuric retinitis was a terminal stage, not an early one. If the patients were holding their own, the retina would show no change.

Dr. THACHER asked if one could not sometimes find, from arteriosclerotic changes, without nephritis, an appearance similar to albuminuric retinitis.

Dr. KNAPP said in two instances one might get this appearance, one in choked dises after croup, secondly in brain conditions.

Dr. THACHER said that sometimes an ophthalmoscopic picture very like that of albuminuric retinitis was found, where there was marked arteriosclerotic change, and very little evidence of nephritis.

Dr. KNAPP said he had not seen that.

Dr. THACHER asked if there was in some cases evidence in the ophthalmoscopic picture of temporary obscuration followed by thrombosis as the result of spasm.

Dr. KNAPP said in a great many cases in which the artery became obliterated the patient gave a preliminary story of temporary obscuration.

Dr. THACHER said he had watched similar phenomena in brain conditions.

Dr. KNAPP said that it must be identical, as the vessels were of the same kind.

Dr. THACHER said he thought the use of the ophthalmoscope by the intelligent practitioner would stimulate his interest and make the reports of the specialist more intelligible to him.

Dr. KNAPP said the question was of great interest to him because it was difficult to treat these cases. The condition was in the eye. The patients did not notice slight swelling of the ankles, or headache. They came to have their eyesight treated. They went to a medical clinic and drifted back to the ophthalmologist. Fundus cases should be treated in a medical clinic. There was great need for a practitioner as a medical ophthalmologist.

PHILADELPHIA PEDIATRIC SOCIETY.

AT a stated meeting held April 13 Dr. ALICE WELD TALLANT reported "A Case of Hemorrhagic Disease in a Newborn Baby." The child was born at term without complication, and on the third day a hemorrhagic swelling appeared on the neck and one side of the face, gradually increasing and extending to the other side of the face. Smaller areas of extravasation appeared in other situations and there was slight oozing from the cut extremity of the umbilical cord. The temperature pursued an irregularly elevated course. Other measures, including administration of gelatin and of adrenalin solution failing, an ampoule of coagulose was injected in two equal parts, and in a short while the symptoms began to recede and the condition went on to entire recovery. There was no apparent source or channel of infection.

Dr. WILLIAM DRAYTON, JR., exhibited "Two Cases of Pellagra in Children That Had Always Lived in Philadelphia." Both patients were girls about 11 years old. The one was of Italian, the other of American, parentage, and neither had ever been out of the city for more than a day or two at a time. Both came under observation on account of difficulty in locomotion, the gait being ataxic with a suggestion of spasticity. Both presented a roughness of the dorsum of the hands and similar cutaneous changes about the eyes. In both

cases symptoms of the disorder had been present for five or six years. In one the cutaneous lesion had been noticed at the outset on the hands, while in the other there had been attacks of diarrhea. In both the reflexes were increased and slight nystagmic movements of the eyes were present on lateral rotation of the eyes. The Wassermann reaction was negative in each instance.

Dr. THEODORE LEBOUTILLIER presented a communication entitled "Thymic Hypertrophy; Thymus Death, with Report of Cases." He reported several cases of sudden death in children in which post-mortem examination disclosed increase in the size of the thymus gland. In two of these the trachea presented evidences of having been compressed during life. In another case recurrent attacks of laryngeal stridor led to a diagnosis of diphtheria, of which bacteriologic or other evidence, however, was not found, while *x*-ray examination disclosed a shadow indicative of enlargement of the thymus gland. The patient died at a later date of bronchopneumonia, but an autopsy could not be secured. In some of the cases recorded in the literature it is believed that death resulted from compressive asphyxia, while in other instances the fatal issue is to be attributed to metabolic disturbances referable to disordered function of the thymus gland.

Dr. WILLIAM M. LATE COPLIN demonstrated a collection of specimens of thymus glands obtained from children. One of these was a large gland of considerable proportions in all directions and lodged upon the heart. Others, while of considerable superficies, were comparatively thin.

Dr. A. GRAEME MITCHELL presented a communication entitled "Leucocytic Counts During Digestion in Infancy." It was found from a study of fifty bottle-fed infants that the number of leucocytes was extremely variable at different periods after nursing and that reduction in the number of leucocytes in the blood was even more common than increase. Crying and excitement had a tendency to increase the number. Also there were variations apparently related to the time of the day. Accordingly, it was concluded that for comparative purposes studies of the leucocytes in the circulation should be made always at the same time of the day, at the same interval after meals and under otherwise as nearly like conditions as possible.

Dr. MYER SOLIS-COHEN presented a communication entitled "Treatment of Tuberculous Children with Different Varieties of Tuberculins, Sera, and Vaccines." Infinitesimal doses were used, just sufficient to induce a slight favorable reaction. Only those cases were treated with these remedies that did not respond to fresh air and careful feeding alone, and the results were satisfactory in a considerable proportion.

The Reaction of Landau.—J. Golay states that this reaction has been devised as a substitute for the Wassermann test. The new seroreaction is based upon a specific behavior of the blood serum of syphilitics with respect to the halogens, more particularly iodine. Landau at first employed liquid paraffin as the solvent for the iodine, but later he substituted tetrachlormethane. The technique of the reaction is as follows: Into a test-tube 12 mm. in diameter, containing 0.2 c.c. of the suspected serum, there is poured 0.1 c.c. of the reagent consisting of a one per cent. solution of iodine in tetrachlormethane. The tube is left to stand four hours or more. There are then added 0.2 c.c. of a solution of ammonia. If the test is positive the solution is clear and transparent. If the serum is normal the solution is milk-white. The explanation of the cause of this reaction is that there is apparently a special affinity of the syphilitic serum for iodine. Golay, however, does not believe that it will supplant the Wassermann reaction in spite of the greater simplicity in the technique.—*Revue Médicale de la Suisse Romande.*

Visual Symptoms and Spinal Cord Lesions.—A. W. Ormond states that visual symptoms are associated with certain lesions of the spinal cord; that the optic nerve belongs to the second order of neurons, and consists of the axons of the ganglion cells formed within the retina; that the optic nerve is part of the central nervous system and reacts pathologically in the same way as the white matter of the cord, being subject to the same pathological processes; and that when visual lesions are associated with spinal cord disease the posterior columns are usually affected and less frequently the cerebellar tracts.—*Clinical Journal.*

Therapeutic Hints.

An Application for Psoriasis of the Face.—G. T. Jackson notes that ammoniated mercury is the pleasantest and promptest remedy in psoriasis of the scalp and face and can be used in these regions while chrysarobin is used on the rest of the body. An ointment of

℞ Ammoniated mercury, gr. xx.
Calomel, gr. xl.
Petrolatum, ad ℥ j.

is sometimes better than that of the ammoniated mercury by itself. Other mercurial ointments, such as that of the yellow oxide, and a dilute ointment of the nitrate, may be used. Lang has found the bichloride of mercury in collodion in ¼ to ½ per cent. strength a good application. It would probably be an unsafe one in a case of any extent.—"Diseases of the Skin."

Intestinal Antisepsis in the Treatment of Goiter.—F. Messerli reports the favorable results that he has obtained with this method of treatment, which consists in the use of thymol or benzonaphthol, as recommended by MacCarrison, or of salol or creosote. In addition there are administered the following laxative pills:

℞ Aloes, 0.05 gram.
Jalap resin, 0.1 gram.
Rhubarb root, 0.5 gram.

This treatment consists in a mild continuous purgation and intestinal antisepsis. It is based upon the hypothesis of the causation of goiter by intestinal bacteria.—*Revue Médicale de la Suisse Romande.*

Treatment of Burns in Infants.—M. Savariaud has obtained good results with the use of the following ointment in the case of burns in young infants when blistering has already occurred:

℞ Balsam of Peru.
Nitrate of silver, aa 1 gram.
Antipyrine, 5 grams.
Vaseline.
Lanoline, aa 1 gram.

—*Journal de Médecine de Paris.*

Artificial Serum Injections in Alimentary Intoxications in Infants.—Marfan recommends the use of the following:

℞ Sodium chloride, 1 gram.
Citrated caffeine, 0.50 gram.
Distilled water, 1 liter.

Of this solution there are injected hypodermically 10 to 50 cubic centimeters. In alimentary intoxication the injections are given daily for five or six days. In cases of athrepsia the injections are given only for three days.—*Le Nourrisson.*

An Ointment for Parotitis.—A. F. Plicque presents the following formula:

℞ Ichthyol.
Ammonium chloride, āā 3 grams.
Petrolatum, 30 grams.

This should be applied night and morning.—*Journal de Médecine et de Chirurgie Pratiques.*

Irrigations of the Throat in Scarlatina.—A. Baumgartner recommends the use of copious irrigations of the throat with the following solution, night and morning:

℞ Hydrogen peroxide (10 per cent. solution), 20 c.c.
Sodium borate, 0.50 gram.
Spirit of peppermint, 5 grams.
Distilled water, q.s. ad 100 c.c.

—*Bulletin Générale de Thérapeutique.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 23.
Whole No. 2326.

New York, June 5, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

CHRONIC DISEASES OF THE HEART, KIDNEYS, AND ARTERIES, FROM THE STANDPOINT OF ETIOLOGY, PREVALENCE, MORTALITY, AND PREVENTION.

A DETAILED PLAN FOR PUBLIC EDUCATION IN A LARGE CITY LOOKING TOWARD THE PREVENTION AND CONTROL OF THESE DISEASES.

By IRA S. WILE, M.D.,

NEW YORK.

Despite the increase of longevity incidental to the progress of civilization, it is noteworthy that certain diseases reflect an increased mortality in proportion to the total number of deaths in any age period as opposed to the decreased mortality noticeable, for example, among the diseases of infancy and childhood. The increased death rate from diseases of the heart, kidneys, and arteries is most prominent among the causes of death which apparently have not been diminished by the sanitary efforts of health officers.

According to the mortality statistics of the United States Department of Census, the death rate from organic heart diseases and endocarditis increased from 123.1 in 1900 to 151.2 per hundred thousand population in 1912. The death rate from nephritis and Bright's disease increased from 89 to 103.1, and deaths from cerebral hemorrhage and apoplexy from 67.5 to 75.7 during the same years and for the same unit of population. This increase of mortality is less evident, but still markedly shown by a consideration of the average mortality rates for five-year periods, as is indicated in the following table:

	Mortality per 100,000 Population	
	1901–1905	1906–1910
Organic diseases of the heart	124.2	13.2
Diseases of arteries, atheroma and aneurysm	9.4	17.7
Bright's disease	87.4	87.4

Considering the relation of these three groups of diseases to the general mortality of New York City for the year 1912, basing our figures upon the same census report, one finds that in New York City the total number of deaths from all causes in 1912 was 73,266, of which number 7,251 were due to organic diseases of the heart, 7,104 to nephritis and Bright's disease, and 2,805 to cerebral hemorrhage and softening. The total number of deaths from these specified causes amounted to 17,150, which approximated 24.8 per cent. of all the deaths in the City of New York during 1912.

In order to determine whether this percentage of total mortality was higher than that existent throughout the United States, a further analysis of the deaths in the registration area is provided. Out of a total number of deaths in the registration area during 1912 of 838,251, organic heart diseases were responsible for 86,175, nephritis 62,267, cerebral hemorrhage 46,797. The total number of deaths from these specified causes amounted to 195,239, or approximately 23.2 per cent. of the total number of deaths of the registration area.

A consideration of this large proportion of the total number of deaths from these specified general causes would lead to the inquiry as to whether this increased relative mortality in New York City as opposed to the rate for the registration area was due to urban conditions. It is found by taking figures from the same source that the total number of deaths during 1912 in cities in the registration states was 414,778, of which 42,373 were due to organic heart diseases, 32,875 to Bright's diseases, and 21,241 to cerebral hemorrhage. The total number 96,489 approximated 23.2 per cent. of the total number of deaths. This is obviously the same as the relative number of deaths from these causes in the entire registration area. In the rural sections of the registration States the total number of deaths was 337,665, constituted in part as follows: Organic heart disease 35,846, Bright's disease 22,195, and cerebral hemorrhage 22,193. The total number of deaths from these specified causes, 80,234, formed 26.7 per cent. of the total number of deaths. It is patent from these figures that the causes of mortality from these various diseases are not particularly centered in cities, but that the reduction of the mortality rate from these three causes must necessarily require attention to the causes similarly existent in rural sections.

Inasmuch as all registration States do not possess the same degree of advancement in matters of sanitation and hygiene, it is only fair to establish the facts with reference to the urban and rural population in New York State. We find that during 1912 in the cities of New York State the total number of deaths was 106,429, to which organic heart diseases contributed 10,602, Bright's disease 9,098, and diseases of the arteries, atheroma and aneurysm, exclusive of embolism and thrombosis, 2,100. The total number of deaths from these three general causes in the cities of New York State during 1912 was 21,800, or approximately 20.5 per cent. of the total mortality. For the same period of time the number of deaths in the rural sections of New York State amounted to 36,179, of which 4,086 were due to organic heart disease, 2,868 to Bright's disease, and 1,115 to diseases of the arteries, atheroma, aneurysm, exclusive of embolism and thrombosis. The total number of deaths in the rural portions of New York State in 1912, therefore, amounted to 8,069, or approximately 22.3 per cent. of the total mortality.

From these figures it is apparent that the mortality rate in New York State from these three general causes was much below the general mortality from these causes in the registration States, both in so far as cities are concerned and the rural sections. It is equally obvious, however, that the 24.8 per cent. of the total deaths in New York City in 1912 is 4.3 per cent. higher than the general average from these causes for all cities in the State, and indeed is higher by 2.5 per cent. than the average for the rural population of New York State. These figures lead one to assume that the proportion of deaths from these three causes in the city of New York is considerably higher than is warranted by its general place in hygiene and sanitation in this country.

While these figures relate entirely to mortality, there are no definite or scientific figures to indicate the prevalence of these diseases in terms of morbidity figures. If one may assume a crude factor that has resulted from the study of invalidity experience, there are approximately two years of illness for each death in the community. This would lead one to believe that the number of individuals suffering from these diseases in New York City during 1912 was over 150,000, in addition to the 73,266 who died from these three general causes. The real meaning of these statistics, however, is tempered by the fact that these three causes are increasingly active as agents of mortality with the increase of age. From the standpoint, therefore, of practical importance, it is imperative to recognize the seriousness of these causes of death at various ages. The following tables will indicate the number of deaths from each of the three general causes during five-year periods from the age of thirty to sixty years, the period of greatest industrial activity.

Organic Heart Disease—Total Number of Deaths in U. S. Registration Area—1912, 86,179.

30-34 Yrs.	35-39 Yrs.	40-44 Yrs.	45-49 Yrs.	50-54 Yrs.	55-59 Yrs.
1987	2935	3615	4376	5871	6613

During these thirty years the total number of deaths was 25,397. In other words, 38.9 per cent. of the total mortality from this disease occurred during these thirty years.

Nephritis and Bright's Disease—Total Number of Deaths in U. S. Registration Area—1912, 62,267.

30-34 Yrs.	35-39 Yrs.	40-44 Yrs.	45-49 Yrs.	50-54 Yrs.	55-59 Yrs.
1982	2858	3562	4210	5429	5685

During these thirty years the total number of deaths was 23,726. In other words, 38.1 per cent. of the total mortality from this disease occurred during these thirty years.

Cerebral Hemorrhage and Softening—Total Number of Deaths in U. S. Registration Area—1912, 45,752.

30-34 Yrs.	35-39 Yrs.	40-44 Yrs.	45-49 Yrs.	50-54 Yrs.	55-59 Yrs.
488	853	1288	2095	3337	4208

During these thirty years the total number of deaths was 12,269. In other words, 26.9 per cent. of the total mortality from this disease occurred during these thirty years.

In order to be certain that the mortality from these three causes during this thirty-year period is above the general average of percental deaths during the thirty-year period, the following table is offered:

All Deaths, All Causes—Total Number of Deaths in U. S. Registration Area—1912, 838,251.

30-34 Yrs.	35-39 Yrs.	40-44 Yrs.	45-49 Yrs.	50-54 Yrs.	55-59 Yrs.
33,743	37,916	37,885	39,624	45,496	45,732

During these thirty years the total number of deaths was 260,396. In other words, 31.1 per cent. of the total mortality from this disease occurred during these thirty years.

It is manifest, therefore, that the percentage of deaths from organic heart disease, nephritis and Bright's disease, and cerebral hemorrhage and softening is far above the general percentage of mortality from all causes during the thirty-year period.

To focus the same inquiry upon conditions in New York City I am presenting similar tables for New York City during the year 1912, using, however, the causes of deaths as applied to the white population. The reason for omitting the colored population is that in the total registration area of the United States the colored population is a more negligible factor than in New York City, owing to the fact that so few Southern States are numbered among the registration States.

New York City—All Deaths, All Causes (White), 1912—70,659.

30-39 Yrs.	40-49 Yrs.	50-59 Yrs.
7249	8404	8741

During these thirty years the total number of deaths was 26,994. In other words, 34 per cent. of the total mortality from all diseases occurred during these thirty years.

New York City—Organic Heart Disease—1912, 7024

30-39 Yrs.	40-49 Yrs.	50-59 Yrs.
553	884	1204

During these thirty years the total number of deaths from this cause was 2,641. In other words, 37.6 per cent. of the total mortality from this disease occurred during these thirty years.

New York City—Nephritis and Bright's Disease—1912, 6871.

30-39 Yrs.	40-49 Yrs.	50-59 Yrs.
645	1112	1494

During these thirty years the total number from these causes was 3,251. In other words, 47.3 per cent. of the total mortality from these diseases occurred during these thirty years.

New York City—Cerebral Hemorrhage and Softening—1912, 2750.

30-39 Yrs.	40-49 Yrs.	50-59 Yrs.
98	241	604

During these thirty years the total number of deaths from these causes was 943. In other words, 34 per cent. of the total mortality from these diseases occurred during these thirty years.

The startling fact is now apparent that in New York City during the thirty-year period these three general diseases caused 34 per cent. of their total deaths, as opposed to 31.1 per cent. in the registration area. Organic heart disease caused 37.6 per cent. of all its deaths, as opposed to 38.9 per cent. in the registration area, while nephritis and Bright's disease yielded 47.3 per cent. of their entire mortality, as opposed to 38.1 per cent. for the registration area, and cerebral hemorrhage and softening caused 34 per cent. of their total mortality in New York City, as opposed to 26.9 per cent. in the registration area.

From this compilation of figures, rather formal in nature, we are brought face to face with the fact that the mortality rate from these three general causes in the City of New York is far higher during the thirty years of greatest industrial productivity than they are for the registration area as a whole. In other words, while a greater mortality from these diseases is to be expected in the decades after sixty years, New York City is suffering a disproportionate loss of human life from these causes during the ages thirty to sixty years.

A recognition of the difficulties of diagnosis makes it imperative to recognize that there are

undoubted errors in the causes of death as reported to registrars of vital statistics. On the other hand, the interrelation of these three diseases is such that the sum total of the mortality may probably be regarded as reasonably accurate.

Diseases of the heart, kidneys, and arteries are very closely interrelated. The diseases of the heart may underly arterial alterations or diseases of the kidneys. Diseases of the kidneys may underly diseases of the heart and cause arterial degenerations; and, in turn, arterial degeneration may cause diseases of either the heart or the kidneys, or both. Finally, diseases of the heart, the kidneys, and the arterial system may all be dependent upon the same underlying cause.

Having recognized, therefore, the mortality and the morbidity of these three diseases, the question arises as to their preventability. The word "preventability" may best be defined in the words of Irving Fisher in the report of the National Conservation Commission on National Vitality: "A 'ratio of preventability' is the fraction of all deaths which would be avoided if knowledge now existing among well-informed men in the medical profession were actually applied in a reasonable way and to a reasonable extent."

While figures for preventability have not been actually determined in a scientific manner, we will assume for the purpose of argument the approximate correctness of the ratios of preventability as established after inquiry by Irving Fisher. From his figures we may quote the following:

Cause of Death	Median Age of Death	Ratio of Preventability
Tuberculosis of lungs	33	75
Septicemia	34	40
Pneumonia	37	45
Acute nephritis	39	30
Pleurisy	42	55
Alcoholism	44	85
Rheumatism	47	10
Chronic poisonings	48	70
Pericarditis	52	10
Dysentery	52	80
Endocarditis	56	25
Diabetes	58	10
Bright's disease	59	40
Venereal diseases		70
Whooping cough		40
Measles		40
Diphtheria		70
Scarlet fever		50
Tonsillitis		45
Typhoid fever		85
Puerperal septicemia		85
Other causes incident to childbirth		50
Diseases of childhood	2–8	67
Diseases of middle age	23–49	49

The ratio of preventability of death from all causes at all ages he places at 42.3 per cent.

It is not necessary at this time to consider the economics of the subject nor, even for the purpose of argument, to show the economic advantage to the community of conserving human life so as to promote communal progress. It is sufficient to realize that it has been estimated that 42.3 per cent. of all deaths belong to the category of those preventable. This in itself is sufficient argument for the necessity of bending all efforts toward the reduction of the morbidity and mortality of diseases of the heart, kidneys, and arteries which has already been shown to cause a disproportionate mortality in the City of New York during the ages of thirty to sixty years.

The reduction of mortality in itself is dependent upon the early recognition of disease. The reduction of the prevalence of disease is totally dependent upon an appreciation and understanding of the etiological factors underlying each specific cause of death. It is needless to comment that the decreasing of a morbidity from these three diseases during the thirty-year period will decrease the absolute mortality during these periods, but need not necessarily decrease the total number of deaths from these causes which will accrue during the senile period of life. All people must die and the great problem is to prolong life in so far as may be possible beyond the Biblical threescore and ten. To decrease the mortality from these diseases need not necessarily decrease the prevalence, as the decrease in mortality might possibly be due to an improvement in therapeutic science which might devise means capable of restoring the sick to normal usefulness. Owing, however, to the very seriousness of these three general causes of death, it is improbable that therapeutics will work wonders in decreasing the mortality for many years to come. It becomes of the utmost importance, therefore, to lay special stress upon those measures which will tend to lessen the prevalence of these diseases.

I have said above that in order to control the prevalence of these diseases, it is absolutely essential to understand their etiology. After a consideration of the etiology of diseases of the heart, blood vessels, and kidneys, I have arranged the following table showing the similarity of the etiological factors underlying the three conditions:

Table of Etiology.

Agents	Heart Diseases	Arteriosclerosis	Renal Diseases
Contagion and infection	1 Pleurisy	1 Infectious diseases (Warfield)	1 Infectious diseases
	2 Pneumonia and typhoid fever	2	2 Pneumonia and typhoid fever
	3 Exanthemata	3	3 Exanthemata
	4 Diphtheria	4	4 Diphtheria
	5 Gonorrhea	5	5 Gonorrhea
	6 Influenza	6	6
	7 Septicemia	7	7 Protracted suppuration
	8 Syphilis	8 Syphilis	8 Syphilis
	9	9 Malaria	9 Malaria
	10	10	10 Phthisis
	11 Tonsillitis	11	11 Tonsillitis
Toxins and poisons	1 Rheumatism and chorea	1 Rheumatism	1 Rheumatism
	2 Alcoholism	2 Alcoholism	2 Alcoholism
	3 Gout	3 Gout	3 Gout
	4	4 Lead poisoning, etc.	4 Lead poisoning, mercury, etc
	5	5 Diabetes	5
	6	6	6 Pregnancy
	7	7	7 Burns
	8 Overeating	8 Overeating	8 Overeating
Physical strain	1 Excessive muscular labor	1	1
	2	2 Muscular overwork	2 Traumatisms
Mental stress		Worry, mental strains	Worry, anxiety and grief
General or undefined	Arteriosclerosis	Exposure	Cold and exposure
	Renal disease	Heart disease	Heart disease
		Renal disease	Arteriosclerosis

A moment's reference to the above analytic table of etiology indicates at once the interdependence of these three general conditions and, in turn, their mutual dependence upon a series of underlying conditions, which in themselves are largely responsible for the mortality directly attributed to the diseases of the kidneys, arteries, and heart. Wherefore, it becomes obvious that in order to lessen the prevalence of diseases of the heart, kidneys, and arteries it is essential for a municipal health department to attack the underlying factors directly, and thus secure indirectly the benefit of a decreased prevalence of them. Obviously, the reduction of the prevalence of the underlying diseases will in itself secure a decrease in both morbidity and mortality during all ages up to the time of life when senile changes are productive of fatal results.

We have thus naturally led to a consideration of our detailed plan looking toward the prevention and control of these three diseases. Summarized briefly, the scheme involves the elaboration of plans for the elimination or control of contagious and infectious diseases, the elimination and control of conditions causing poisonings and intoxications, the supervision and regulation of conditions inducing abnormal physical strains, and the minimizing of mental stress in the community. In connection with this general program, the factor of greatest moment is the development of educational propaganda so that the general public may be enlightened as to the causes of these diseases, the methods of control, and the relation of personal and of industrial and civic hygiene to the general elimination or reduction of the prevalence of these diseases.

A large number of the plans now in vogue in health departments are designed for the elimination and control of contagious and infectious diseases. For this reason, I shall merely state my plan rather categorically and expand only in those instances where I think it is necessary for clarity.

Plans for the Prevention and Control of Contagious and Infectious Diseases.—1. The reporting of all contagious and infectious diseases followed by quarantine and the elimination of contagion bearers, possibly with continued fumigation in cases of scarlet fever and tuberculosis. Notice should be given of the intention of the department to prosecute deliquencies of all physicians failing to observe the regulations.

2. Compulsory vaccination for the limitation of smallpox.

3. Available facilities for antityphoid inoculations.

4. The free administration of diphtheria antitoxin. The extension of information regarding the Schick tests, particularly in institutions, in order to ascertain the nonimmunes in whom active immunity may be established.

5. Continuance or development of laboratory provisions for the examinations for gonococci and the carrying out of the Widal and Wassermann tests.

6. The establishment of special clinics for venereal diseases, tuberculosis, and pertussis. Special brief pamphlets should be prepared for distribution among patients to teach them the essential personal hygiene necessary for cure.

7. The establishment of night clinics in sections of industrial population.

8. The establishment of convalescent homes to which patients might be removed from city hospitals for adequate after care instead of their return to their impoverished homes. During stay at city hospitals specific instructions should be given with reference to hygiene during future years. Internes, nurses, or a social worker should be responsible for such instruction.

9. An extension of hospital facilities for the care of contagious diseases, as measles, scarlet fever, diphtheria, pertussis, and tuberculosis.

10. The continuance of infant milk stations together with the establishment of stations for prenatal care. Herein the infant consultation and classes for mothers should be directed by a doctor and nurse. Home visitation by the nurse is necessary to give direct instruction in the home on the many problems of hygiene relating to infancy, childhood, and adult life.

11. The education, licensing, supervision, and control of midwives.

12. The continuance of medical inspection in the schools and an extension of the work of school nurses. An extension of Little Mother Leagues in cooperation with Board of Education trains future parents into a correct attitude of mind toward civic health and the personal responsibility upon which it rests.

13. General propaganda work for city cleaning, dust control, the abatement of nuisances, and the control of breeding places of flies and mosquitoes.

14. Encouragement of medical inspection of employees. Offering occasional lecturers to employers of large groups of workers who are anxious and willing to be taught how to live so as to prolong their days of activity.

15. The licensing, supervision, and control of public baths.

16. The supervision of babies boarded out.

17. Promulgation of ordinances protecting the food supply, particularly as related to the pasteurization of milk, butter, and cheese, and other milk products. Issuing of special bulletins regarding all eatables and drinkables, including water, when any special danger appears imminent.

Plans for the Prevention and Control of Intoxications and Poisonings.—1. The report of occupational diseases by physicians to be enforced.

2. The extension of cooperation with the State department of factory inspection with a view to eliminating unhealthful working conditions. The publication of rules of health for the guidance of factory workers to be posted in factories throughout the city.

3. The establishment of a city hospital for the treatment of drug habitues.

4. The establishment of inebriate colonies.

5. Extension of the work of food inspection, including drug labeling, the use of preservatives, investigation of food containers. Frequent press notices regarding the prosecutions by the department of violators of the pure food law together with the reasons for such prosecutions in popular terms designed to arouse interest and secure public support.

6. The establishment of municipal dietitians in connection with all institutions under city control.

A Plan for the Prevention and Control of Physical Strains.—1. More thorough physical examinations of children applying for working certificates with the restriction of occupations, in so far as may be possible, in the light of physical handicaps revealed.

2. Encouragement of periodic examination of employees, working, for the purpose of propaganda, through labor unions, the Chamber of Commerce and large employers. Direct appeals, and special pleadings are necessary.

3. Medical inspection of school children with adequate follow-up work. Carefully designed cards for parents fixing their responsibility for remedying the defects noted by the medical inspector, and soliciting and urging home cooperation with the school nurses for the purpose of hastening restoration to a more normal state of being.

4. The encouragement of legislation leading to shorter hours of work for women and children and shorter hours of labor for men in positions requiring unusual muscular strain or undue exposure to severe physical conditions. The compilation of medical, hygienic, and sanitary data to establish facts and form arguments for health legislation. Incidentally the department should be prepared,

through the development of the statistical bureau, to assist students of civic health problems in the acquisition of basic hygienic and sanitary data necessary for legislative progress.

A Plan for the Prevention and Control of Mental Stress.—1. The establishment of homes for incurables so as to lessen the anxiety within the homes now forced to care for them.

2. The encouragement and oversight of day nurseries so as to lessen the anxieties of mothers obliged to enter industry.

3. Interdepartmental cooperation with the department of charities, tenement house department, and other municipal departments with a view to increasing facilities for public employment.

4. The issuance of notices relative to the relation of a high standard of living to public health, the importance of compulsory sickness insurance, and similar legislative enactments designed to lessen mental stress through the provision of funds during periods of disease and disability.

Above and beyond the administrative measures proposed in the above plans is the establishment of health centers at which may be found clinics or consultation places for the well. In other words, the establishment of the preventive work of the health department should be on the basis of disease prevention. The city should be divided into districts each having a health center under a chief responsible to the Commissioner of Health.

In the plan of organization there would be at this health center, a milk station under the supervision of doctors and nurses capable of giving direction and advice in the care of infants and children and prenatal care for expectant mothers. In addition to the doctors and nurses, there should be a practical housekeeper and dietitian. Classes should be organized for mothers with infants and small children, classes for boys and girls of puberty, classes for engaged girls or newlyweds, classes for pregnant women, classes for parents, classes for men. Circulars and pamphlets should be prepared for distribution and lectures given on such subjects as:

Foods and Food Values: The Relation of Foods to Health; Pure Foods—How to Buy; Prepared Foods; How to Prepare Foods; How to Live Cheaply and Well; A Safe Water Supply.

Contagious Diseases: How to Prevent Contagious Diseases; Vaccination—Methods of Prevention—Early Symptoms; Relation of School Nursing System.

Venereal Diseases: Prevention—Social Dangers—Economic Cost.

Sex Education.

Advertised Drugs, Tonics, Quacks; The Hazard of Alcohol.

Abortions: Dangers—Evils; Childbearing and Good Health.

Tuberculosis: Prevention, Control, Home Methods of Treatment.

School: Medical Inspection of School Children; The Problem of Feeding School Children; The Value of School Clinics.

Teeth: The Care of Teeth—Relation of Teeth to Health.

The Home: Ventilation—Bedding; Cleanliness—Control of Vermin; Light and Air; Rights of Privacy.

Milk Supply: Necessity of Pure Milk, etc.; Care of Milk in the Home.

Care of Infants; Feeding of Children at Various Ages.

First Aid to Injured.

Fire Protection: What to Do in Case of Fire; Necessity of Learning Ways of Escape, etc.

The above list of subjects is not meant to be inclusive—but merely slightly suggestive of the scope of the subjects that could be covered at a center of hygiene.

Such lectures as above suggested and many others could be arranged for through a staff of cooperating lecturers who could be recruited from physicians, nurses, social workers and others living within the special districts of the health centers. In each health center there also should be a general medical clinic and such special clinics as are necessary for the elimination and control of preventable diseases. In other words, such a center of hygiene would radiate the doctrines of cheerfulness and health and would serve as educational centers for the general enlightenment of the public with regard to the methods of keeping well.

The location of clinical facilities in the same building is for the purpose of giving every opportunity to the workers to secure restoration to health. As a center of health, it will occupy a peculiar and important place among agencies devoted to civic betterment. A social worker should also be connected with each center, in order that the various social problems relating to general health may be referred to the proper city department or social agency for the necessary remedies. With a serious attempt at the organization of district health centers of this character, it would be possible to coordinate all the social agencies within the district into district advisory councils for the promotion of civic health. The value of a cooperative council plan of this character has been demonstrated in the plan of the Babies' Welfare Association of this city.

The general educational plans which are most essential in any scheme for the elimination or reduction of mortality from diseases of the kidney, heart, and arteries require vigorous and continuous educational propaganda. For the purpose of brevity, I shall merely catalogue with brief comment the various agencies which should be utilized in public health education.

1. The maintenance of a health bulletin to be distributed by mail, to be sent to schools, public libraries, to social and philanthropic agencies.

2. The development of moving picture scenarios so as to present health factors to the eyes of the public. This has been successfully done in the film, "The Man Who Learned," dealing with the pure milk problem.

3. The encouragement of short sketches dealing with health problems for productions at vaudeville houses and aid in writing them.

4. The use of posters on public bill boards.

5. The organization of health exhibits in vacant stores and compact travelling exhibits for loan purposes to schools, shops, factories, churches, and similar institutions. Such exhibits should be of two types, viz.—a general keep well exhibit constructively showing how to live, and special exhibits depicting and illustrating particular health problems as the prevention of tuberculosis—the care of the baby and plotted curves, photographs, cartoons, drawings, papier maché models, and various other appealing forms of exhibit will be required.

6. The maintenance of frequent press notices concerning facts necessary for public health education.

7. The organization of a staff of capable lecturers within the department and the securing of cooperation from the department of lectures of the Board of Education with a view to increasing the number of lectures on health topics to the adult population attending the lectures at public schools. Further, the organization of a volunteer lecture corps to be recruited from public spirited physicians, nurses, etc., interested in public health.

8. The distribution of brief, concise, and to-the-point health talks to parents and industrial workers through the medium of the children of the public schools, the agents of the Metropolitan Life Insurance Company, and the secretaries of organizations, of churches, directors of Y. M. C. A. branches, and organizations such as the Boy Scouts, the Campfire Girls, the State Militia, and other organizations now existent.

9. The establishment of a Health Day to be celebrated by special exercises in schools, churches, etc., dealing with health problems.

10. Active participation in the programs of conferences on charities and corrections to indicate the relation of various social problems to public health.

There are numerous neighborhood associations such as the Gramercy Park Association, the Chelsea Association, the Corlear's Hook Association, etc., which already have organized cooperatively a large number of agencies to consider district problems. It will be possible to utilize existent organizations of this character in connection with the district health centers to the end of focusing in a single health center all the health activities of the district with a common aim and purpose of eliminating unnecessary disease and disability.

The value of such coordinated activity will be manifest in the support which the Health Department will receive in its demand for increased appropriations so necessary for carrying out in any extended form a general plan for the reduction of disease based upon propaganda. Furthermore, the education of public sentiment as to the value and necessity of health education work of this character would result in more vigorous and successful efforts in promoting legislation designed to protect the general public from preventable diseases and disabilities.

Similarly, the establishment of a large working force throughout the city of volunteer workers might render it possible to adopt in part the English plan of having volunteer Health Visitors who without cost to the city, under proper direction and supervision would add very much to the establishment of healthful living conditions.

It may be urged that the plan as thus outlined would be exceedingly expensive. It is doubtful whether the increased cost would be very much per capita. Mr. Edwin Chadwick, at one time secretary of the English Board of Health is quoted by Irving Fisher as saying that a sanitary "engineer ought to contract for the reduction of the sickness and death rate, in such a city as Glasgow, by at least one-third, for a penny a head of the entire population." While these figures may not be applicable to New York City, which now has a 64 cents per capita tax for the activities of the department of health, it is doubtful if the increased expense would be much greater than that suggested by Mr. Chadwick for Glasgow. In estimating the lives of human beings, it is certainly true that it is far less expensive to keep people well than it is to treat them and meet all the costs of their illnesses. While for a few years there might be increased appropriations for the health department, as soon as the results of the health education propaganda are manifest, there would be decreased appropriations for departments of charities and corrections and probably for some phases of the work of the health department itself.

If the slogan of the New York Health Department that health is purchasable be accepted as true, it remains only to convince the public that the cost is not exorbitant in proportion of the returns to be expected. In the general plan for the prevention of diseases of the heart, kidneys, and arteries, it is, therefore, necessary to organize the work of the health department from the standpoint of education in such a way as to attack the entire problem of public health.

In arranging and organizing the work of the public health director, the broadest point of view therefore is necessary, namely, the establishment of plans for the maintenance of the public health on the basis of preventive medicine, while the establishment of conditions for curative measures takes a position of subsidiary importance.

In order that the public moneys may not be wastefully used, it is desirable to try out the proposed plan of the special health center in a single district of the city, so that from an analysis of birth returns and mortality statistics, the actual effect of the health propaganda may be demonstrated.

230 West Ninety-seventh Street.

ECONOMY IN STUDY:

CERTAIN PRACTICAL POINTS, PSYCHOLOGICAL AND PHYSIOLOGICAL, ON HOW TO STUDY TO THE BEST ADVANTAGE.*

By GEORGE VAN NESS DEARBORN, M.D.,

CAMBRIDGE, MASS.

PROFESSOR OF PHYSIOLOGY; AND OF THE PHILOSOPHY OF PHYSICAL EDUCATION IN THE SARGENT SCHOOL.

THE fact must be frankly faced that it is possible that some two or three of you would be more useful to yourselves and to the world in a nice "job," either on the front or on the back end of the street cars; or in a good, substantial position in a machine-shop, in a laundry, or in a confectionery store, or something like that. For it is possible, if not probable, that some of you are not of a scholarly "make-up" at all, so that you never could be a success as physicians. Now is the time to discover it, although a year at anatomy and physiology would in any event be of use to you.

Interest in the Subject.—If you are naturally of a scholarly disposition it is much easier to effectively study than otherwise it could be. But whether scholarly or not you must first have a real interest in that which you wish to study. If you have grown up without the "natural medical interest," it is your duty to acquire an interest in Medicine, but when you have really acquired a real *interest* you will learn almost reflexly and without any great effort on your part because it will be a *pleasure* to you. So this matter is truly worth while. Furthermore, you must have a continually changing and a continually developing interest, not only in Medicine as a whole, as a prospective life-profession, but in-

*Remarks made, for the most part, to the Premedical Class of the Tufts College Medical School, Boston, March 8, 1915.

terest in each of the forty and more subjects as they come along. Some of the essential medical subjects will be most interesting to you and some of them certainly least interesting, but in every case, if you wish to economize and if you want to adequately learn, you will, as a preliminary, develop an interest in the subject you are studying. It was once facetiously claimed by Huxley that he could make a course in osteology interesting to anybody who studied it! It is absolutely necessary, then, in short, to have *interest*, natural or acquired, and if you have not a natural interest you will have to acquire one, or obtain some other form for your continual use!

Some, in fact millions, never go far enough or deep enough to develop an interest—never deep enough to realize how unimaginably marvellous is their world of matter and life and mind. This may be "fate" or it may be just laziness.

The best way to develop an interest in any subject is by *collateral reading*. Read broadly on subjects allied more or less closely to what you are studying. When it is physiology, for example, you should read about related diseases, physics, psychology, and the enticing histology of the nervous system, for examples. There are all sorts of exceedingly interesting material to be got from the libraries which is related to this particular subject, complex and fascinating itself. Another way to develop interest is by *thinking* for yourself of those relations. A third method is to *associate with people* who already have an interest. Fortunate is the student who can have the advantage of association with masters of the subject then in hand. Whatever be the means, you must have interest—by this time you ought to believe this fundamental fact, if reiteration will make you!

Whatever you have an interest in, you *enjoy* doing, and that is the reason why well-adapted work in the long run is the most certain, if not the greatest, of human delights. Many people think of work as a necessary something disagreeable rather than agreeable, but I repeat that it is certainly one of life's most permanent and substantial satisfactions and delights. Unpleasant undeniably is work that is not adapted to the individual. You do not often see professors in our universities and colleges grumbling about their work, and this is not primarily because their work on the whole is pleasant, but more often because it is well adapted to them; for else they give it up. It is the vast body of men who do not as yet have work which is adapted to them who do not like to work. All great, useful, and original work ordinarily is done under conditions such that the work is enjoyable, there being always enough of interest about it to make it pleasureable. It is under these conditions, furthermore, and generally under these alone, that the largest amount of energy is expended. This basal relationship is expressed in the science of efficiency in the term "Sthen-euphoric Index," meaning, in short, the more or less direct ratio between the expenditure of *energy* in any action and its inherent *pleasantness*. "Enjoy your work and you will most likely expend a very large amount of energy in it." This is the practical corollary of this fundamental index of organic dynamics.

After having a good interest acquired and understood the relations between it, enjoyment, initiative, and energy, we may next consider the learning process proper. There are two kinds of learning as a procedure, one of which is a *conscious* process, conscious, deliberate study; while the second is another mode of learning, of which most of you are not even aware, namely, *subconscious* learning; in short, by observation and association, more or less unconscious.

Conscious or Deliberate Study.—When you think of study most of you, I am sure, consider only conscious, deliberate study, reading, or "grinding" usually in some book or other. This process, as you will understand next year better, is essentially a checking or restraining process, that which we call in physiology and in psychology "inhibition," an incentive of some sort to check some active process by a normal influence. The process of conscious study is one of an inhibitory nature—in its ultimate analysis the essence of humanity and of its civilization and culture—this year so horribly abused!

In the first place you have to inhibit *fatigue*, when you "grind." You are tired and would like to go to bed, or to go outside for a walk, or to some place of amusement that is restful. There should be no fatigue, theoretically. Your work should be so arranged, alternating with rest and exercise and eating, that there should be no appreciable and depressing fatigue. This inhibition of which we are speaking seeks a more *pleasant occupation*. Billy calls around and wishes you to play "old maid" or something or other; or Cousin Susie wants you to go to the movies with her. Then there are many *distractions* which have to be inhibited: the reckless automobiles or carting on the avenue, cats or hyenas on the back fence, a piano-torture from the next room, or someone beyond all humanity trying to play on the violin. All sorts of *sensory stimuli* have to be kept out of your effective mind. The *desire to change* must be inhibited, the perfectly normal tendency to change your occupation and thus get rested.

Study, then, so far as deliberate, is the forcing of the mental processes along new pathways, the forcing of nerve-impulses perhaps through groups of thousands of neurones where exactly they have not been before. When interest is acquired and other things are right and you are in good physiological condition, it is a real pleasure to truly grind. The habit of even this kind of study is easily acquired, much more easily in most of you than you think. Even the habit of inhibitory, forceful grinding on difficult study-subjects is soon acquired if you give yourself a fair chance to acquire it; and knowledge and understanding will represent the comfort of your wives and children for they will largely be your earning capital.

Beware of *false study*, dozing: trying to hold your eyes open while your brain is shut tight. In such cases your brains are not open, for the sensory paths and the association paths are closed. If your interest or attention cannot be forced on what you are studying, you should wholly rest for a few minutes or else open the windows, stir about, and force the issue! Or, if conditions are such that you cannot possibly give your attention to your subject, as in fatigue readily may happen, give it up. Unless you give your whole attention to whatever you are studying it is of little or of no account to you, and much worse than that, it gets you into the bad habit of sitting with a book in front of you and pretending to yourself (and sometimes to your teachers) that you are studying when in reality your brain-neurones are not getting hold on the facts at all. The loss of a little time is of no account compared with the misfortune of this habit.

There should be *no rote-learning*. There are only extremely few things tnat are properly learned by rote, and it is well to avoid attempting to learn in this way. In the long run it is a great waste, and therefore I suggest that you do not get into this habit either. No lecturer or quiz-master who knows his pedagogical business will give out his material or opinions so that you can take it down in the form of formulæ and "run it in" on an examination or elsewhere. A lecture should be, almost always, explanation and not description; lectures are properly complementary to texts. Facts and principles should be learned by concept, not by word.

There are certain physiological requisites for study, especially five things of a hygienic physiological nature which must be mentioned: namely (1) good health, (2) abundant outdoor muscular exercise, (3) abundant natural air, (4) abundant proper food, and (5) abundant sleep.

It is necessary for a student to have *good health*, else he is inexcusably wasteful. One cannot possibly study, for example, with *eye-strain*, for this inflicts a continuous strain on the brain and on the whole nervous system, which depresses the vigor of the mental action. Students should not think of studying when they have a *headache*, in which condition the brain is congested with blood. Under such circumstances it would be more economical to take a brisk, erect, longish walk out of doors, or to do almost anything except study. For a like reason, one should not try to study when he is *ill*, say with a bad cold in the head, even a mild influenza, or anything of that sort. Some try to study when they are at home "sick," which is absurd, unless it is a broken leg or something of that non-neural nature. It is very necessary that a successful student should be *free from worry*.* Don't stay a student and allow yourself to worry about the family skeleton, illness in the home, or other things even though they be of such real importance. If worrying interferes with your business of studying, either give up worrying or postpone your business, for certainly you cannot do both at the same time. In some cases study can be made to force the worry out of your head; if so, it is well.

Take *abundant gross muscular exercise*. The reason for this is that exercise stimulates the circulation, and "keeps the cobwebs out of the brain," the spinal cord, and other important nerve-masses. Muscles, as well as brains, are used in thinking, and they don't work as well when they are flabby and out of tone, and poorly supplied with oxygen and clogged with carbon dioxide. Too much exercise, on the other hand, must be avoided, since it employs the brain and so tires it beyond use for study.

Abundant Natural Outdoor Air.—It is not necessary to study out of doors, as you can have plenty of outdoor air indoors by the simple expedient of opening the windows. Air of the proper temperature and proper humidity is essential. Moving air, properly moist and properly *cool* (68° F.), is the ideal.†

Have *abundant food*, but not too much. The ideal is food that is easily digestible and taken often. Four moderate meals a day is far better for a student than two over-large. Coffee may be taken if necessary for successful study. There are many authors who do good and abundant creative work under the influence in general only of tea or of coffee, essentially alike in their stimulant action. I do not suggest alcohol, for it is a poisonous depressant and not a stimulant at all, save indirectly on the heart.

Students to be efficient must have *abundant sleep*. Ten hours is little too much. There must be no study within an hour, at least, after eating. Gentle ambulatory exercise helps digestion, on the other hand. It is certain that if the blood is in the stomach doing its work there, enough of it cannot be at the same time in the brain, and your brain cannot work without its normal abundance of blood. So that it is quite absurd to think of studying to good advantage immediately after a hearty meal. It is by many considered a good thing at times through the day to take cat-naps. Food digests best of all when you are asleep. Do not try to carry on your work on the boa constrictor plan of taking one big meal every six months and then going to sleep for the next six months! The boa constrictor is a poor student. Ten hours sleep is none too much and cat-naps certainly are excellent, for a short nap, even of five or ten minutes, gives one a large amount of cerebral rest, for even a five-minute nap takes the blood for a moment out of the brain, stirs things up there generally, and makes one ready for a good siege of study.

Attention to a book should *not* be *too long concentrated*, without pause. It should by habit be concentrated vigorously, but only for relatively short periods at a time. There should be more power of concentration for short periods than most high-schools inculcate, but one cannot keep his mind strongly concentrated for long periods under ordinary degree of educational interest. Every twenty minutes or so you should walk around the room for a minute or two, for this activity draws some of the blood out of your brains into your legs; moreover, it relieves the injurious long fixation of the eyes. No one can sit for an hour, or an hour and a half, without changing his position, except at a considable loss of nerve-economy, and it is under such a condition naturally difficult to avoid going to sleep, partial or complete.

Grammar schools and high schools almost never as yet succeed in teaching their students *how to think*, and yet that is what counts most. A momentary, thoughtful idea often is worth a week of fruitless mechanical grind, just as one large highly-cultivated Gravenstein is worth a whole barrel of crab-apples. Quality not quantity is what counts in study as well as in other things. Make a serious business of it, then, when you study, remembering that real learning, that is understanding and constructive power, comes only through thought.

Subconscious Learning.—This is a mode of learning which one unfamiliar with psychology is not apt to think of as "study" at all. You require this kind of learning (both as process and as product) with your subconscious minds, physiologically chiefly, the association of millions of neurones. Subconscious observation by your subconscious minds would be a common way to characterize it.

A good example of this kind of study or learning is a child about two years old learning to speak. The child, of course, does not at first consciously strive to pick up the marvellous art of speaking, but none the less he acquires it quickly, in part by imitation.

*See, for the therapeutics of worry and nerve-waste in general, a little monograph called "Nerve-Waste," Health Education League Booklet, No. 27, Boston, 1912.

†For a discussion of the need of moving air and of other hygienic conditions, see the lecturer's "Certain Further Factors in the Physiology of Euphoria," "*Psychological Review*," XXI, 3, May, 1914, 166-188, illustrated.

You cannot understand anything worth learning without this factor of mind, the subconscious mind, the great integrator of intelligence. The endless details of knowledge are supplied very largely by this unconscious mental process, this continual subconscious perception and observation by all the senses at once.

It is beyond our present range to describe this phase of the human mind, that deep and on-rushing part of "the stream of consciousness," which is closest to the nervous integrators of protoplasmic function. It is the great planner of our behavior, however, the chief solver of our most important problems in the conduct of life; it is the seat of our motives, the developer of our habits, the associator of our ideas into real and useful knowledge. I recommend it to you for study, that you may understand your own self and the minds of those about you, your future patients especially. (Von Hartmann, Dubois, H. Poincaré, Morton Prince, Ribot, Janet, will teach you about it, all that you need to know, until you observe its phenomena first hand for yourselves.)

At present we are concerned with the subconscious as the chief active recipient of information from the environment and as the chief arranger, developer, and increaser of this ever-varying multitude of educational impressions. As has been said already, without the subconscious there could be no real understanding of actual conditions of experience at all, so myriad are they and so complex and interinvolved.

Keep all your senses open, therefore, to "light" of every kind imaginable which the subconscious integrating process may relate to each other and to yourself, and make you truly *wise*.

There are three chief ways of studying in this process of collegiate learning. In the first place, by more or less conscious *seeing* and observing of books, diagrams, pictures, and other things that you can get only through your sense of vision. Second, *hearing* things with your ears, such as lectures, recitations, and talk. And third, by actually actively *doing* things—extensive laboratory work, clinical work, and to a much less extent essay-work, constructive drawing, research. To discuss these within the hour is out of the question, so that we must be content with the mere observation, although of basal and vast importance, that *doing*, as opposed to receiving, represents the modern method of learning even the most abstract of subjects. The world is becoming aware, and effectively aware, that bodily efficiency one way or another is the basis of learning, or, in the words of wise old Pestalozzi, "Keine Kentnisse ohne Fertigkeiten!"—that is, No knowledge without skill.

Imagination is essential in every scientific man who is more than a manikin. But *visualizing imagination* is of immediate necessity to every student and especially to the student of any individual branch of biology. You must be able to look, in your minds, directly into any part of a living organism and accurately see just what there is and precisely what is going on there. The lack of this power, I am convinced, is the cause of the inefficiency of many physicians. Anatomy, histology, physiology, pathology, clinical surgery, clinical medicine are but impractical knowledge without this faculty, easily developed (by most students) by a little practice. I recommend it to you as an important accomplishment as well as a valuable means of study.

The taking of notes is of sufficient importance practically to warrant a few minutes of discussion. If textbooks are the meat of the student, his notes are certainly his necessary drink, with his meals and at other times. It has been said that one "should train their powers of observation and memory" so as to be able to go into a lecture room and get the gist of the lecture without taking notes. But in the first place, we cannot develop our memory.* Born with a certain kind and perfection of memory we cannot increase its effective span. Do not attempt to accustom yourselves to this, for not one per cent. of you would succeed rather than fail. Every lecture in a professional school contains many material facts, and sometimes hundreds of them, and there is no mind that can remember them all, *economically*. No matter how vital and permanent they may seem the moment when you hear them, they probably are soon replaced with others equally interesting, and very soon most of them are gone, many of them for good, while part of those which remain are jumbled and mistaken.

Take notes of everything worth noting. No matter where you are, whenever you hear anything, or even see anything worth noting, "make a note of it." These notes will be of value to you all your life, the most vital links of your mind with your precious college life; and often of great practical use.

Notes should be schematically arranged in a psychologically scientific way, with center headings, side headings, group headings, and subgroup headings, and put down according to *ideas* under such headings. When all run together notes are not of much use. Let a book's elaborate analytical table of contents be a model for this. One should get into the habit of using abbreviations. Shorthand is very desirable, economical, and almost necessary, but if you cannot manage to learn shorthand,† acquire a system of abbreviation of your device. Do not expect, as I have said already, to get from a lecture anything that you can take down and run in verbatim on an examination, for a good lecture is an explanation, not dictation, not a description, and not a set of crib notes.

It is extremely important to economy that you should keep your notes "posted up" every day, not only in your notebooks, but in your brains. Go over your notes in general every night and connect them with what has gone before, and so keep your mind up with the subject. *Examinations will take care of themselves* if you keep your didactic material posted up day after day. Examinations are not intended to trap you, but are intended as means to find out how much you know or do not know; mostly, in fact, how much you do *not* know. Cramming for an examination is like carrying weights in your pockets when getting weighed: you are cheating yourselves. The economical way is to keep your notes posted up in your books and in your brains every day; so, they can associate and you learn much faster, giving your subconscious faculties a better chance. The power of grasping *ideas* is an extremely valuable one. Pick out the gist and sense of a running discourse, select the ideas and express them in your own words.

The drawing and writing of diagrams is of the

*For an up-to-date brief account of memory see the article in a leading medical encyclopedia, the "*Reference Handbook of the Medical Sciences*," third edition, volume six.

†For the stenography, etc., of this lecture I am indebted to Mr. Ernest Moore Gould, of the Dental Freshman class.

greatest importance, and all put before you should be quickly sketched. The drawing of original diagrams is of much value to you, but the quick copying of those put before you is also very important. Things should not "go in one ear and out the other": there should be something within, between, them to fix the ideas, namely, your brains, and one easy way to do that is writing tersely the ideas, and drawing the diagrams whenever possible. You should, as has been said, learn to visualize, to see things in your mind, and this selection of the essentials will help this important habit.

Frequent reviewing is of the greatest importance. It tends to integrate things, keeps subjects unified, and puts the whole subject before you at once; without a wholeness nothing is of much account.

You should have *as large a variety of textbooks* as you can possibly afford on every subject you study, for, in that way, you get different points of view of the same topic and fixation is more certain. Every ten dollars paid for good books while you are a student will be worth a hundred dollars to you later on. And no wise person sells his old textbooks, for each one has associations with his mind which make it often far more valuable and convenient to him in later years than a new one could be.

Conversation and discussion among yourselves are extremely important as means to accurate and broad information. Talk things over. Collateral reading always lends interest, and makes you a better talker, which in itself is well worth while in a professional man or woman.

Finally, I will suggest that it is a great waste for you to live out of town so that you are obliged to ride for more than half an hour twice daily in the train or street cars. If you figure up this time at the lowest valuation you will find it is actually economical to live near the college, even if your parents furnish living at home. Considering all matters, cash, nerve wear-and-tear, danger, eye-strain, etc., is is certainly economy to live in town and pay board and lodging rather than at home if it be more than, say, twenty miles away. This, like the other matters I have so inadequately suggested to you during the hour, I personally think are worth considering. For the race is keen.

THE MEDICINE OF THE OLD TESTAMENT.*

By STUART B. BLAKELY, M.D.,

BINGHAMTON, N. Y.

In a study of the medicine of the Old Testament two points must be kept always clearly in mind: (1) It is a study of the non-medical literature of a primitive, nomad race. (2) References to disease and medical subjects are dark and incomplete. Careful study of the original Hebrew words themselves has been of little service. Most of the diseases described are either those of kings or personages of high estate or epidemics. If we realize that little is absolutely sure, that much must be inferred, and if we recognize the difficulties of the problems we shall not be led far astray in a medical survey of the Old Testament.

The scriptural references given in this article by no means exhaust the possibilities of the text.

The medicine of the ancient Hebrews was partly of Egyptian, partly of Assyrian and Babylonian origin with, in later times, a possible trace of Greek influence. The medicine of Egypt was famous in its time throughout the East. Cyrus and Darius both summoned physicians from that country. Many of the physicians at the courts of the kings of Israel were probably Egyptian. The learning and culture of Assyria and Babylonia reached flood mark. The ancient Hebrews acquired their medicine during the sojourn in Egypt, by intercourse with other nations, especially during the reign of Solomon, and during the captivities. But the Hebrews were never scientists. They had no scientific institutions. Their science and their medicine were borrowed and empirical. To their minds Jehovah was the highest authority in all things. Jehovah was the Supreme Healer. (Ex. 15, 26; Dt. 32, 39; Ps. 6, 2; 30, 2; 103, 3; Is. 30, 26.) Injury disease, and death were usually regarded as expressions of his wrath, as direct results of his omnipotent will. As a consequence of this belief we find little or nothing in the Old Testament concerning the cause, the course, or the curing of disease. Disease was often looked upon as a direct punishment for sin, a belief prevalent among primitive folk. Threats of disease for sin and disobedience and promises of protection against disease are very common. (Ex. 15, 26; Nu. 14, 12; Dt. 7, 15; 28, 59-62; 32, 39; II Sa. 24, 16; II K. 19, 35; II Ch. 21, 14; Job 2, 5-7; Is. 58, 8.)

Among most early peoples medicine has been at first the property of the priesthood alone. Among the Hebrews, however, the medical work of the priests seems to have been that of a sanitary police —observing, isolating, and disinfecting. Their duties seem to have been always distinct from those of the physicians. (Gn. 50, 2; Ex. 21, 19; II K. 8, 29; II Ch. 16, 12; Job 13, 4; Jer. 8, 22.) The physicians gathered and prepared their materia medica, prescribed for symptoms of disease and treated wounds. The word "physician" in Jer. 8, 22, is literally "a bandager." Many are said to have established themselves east of the Jordan. There are two references to definite consultations with physicians—Asa to be cured of the disease of his feet and Joram to be healed of his wounds. (II Ch. 16, 12; II K. 8 and 9.) The profession was not so highly nor so strictly specialized as among the Egyptians—*cf.* the corps of physicians in the service of Joseph. (Gn. 50, 2.) It was usually held in high esteem, but Asa was reproached because "in his disease he sought not to the Lord but to the physicians." The author of the apocryphal book of Ecclesiasticus is thought to have been a physician. The prophets Abijah, Elijah, Elisha and Isaiah, by virtue of what we call their miracles, may be classed among the healers of the Hebrews. Midwives followed their calling as they do to-day. (Ex. 1, 15-21.) Their duties were of the simplest. They received the baby, cut and tied the cord, washed the child, rubbed it with salt and wrapped it in swaddling clothes. (Ezk. 16, 4.) It has been suggested that the two mentioned by name in Ex. 1, 15, were the heads of corporations or societies of midwives. Such a thing as a hospital was unknown; the sick, except the lepers and probably the "unclean," were cared for in their homes. (Lv. 13, 46; Nu. 5, 2; II Ch. 26, 21.) The dead were burned, buried or placed in sepulchres. The Hebrews did not embalm. Their mind had no sympathy with the Egytian idea that originated the custom. Jacob and Joseph were embalmed only to preserve their bodies until burial could take

*Read before the Men's Forum of the First Congregational Church, at Binghamton, N. Y., November 8, 1914.

place. Among the Egyptians the art of embalming formed a special branch of medicine. The process varied, not only according to the wealth and rank of the deceased, but also at different times in Egyptian history.

It might be interesting to glance briefly at the ancient Hebrews' ideas of anatomy. It is possible that dissection of the human body for scientific purposes had already been done at that early date, but in any knowledge thus obtained the Jewish slaves could have had no share. The Hebrews had no medical schools, no system of medical education. What little true anatomical knowledge they possessed of the internal organs was derived from injuries, war, and the slaughter of animals. All else was tradition or speculation. There are references to the heart, the liver, and the bile or gall, the diaphragm—"the caul above the liver" (Ex. 29, 13), the kidneys, the intestines and the internal fat, and the womb or matrix. The liver was evidently of value in divination. (Ezk. 21, 21.) Certain verses of Proverbs and Ecclesiastes have been cited as proof of Solomon's knowledge of anatomy and the healing art. Traces of a rude conception of embryology are found. (Job 10, 10; Ps. 139, 13-16; Eccl. 11, 5.) Blood to them was life, therefore sacred, and together with the internal fat must be returned to God before the flesh was eaten. (Gn. 9, 4; Lv. 7, 23-27; 17, 10-14; 19, 26; Dt. 12, 23.) They knew that dreams originated from inside the head. (Dan. 4, 5, 13; 7, 1.) The liver was the source of happiness; in several places in the Psalms it is called the "glory." (Ps. 16, 9; 30, 12; 57, 8; 108, 1.) The navel was the seat of health, the heart the source of emotion and of mental and moral activity, the reins or kidneys the seat of desire and determination, the bowels the place of affection and sympathy. We still preserve many of these ideas as figures of speech, but the Hebrews believed them to be truths. The books of Job, Proverbs, and Ecclesiastes contain a curious store of medical lore.

Palestine was probably healthier than Egypt. In the latter country the valley of the Nile was flooded every year, creating conditions favorable for the development of disease. The plagues of the Egyptians were closely associated with the rising of the Nile and with other well known climatic conditions of the country. Palestine, on the other hand, was isolated by land and sea. Communication with it was difficult. Disease was not apt to be carried to it. The land was dry and sanitation was good. There was no overcrowding and no poverty. Under the leadership of Moses, a priest from the temple of the Sun at Heliopolis, the Hebrews became the founders of public hygiene. In Leviticus and Deuteronomy are very definite rules and regulations regarding food, clean and unclean things, sexual hygiene, personal purifications, and contagious diseases. In Ex. 21, 22, and Lv. 24, are found traces of a medical jurisprudence.

We cannot enter into a discussion of the sanitary code of the Hebrews; neither will we describe practices that became religious rites, *e.g.* circumcision. We can only speak briefly of the drugs and methods used in treatment and call attention to some of the diseases and diseased conditions mentioned in the Old Testament text.

The ancient Hebrews had many medicines. (Jer. 46, 11.) We hear of no specifics. The following were some of their therapeutic agents: leaves of trees (Ezk. 47, 12), olive oil, balm of Gilead, a famous resinous application for pain and wounds, and a valuable article of commerce, fig plasters, oil and wine for wounds. The mandrake root was used for barrenness, following the old doctrine of signatures. (Gn. 30, 14-17.) The word translated "gourd" in the last chapter of Jonah is thought by some to mean the castor-oil plant. The personal and ceremonial use of ointments, perfumes, and incense was common, as among all Orientals. These were prepared by the apothecaries and confectioners. (Ex. 30, 25; 37, 29; Isa. 8, 13; II Ch. 16, 4; Neh. 3, 8; Eccl. 10, 1.) The ingredients were both domestic and imported, and their list is long. Among them were frankincense, myrrh, aloes, calamus, camphire or henna, cassia, cinnamon, galbanum, rue, spicery, saffron, storax and others. The following were more strictly medical in their use, as condiments or carminitives—cassia, cinnamon, coriander, cummin, salt, and probably also anise, mint and mustard. The prescription for the holy anointing oil is given in Ex., 30. Salt was used to harden the skin, nitro and soap to cleanse it. (Jer. 2, 22.) The niter was natron, a mineral alkali; the soap was probably potassium carbonate mixed with oil. Elisha used salt to purify springs of water that were reputed to cause miscarriage and death. (II K. 2, 19-22.) Hyssop seems to have been a substance whose use approached that of an antiseptic. It was probably either the marjoram, or the caper plant. The Psalmist lauds its "purging" powers; it was sprinkled on the doorposts of the Israelites in Egypt and was employed to purify lepers and leprous houses. (Ps. 51, 7; Ex. 12, 22; Lv. 14, 4-7, 49-52.) Mankind still clings tenaciously to the belief that the smoke or vapor from burning incense or other odoriferous substances possess detergent properties. It is possible that Hazael practised hydrotherapy when he dipped a cloth in water and spread it on the face of Benhadad, King of Syria, though it sounds more like murder. (II K. 8, 15.) Mineral and oil baths were sometimes employed. The pool of Siloam possessed healing powers. (Neh. 3, 15; Is. 8, 6.) Hot springs—"mules" are mentioned in Gn. 36, 24. These were probably near the Dead Sea. The water of the Jordan contained sulphur, and was famous for its curative properties, *cf.*, Naaman's leprosy. The wearing of amulets, the use of charms and invocations and the laying on of hands in the presence of disease were common practices then as they are to-day. (II K. 5, 11.) The influence of the state of mind on sickness was clearly recognized—"a merry heart doeth good like a medicine." (Pr. 17, 22.) Some kind of arrow poison was possibly in use, most probably aconite. (Job 6, 4.) The water of gall, or the "water of the poisonous plant," may refer to the poppy. (Jer. 9, 15; 23, 15.) Food poisoning of vegetable origin—possibly colocynth or the bitter cucumber—is mentioned in II K. 4. 38-41, for which Elisha used meal as an antidote. Ptomain or meat poisoning was probably the plague that followed the eating of the quail. (Nu. 11, 31-33.) The Hebrews knew well the action of alcoholic drink. They made wine from honey, dates, grapes and other fruits, and it was sometimes spiced. Certain localities were famed for their product of the vine. The drunkard has been inimitably portrayed in Pr. 23.

As among the Egyptians many remedies were dietary. The ancient Hebrews had an ample and

excellent variety of food: meat, fish, fowl, game, locusts, eggs, butter, milk, cheese, sour milk, meal of various grains, bread, beans, cucumbers, onions, garlic, lentils, herbs, manna, honey, fruits, melons, figs, raisins, grapes, nuts, olive oil, vinegar or sour wine, salt, and condiments. The ancient Hebrews probably had no sugar; honey, manna, and fruit juice decoctions were substitutes. The "sweet cane" of Is. 43, 24, and Jer. 6, 20, was probably the sweet flag or calamus. There is evidence of cannabalism taking place in Old Testament times under stress of circumstances. (Lv. 26, 29; Dt. 28, 53; Jer. 19, 9; Ezk. 5, 10.) This is said to have occurred at the siege of Jerusalem by Nebuchadnezzar and at its destruction by the Romans.

The surgical lore of the Old Testament is very scanty. Knives of flint or metal were used for sacrifice and circumcision, and awls for boring holes in the ears. (Gn. 22, 6; Ex. 4, 25; 21, 6: Jos. 5, 3; Dt. 15, 17.) These procedures, castration and "uncircumcision" were probably the only operations. Inflammatory reaction following operative procedures is recorded in Gn. 34, 25. We hear of no tumors, benign or malignant. Burns must have occurred, but it is interesting and curious that nowhere in the Old Testament is any method given for producing fire. In II Sam. 21, 20, is mention of a giant—born so—with supernumerary digits, six fingers and six toes, twenty-four digits in all. In I Ch. 20, 6, his gigantism is described as hereditary. Moses is thought to have had some defect of speech. (Ex. 4, 10.) Legend says that when a boy he put a live coal into his mouth and burned his tongue, so that he was unable to pronounce the labials. It has been suggested, however, that Moses referred to his lack of practice in the Egyptian language. Lameness and blindness were common then as now. (II. Sa. 5, 6.) Just what happened to Jacob's hip when in his wrestling the angel "touched the hollow of his thigh" we do not know, probably a severe sprain of the hip and thigh or a severe injury to the sciatic nerve. The "sinew that shrank" was probably this nerve trunk or possibly an atrophied muscle. (Gn. 32.) Saul's grandson was lame in both his feet, due to his nurse having let him fall when he was five years old, a common history of lameness to this day. (II Sa. 4, 4; 9, 13.) Bone disease existed. Lv. 21, 18-20; Pr. 14, 30.) A crooked back is often due to tuberculosis of the spine, and this was one of the physical blemishes that barred a man from the priesthood. Dislocations were known. (Job 31, 22.) There are possible references to fracture of the skull. (Jdg. 9, 53; II K. 1, 2.) Eli fractured his neck by a fall backward from his seat on hearing the news of the death of his sons and the capture of the ark. (I Sa. 4, 18.) Fractures of the long bones were put up in splints. (Ezk. 30, 21.) There are three references to penetrating wounds of the chest, and three to penetrating wounds of the abdomen. (II Sa. 4, 6; 18, 14; II K. 9, 24; Nu. 25, 8; Jdg. 3, 21-22; II Sa. 20, 10.) There are battle wounds and infected wounds. (I K. 22, 35; Ps. 38, 5.) No method is given for stopping hemorrhage. Wounds were washed, the edges drawn together and bound up in oil and wine. (Is. 1, 6.) There is a possible reference to leeches. (Pr. 30, 15.) The pathology of Pr. 20, 30 is very obscure. There is a suicide by hanging, another by the burning down of a palace, and King Saul fell upon his sword. Abimelech would have committed suicide had he been able.

Without question the common diseases of to-day existed in Old Testament times. In Lv. 26, 16, and Dt. 28, 22, there are possible references to such diseases as tuberculosis, typhoid, malaria, Malta fever, and smallpox. "The pestilence that walketh in darkness" suggests malaria. (Ps. 91, 6.) Certain conditions were termed incurable. There are possible references to affections of the heart. Men were gray haired and bald then as now. Diabetes is comparatively common among modern Jews, but no evidence is found of its existence among the ancient Hebrews. Scurvy almost surely prevailed during their desert wanderings. We do not know what was the "botch of Egypt"—possibly smallpox. (Dt. 28, 27 and 35.) Liver disorders and bowel disturbances were known. The latter are said to have been most common among the priests, because they went about so much in their bare feet on the cold floors of the temple. (Job 16, 13; Pr. 7, 23; Is. 16, 11; Jer. 4, 19.) The Hebrews knew that some disease was contagious, and they recognized the results of a fever. (Jer. 9, 21; Dt. 28, 22.) Beyond that they could not go. But we must not forget that the exact differentiation of most fevers has been made within the memory of men still living.

Of all diseases of Bible times and lands leprosy has always aroused the greatest interest. It was the most important and best known, was endemic in the land, and was considered infectious, contagious and even hereditary. Without question some, possibly much of the leprosy—so called—of the Bible, as well as that of the Middle Ages, was not leprosy at all. The term was applied to any rough, scaly skin condition. As a natural result leprosy was confused with syphilis and tuberculosis, and was often not differentiated from such skin diseases as eczema, ringworm and psoriasis. Leprosy, or at least scaly skin conditions, were common in Old Testament times. Lv. 13 shows the result of keen observation of the disease. The leprosy of garments and of houses was probably moulds or fungi (Lv. 13 and 14). As far as the writer can learn, the following are the only cases cited as leprosy in the Old Testament: (1) the hand of Moses becoming leprous (Ex. 4, 6); (2) Miriam becoming a leper (Nu. 12, 10); (3) the four leprous men before the gates of Samaria (II K. 7); (4) Naaman's leprosy and its transference to Gahazi (II K. 5); (5) the leprosy of King Uzziah (Azariah) (II Ch. 26, 19; II K. 15, 5.) Five references in all. Some palpably could not have been true leprosy. The subject is too big to enter into any further detail.

The plague is one of the oldest diseases of mankind. It existed centuries before Christ. It was the Plague at Athens. During the Middle Ages it destroyed one and a quarter millions of people in Germany alone. Seventy thousand died from it in London in 1664. It was the Black Death. It is to be seriously questioned whether the word plague as it occurs in the Old Testament means always the same disease; indeed, probably not. In the Old Testament the term plague seems to have been applied to any epidemic disease, usually occurring in cities or camps, rapidly fatal to a great number. Let us analyze the five epidemics among the Israelites. (1) the plague caused by eating the quail. (Nu. 11, 31-33). This sounds much like ptomaine, or meat poisoning, though it may have been the pulmonary form of the plague. (2) the disease among the spies sent by Moses to explore

the region of the Red Sea (Nu. 14, 37). It is idle to speculate what this disease was, possibly cholera. (3) the plague that destroyed 14,000 after the rebellion of Korah (Nu. 16). This resembles the real Black Death more than any of the other epidemics, especially since it followed an earthquake. (4) The plague of Baal-Peor from which 24,000 died (Nu. 25). This was in all probability a venereal disease, most likely syphilis. Baal-Peor was a phallic god, and worship of this god seems to have been the ascribed cause of the disease. (5) a three days' pestilence that destroyed 70,000 (II Sa. 24, 13-15). This may have been the plague, cholera, or influenza. It is manifestly impossible to identify each epidemic with a definite disease as known to science of today.

In passing it may be well to call attention to the fact that the ancient Hebrews were prone to exaggerate numbers. For example, 600,000 warriors are said to have left Egypt, implying a total population of a million or more—an incredible number to have participated in the Exodus. In I Ch. 21, 5, it is stated that Israel had a population of over a million, with 480,000 warriors in Judah. When Sennacherib overran the country the Israelites numbered about 200,000 all told.

There are other plagues of the Old Testament that have caused much discussion. One is the sixth plague of the Egyptians (Ex. 9, 8-11). It was probably an eruptive disease accompanied by abscesses and ulcers—boils and sores. The two most plausible guesses are anthrax, or smallpox, for the disease affected both man and beast. This was probably the so-called "botch of Egypt." The death of the first born was probably due to some epidemic disease. Another is the plague of the Philistines (I Sa. 5). This was probably syphilis, and will be more fully discussed under the venereal diseases. 185,000 of Sennacherib's army are said to have been smitten by an angel (II K. 19, 35). We do not know what this visitation was. A great deal of energy has been expended in the effort to explain the "fiery serpents" that were visited upon the Israelites, and of which frequent mention is made (Nu. 21, 6; Dt. 8, 15; Is. 14, 29; 30, 6). Actual serpents and their bites may be meant. The term may be a euphemism for venereal disease. An ingenious explanation is that these fiery serpents were guinea worms. These worms are several inches long, enter the skin, especially of the legs, produce ulcers and abscesses, and are the cause of the so-called guinea worm disease that occurs in the East.

Eye diseases and blindness were, and still are, common in the Orient, due to neglect and to the blinding glare of sun and sand. Leah was "tender-eyed" because she had ophthalmia (Gn. 29, 17). Sudden blindness—transient or permanent—was not uncommon. The loss of sight due to advancing years was well known. Isaac (Gn. 27, 1); Jacob (Gn. 48, 10); Eli (I Sa. 3, 2; 4, 15). Moses had probably the farsightedness of old age (Dt. 34, 7).

The venereal diseases, gonorrhea and syphilis, were prevalent among the ancient Hebrews. Irregular sexual relations were widespread. There are many references to prostitutes and brothels. Possibly the best known are Rahab of Jericho, Delilah the Philistine, and the two harlots—probably Greek—who came before King Solomon (Jos. 2, 1; Jdg. 16, 4-18; I K. 3, 16). Read Gn. 38; Ezk. 16 and 23; Proverbs 7 is a classic. Sexual perversions were very common (Gn. 19; Lv. 18, 21). The cities of Sodom, Gomorrah, and Gibeah were notorious for the number of sexual perverts among their inhabitants (Gn. 19, 5; Jdg. 19, 22). Much of the "uncleanness by issues" of Lv. 15 undoubtedly refers to gonorrhea. Syphilis is the only disease known that visits the sins of the father upon the children to the third and fourth generation. The word "emerods," also translated "tumors," which occurs in I Sa. 5, 6-9, and Dt. 28, 27, meant the sexual organs, and was used to specify disease of those organs. By making "golden emerods" and worshiping copies of the diseased parts (I Sa. 6) the people hoped that the disease itself would disappear, the idea that like cures like being a very old superstition. This was the plague of the Philistines and was undoubtedly a venereal disease, probably syphilis. The plague of Baal-Peor, previously mentioned, was almost surely syphilis. Nu. 5, 22-27; II Ch. 21, 13-15, may refer to syphilis. It has been claimed that Sarah, Abraham's wife, and David both had venereal disease. The passages quoted in support of this contention are not conclusive. Certain verses of Psalms have been said to refer to gummata of the bones, the subcutaneous tissues, and even the liver. It is fairly certain that the Hebrews recognized the relationship of sexual intercourse and certain diseases, as attested by several passages, especially in Proverbs (Pr. 2, 18; 5, 11-22; 7, 23).

There are a few special invidual cases that are of interest. Asa died of a disease of his feet (I K. 15, 23; II Ch. 16, 22). It was probably not gout, but either senile gangrene or dropsy, because it "moved upwards in his body." King Jehoram died of a cancer of the lower bowel, or of a severe dysentery at the comparatively young age of forty years (II Ch. 21, 18-19). King Hezekiah's disease is mentioned in three different places (II K. 20; II Ch. 32; Is. 38). It is described as an inflammation, or boil, and was cured by a fig plaster, or, literally, "by rubbing a cake of figs upon the boil." A very ingenious and not at all improbable theory is that this so-called boil was a neck abscess that later ruptured; for Is. 38, 14, reads "like a crane or a swallow so did I chatter"—the idea being that the abscess interfered with the action of the larynx and so with speech. We do not know what were the diseases of Abijah, Banhadad, Elisha and Joash (I K. 14; II K. 8, 7-15; 13, 14; 2 Ch. 24, 25).

There has been a great deal of discussion about Job's disease or diseases. The ancients believed that he had "black leprosy." The usual guesses—for that is all that they can be—are leprosy, syphilis, and Aleppom boil. It has been said that to fulfil all the symptoms presented, Job must have suffered from leprosy, elephantiasis, nightmare, gout, dysentery, ulcerated mouth, marasmus, and lice! (Job 2, 7-8; 4, 13-15; 7, 3-5 and 13-14; 16, 8; 19, 17 and 20; 30, 17-18 and 27 and 30). It is probably better, at least for our purposes, to regard Job as an allegorical, rather than as an historical character.

Diseases and abnormal conditions of the nervous system were present among the Hebrews. The state of trance was recognized (Gn. 2, 21; 15, 12). Fainting attacks are told as occurring to Eli, Daniel, and Saul. Epilepsy was observed (Nu. 24, 4). Sun or heat stroke was not infrequent (Is. 49, 10). We read that "the sun shall not smite thee by day, nor the moon by night" (Ps. 121, 6). To be moon-struck meant either epilepsy or lunacy. Jonah was stricken by the sun and heat (Jon. 4, 8). The in-

cident told of the widow's three-year old son in II K. 4, 18 refers in all probability to such a sun or heat stroke. The boy went into the harvest field to his father, he suddenly cried out, "My head, my head," and was taken home unconscious. Elisha was summoned and revived him. Another widow's son was revived by Elijah (I K. 17). This child's unconsciousness was probably due to infantile convulsions. Apoplexy and its results were recognized. Uzzah's death by the ark was probably caused by a stroke, possibly by an electric shock (II Sa. 6, 6-7). Nabal died of a stroke of apoplexy due to arteriosclerosis, following a drunken feast, a common occurrence as all physicians know (I Sa. 25, 36-38). The palsy of King Jeroboam was caused, probably, by the temporary arrest of an embolus or blood-clot, in a vessel of the brain, or of the arm itself (I K. 13, 4-6).

Of course, the ancient Hebrews had no classification of mental diseases. The belief in demons was widespread. Normal reason, normal mentality, and normal mental processes were to their minds, literally, the indwelling of the spirit of God. When a person's reason weakened or was lost, an evil spirit had entered into the individual. The person thus became insane. Insanity was not infrequent. David feigned madness, crudely but successfully, and so escaped from Achish, King of Gath (I Sa. 21, 13-15). Lunatics are carefully respected in the Orient. The two most noteworthy cases of mental disease recorded in the Old Testament are those of King Saul and King Nebuchadnezzar.

The case of King Saul is very interesting. The King of Israel was handsome, shy, self-conscious, of weak judgment and violent passions, easily exalted or depressed. He had troubles at home and abroad. His enemies pressed him hard. He was threatened with loss of his kingdom. He became a prey of fears, had premonitions of his own death and showed homicidal tendencies. Samuel was dead and the priests had been driven away. He had no one to advise or counsel. In disguise and at night, harrassed by haunting fears and loneliness, he consulted the witch of Endor. Little wonder that she could conjure up for his distorted mind, Samuel's spirit. Weak from lack of food and weak with fear he fainted. He had hallucinations of sight and hearing. Some time later, sorely wounded, his sons slain, his kingdom lost to the Philistines in battle at Armageddon, King Saul fell upon his sword and committed suicide. The development and course of King Saul's mental malady may be traced in I Sa. 16; 19; 22; 28; 31. It was either melancholia, or, more likely, manic-depressive insanity.

The other interesting mental case is that of King Nebuchadnezzar as related in the book of Daniel. This king of Babylon had visions of grandeur. A dream and its interpretation preyed upon his mind. He had hallucinations, ideas of persecution, and periods of exaltation followed by depression. At the end of a year he was driven away from men. He believed himself an ox, and for seven years lived as a beast, neglecting all care of his body, and eating grass. His was probably the mental disease called paranoia, though at the end of seven years he is said to have recovered his reason. The whole story has a legendary sound. Compare the story of the companions of Ulysses becoming swine, and other old Greek tales of lycantropy.

The mysteries of sex, pregnancy, and birth have always attracted and held the interest of all peoples of all times. The ancient Hebrews were no exception. No other medical subjects are so thoroughly covered in the Old Testament. The Hebrews discussed the primitive facts of life brutally, openly and unashamed. Without question, much that is really valuable has been lost to the most of us by the translators toning down or eliminating passages that might shock our sensitive modern ear.

We cannot enter into any of the interesting detail of the obstetrics and gynecology of the Old Testament. We can glance at but a few passages.

A very old belief of ancient cattle breeders in the influence of prenatal or maternal impressions on the offspring is recorded in the last part of Gn. 30. The close relationship of menstruation, nursing, and the menopause to childbearing was well known (Gn. 18; Hos. 1, 8). It was observed that miscarriage might follow bodily injury or mental shock (Ex. 21, 22; I Sa. 4, 19). Miscarriage is invoked in Hos. 9, 14. Barrenness was looked upon as an affliction, as a calamity, often as a punishment (Gn. 18, 9-15; 30, 2). Pregnancy and children, especially after years of sterility, were regarded as a blessing, as a gift from God (I Sa. 2, 5; Ps. 113, 9). Sarah is said to have given birth to Isaac at the age of over ninety years. Rebecca was barren for nineteen years. Manoah, Samson's mother, and Hannah were also elderly primaparæ (Gn. 18; 20; 21; 29; 30; I Sa. 1, 20; Judg. 13, 24). The nursing period often lasted two or three years. There are references to nurses and sick children.

Of the many births recorded in the Old Testament four are of special interest: (1) The death of Rachel in childbirth due to, or at least contributed to, by her age and the journey (Gn. 35); (2) the premature labor of the wife of Phineas, induced by the shock of distressing news, and her speedy death, probably from hemorrhage (I Sa. 4, 19); (3) the twins of Tamar, and the lacerated perineum (Gn. 38); (4) the twins of Rebecca (Gn. 25).

The two pairs of twins are interesting because the diagnosis of twins seems to have been made before birth, and also because both were hand presentations. One of twins is commonly larger and stronger than the other. This seems to have been the case with Esau and Jacob; besides, the former had an overgrowth of hair—hypertrichosis. The rules for the lying-in period are given in Lv. 12. The days for the "purifying" for a female child were longer than for a male child. This is traced to a very old superstition that it is more dangerous for a mother to give birth to a female child.

The Hebrews regarded old age as a reward for piety, as a token of God's favor. A hoary head was a crown of glory (Pr. 16, 31). David is pictured as old and stricken in years in I K. 1. One of the best descriptions of old age and death that has ever been written is found in Eccl. 12. The Preacher speaks in highly symbolic terms. It is the picture of an old man. The following seems to be the most reasonable explanation of the passage:

Verse 2. His mind, his physical well-being, often his prosperity fails. He is fretful and peevish, his pains recur, he often weeps and is depressed.

Verse 3. His arms and hands become weak; they shake and tremble. His legs are bent beneath their load. His teeth are few or gone; chewing is difficult. His sight fails, often from cataract.

Verse 4. His lips and cheeks are sunken, referring to the peculiar appearance of a toothless, aged

person's face, especially when chewing, the doors being the lips, and the street the mouth. The sound of the grinding is low because the mouth is shut and the teeth are few or gone. His early morning insomnia—very characteristic. The bird, or cock, is easily aroused and is early astir. He becomes deaf and his voice is cracked and quavering, the daughters of music being voice and hearing.

Verse 5. He is feeble; he fears new undertakings. His hair is white, the blossoms of the almond tree being of that color. There have been other interpretations of this passage. He has an annoying rupture, the belly of a grasshopper resembling the sac of a large inguinal hernia. A dried and shriveled up old man is often a burden to his friends. His sexual desire fails; or the caper berry—used as an aphrodisiac—shall fail to act.

Verse 6. His back is bent, his shoulders stooped, the silver cord being the white glistening ligaments that support the spinal column. The "golden bowl" is obscure. It may mean the watery eyes, or the chronic nasal discharge, so common in the old. It has been suggested that the loosing of the silver cord and the breaking of the golden bowl refer to the breakdown of his central nervous system, his spinal cord and his brain respectively. His bladder is weak, he dribbles urine. The circulation at his heart fails. It has been here suggested that the breaking of the pitcher at the fountain and the breaking of the wheel at the cistern refer to the breakdown of his circulation, venous and arterial respectively.

Then shall the dust return to the earth as it was; and the spirit shall return unto God who gave it.

THE NATURAL HISTORY OF CANCER.

By ROBERT BELL, M.D.,

LONDON, ENGLAND.

FELLOW OF THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS, SUPERINTENDENT OF CANCER RESEARCH, BATTERSEA HOSPITAL, PRESIDENT OF THE MEDICAL ASSOCIATION FOR THE REDUCTION AND PREVENTION OF CANCER, ETC.

It is a most extraordinary circumstance that when a person has become the victim of cancer he or she will willingly submit to the most rigid regimen that may be prescribed with a view of combating the disease, yet, though the fact is as clear as day that cancer is a most easily preventable disease, the public, either from folly or ignorance, persistently refuses to adopt a mode of life which, if adopted, would speedily render the malady nonexistent. I make this statement advisedly, being fully assured that cancer is neither hereditary, contagious, nor infectious, and that it cannot possibly come into existence if the blood is kept in a healthy condition, which is quite possible when dietetic and hygienic precautions are carefully observed.

When we come to realize that, as matters now stand, 25,000,000 of the population of the globe are destined to die of cancer, all of which high mortality from this disease might be avoided, it surely, therefore, is time the civilized world should wake up to this vital fact. Moreover, we are aware that during the past fifty years the death rate from cancer has been going up by leaps and bounds, until the mortality from this cause to-day is greater by 200 per cent. than it was in the sixties.

Cancer is a disease consequent upon a toxic condition of the blood, which has existed with little or no intermission during a prolonged period, the consequence being normal cell metabolism has become so seriously interfered with that, in any part which has been weakened by an injury or persistent irritation, cell metabolism has been supplanted altogether and been replaced by cell metamorphosis, the cells in that region thereby being converted from enfeebled normal cells into a malignant neoplasm, completely dissociated from physiological control. Such being the case, the new growth has ceased to exist as a portion of the human microcosm, and therefore has established itself as a foreign body which has taken root upon the subjacent tissue. Now, this could not possibly have been accomplished had its environment been possessed of the normal resisting power to disease which every cell possesses when it is being nourished by a healthy blood stream. We have then established upon this devitalized tissue a morbid growth, composed of metamorphosed cells, which have separated themselves from all physiological control and which have taken on a new rôle of existence. They, in consequence of their preying upon their environment, have assumed a fungoid character, and like all fungi—to which class of organisms I have demonstrated by microphotography, cancer bears a strong resemblance—their power of cell proliferation becomes enormously increased, and, *pro rata*, their disastrous effect upon their host becomes rapidly manifest.

It has been long accepted as a plausible theory that secondary deposits of cancer are due to the migration of its cells from their original seat to distant organs and tissues, these being conveyed by means of the lymphatic vessels. This I hold to be fallacious, and for the reason that the caliber of these tubules would not permit of the passage of a cancer cell. How, then, are we to explain satisfactorily the modus operandi of metastasis?

My conviction is—and this is founded upon actual observation—that cancer in its varied forms possesses one characteristic in every instance, which is that it is a fungoid growth, and that of a malignant type. The polarity of its cells is opposed to that of the healthy cells of the body. Its method of obtaining nourishment is that of a fungus. Its rapid and increasingly rapid proliferation of cells is that of a fungus. The nature of the soil upon which it is planted, viz., devitalized organic matter, is that of a fungus, and this soil yields to a fungus the nourishment which accounts for its marvelous rapidity of growth. The fact that its secretions are acrid and highly toxic also favors this conclusion. But by far the most conclusive evidence which I adduce is the fact that it ripens like any other fungus, and produces spores as vegetable fungi do. This I was able to demonstrate during my microscopic researches about three years ago, when I was called in consultation to see a case of cancer of the ovary. In such cases we are well aware that the peritoneal fluid frequently contains a considerable amount of flocculent material. On this occasion I took some of this home with me for examination and found that these flocculi were composed of a colony of capsules measuring about 1/200 of an inch in diameter, and that they were filled with what appeared to me to be granular matter.

I managed to get one of these isolated under a cover glass. This I wrapped up in wet lint, and, twenty-four hours afterward, examined the slide again, when I found this capsule had ruptured and the field under the microscope was covered with the spores it had contained. Of this I took a microphotograph.

With this experience I think I am entitled to conclude that the flocculent particles suspended in the ascitic fluid, and which are actually fungus growths, were developed from spores thrown off from the diseased ovary. This being the case it only stands to reason that a similar state of affairs exists in other organs and that these spores are so very minute in size that they are discernible as separate entities only under a microscope giving a magnification of 1,000 diameters, and therefore can readily pass through tubules of the smallest caliber.

Knowing then that when metastasis occurs the secondary growth does not partake of the character of the structure of the organ to which it has been transplanted, but retains all the histological features of the primary growth, it is only natural to infer that this is the product of spores which have been conveyed to, and located themselves upon, the organ or tissue secondarily attacked.

Moreover, we have only to look upon the fungating outgrowths which occur in advanced cases of cancer—the cauliflower excrescences in cancer of the uterus, for example—to prove that my theory of its nature is correct.

Now, it is a well-known fact that a fungus is able to take root and develop only on decaying, dead, or devitalized material. Does it not appeal to one, then, that, if the soil upon which it has hitherto derived its nourishment is revitalized by judicious treatment, the lower form of life will be starved out of existence, and gradually succumb to the improvement in its environment? And this, beyond doubt, is the means which prove effectual when cancer is subdued and overcome by dietetic, hygienic, and therapeutic measures. How much more effectual, then, in eradicating this terrible scourge are those preventive measures—a reformed diet, attention to hygienic laws, especially those bearing upon a sanitary condition of the colon—which make it impossible for that soil to exist within the body, without which the cancer neoplasm could never obtain a footing.

That this view of the pathology of cancer is correct is further strengthened by the well-known fact that cancer cells, equally with fungus cells, contain a much larger percentage of lecithin than normal tissue cells do. Indeed, it is chiefly from fungi that commercial lecithin is obtained. It is widely distributed throughout the animal body, being found in the blood, bile, serous fluids, brain, semen, pus and white corpuscles, but only in limited quantities, whereas in the cancer cell and in fungi it is in very great excess and seems to exert a powerful influence in promoting cell prolification of a morbid type, which is a characteristic feature of cancer. Now, lecithin, being a substance of a highly complex nitrogenous composition, must necessarily depend for its abnormal increment upon a soil containing an undue amount of decomposed nitrogenous products, such as those derived from the fermentation of dead animal tissues, which are so largely consumed in food. I say dead animal tissues, but this applies also, though to a less extent, to vegetable protein substances, which have had their vital constituents, and also their organic salts, destroyed and, to a large extent, washed away in the process of cooking.

Neither the animal fungus, which is named cancer, nor the vegetable fungus can possibly exist in a soil free from decomposing organic matter, and as the blood is the source of nutrition in the animal frame, and therefore the soil upon which every cell is dependent for its existence and continuance as such, the cell can remain healthy only so long as it is provided with suitable nourishment. And I maintain that it is possible to retain the blood in a healthy condition only so long as it is supplied by the products derived from materials which have not been deprived by heat or other means of their vital principle. Such is Nature's law, and it is no use kicking against this, and, I may add, that man is the only animal on the face of the earth who contravenes this law by destroying his food value by cooking, and moreover is the only animal, except those who have come under the domination of man, who suffers from disease in its varied forms, and especially cancer.

I do not wish to insist that one should confine one's self, *in toto* to one particular form of diet, but I do maintain that a very large proportion of this should consist of food exactly in the condition which Nature has provided it.

It must always be observed that when there is a departure from Nature's precepts relative to diet, constipation is an inevitable result, and as this favors an undue retention of obnoxious and toxic decomposing material within the colon, thus permitting its absorption by the blood, it is not difficult to understand why constipation becomes such an important factor as a predisposing cause of disease. Of course that, to a certain extent, may be obviated by taking purgative medicine, but on this point permit me to beg of my readers to veto, as they would poison, those remedies which are so extensively advertised and which only tend to aggravate the mischief by weakening the normal peristaltic action of the bowel.

15 Half Moon Street.

A LOGICAL CLASSIFICATION OF MEDICAL LITERATURE.

By ANNA L. VON DER OSTEN,

NEW YORK.

THE wide distribution of scientific articles in reprinted form, published in America and abroad, makes it generally possible within a few years to accumulate the nucleus of a medical library, which eventually may be of material aid for research and teaching. To find a means of accommodating these pamphlets, together with noteworthy articles culled from the current journals, is not difficult when the collection is small; and a limited file of this kind causes no great burden on the memory. The simplest plan of cataloguing—an alphabetical arrangement according to authors—will suffice. But as time elapses and the library grows, it happens that the names of authors are not readily remembered in connection with a variety of subjects. The need for some effective system of classifying the literature, in order to facilitate ready access, then becomes imperative.

In an attempt at arrangement, the plan that most readily suggests itself is a subject index based on titles, with the literature filed alphabetically under authors and the index cards catalogued in alphabetical order according to subjects. The basis for classification is the important subject, or it may be more than one, of the article. The index cards are then filed under the various topics that have been assigned. Dictionary card catalogues of this character, with the subjects not grouped in a logical series but filed alphabetically, are found in all large

medical libraries where they admirably meet the needs of the general public.

But the physician who has a particular interest in certain subjects, will find it convenient to arrange his own accumulation of medical literature in some logical manner, in order that all references pertaining to a particular field may be found grouped instead of scattered from A to Z throughout the alphabetical file. If, for instance, his interest centers on the heart, he desires to find all references under that main heading, rather than under the various, alphabetically widely scattered groups of aortitis, heart block, fibrillation, endocarditis, myocarditis, etc. Various attempts at logical groupings have been made, such as the Bellevue system which is widely used for the filing of histories in hospitals; the order employed by the *Index Medicus*, and the classification of the Library of Congress. But these large systems all fall short of the strictly logical criterion; they seem simply to have "grown up" with additions made at the end instead of incorporated into the system. The logical subject file must be flexible in character, designed to fit the needs of circumstances. The object should be to make it so clear and comprehensive that others besides the librarian may profit through its arrangement. It, of course, presupposes some knowledge of medicine. It may be of general service in a medical school where numerous instructors and students have access to the accumulated literature.

A logical classification of medical literature must rest upon the basis of medicine, which is anatomy. An admirable guide for this purpose is the Latin *Conspectus* on anatomy of the *Instituti Bibliographici Internationalis* in Brussels, and which is in general use in Europe.* It is designed for use with a decimal classification, but it may be well to say at the outset that the complex intricacies of the decimal classification are not essential to the success of a logical system and may be omitted without loss. An absolutely anatomical system, however, reaches its perfection only with regard to the surgical literature.† For general medicine, which must include the whole range of the infections and intoxications, extensive modifications are necessary, though I believe it is still desirable to retain the anatomical basis as the skeleton about which the system is built.

I venture to give below a classification which is in use in the Department of Medicine of Johns Hopkins University.‡ It is an index of some 3000 reprints and more than 1000 references, and includes a wide range of subjects. It is cited here in the hope that its outline may be of practical use elsewhere in forming a guide for a rational system and thus conserving the energy wasted on classifications which when they have reached large proportions are found to be impracticable and must then be revised.

The system is deductive, proceeding from the general to the particular. While the general groupings "Anatomy," "Physiology," and "Pathology" will not be employed to any large extent, as most of our medical literature has reached the stage of scientific analysis rather than broad generalization, they are nevertheless indispensable. Under "Physiology" may be grouped all studies on metabolism other than the pathological, together with the literature on biological chemistry, experimental biology, etc. "Diagnosis" may serve as a heading for general articles on auscultation and percussion. Under the head of "Pathology" will fall all the diseases that the flesh is heir to, such as are definitely related to certain organs, as well as the infections, intoxications, and metabolic disturbances which are of a more generalized character.

MAIN GROUPS

General	Circulatory System
Anatomy	Respiratory System
Physiology	Brain and Nervous System
Pathology	Digestive System
Etiology	Ductless Glands and Spleen
Diagnosis	Genitourinary System
Treatment	Bones, Muscles, Tendons, Skin, Hair, Etc.
Symptoms	Parts
Diseases of Metabolism	
Neoplasms	
Infections	
Inflammations	Therapeutics
Intoxications	
Blood and Hematopoietic System	Miscellaneous

With regard to the anatomical portion of the system which begins with the section "Blood and Hematopoietic System," it is convenient not to confine this absolutely to the pathological literature, but also to include references on anatomy and physiology. An extensive physiological literature is often accumulated and this should be correlated with the pathological work on the same organ—not filed in a separate compartment, as is the case with most systems, that of the *Index Medicus*, for instance. Preceding the pathology of any part would be found its anatomy and physiology, as follows:

Heart
Anatomy
Physiology
Pathology

The plan of the classification under discussion is to bring all references relating to a particular organ together, so that at a glance a complete survey is available of the literature of that part from every standpoint.

To facilitate ready access, the mechanical aspects of the system are important, such as the use of colored guide cards to indicate the main and the minor divisions. One color, for instance salmon, might be chosen for the guides of the large general groups, blue for the divisions of anatomy, physiology, and pathology under the main groups, and buff guides for the smallest, the alphabetical groups of diseases. It is most helpful, if the library is sufficiently large to warrant it, to isolate the cards of each group in an individual drawer, *i. e.* having one compartment for "General," another for "Infections," "Intoxications," and one each for the great systems of circulation, respiration, digestion, etc. These mechanical considerations contribute much to the effectiveness of a file.

As regards the cards themselves and the manner of indexing, a form that has seemed most acceptable is shown on page 942.

It is possible in an index of this kind to include references to important works of which no reprint may be available, but of which perhaps a brief abstract has been made on the card itself. These cards may readily be filed with the others, if care is taken to differentiate them by a distinctive color, choosing, for instance, a blue card for references

*Publication No. 74e, second edition. It may be obtained in this country through Dr. Herbert H. Field, of Brooklyn, N. Y.

†An admirable and extensive classification of this kind for the literature of the brain, the ear, and the upper air tract has been evolved by Dr. William Sohier Bryant, of New York City.

‡It has been my privilege to develop this system for Dr. Theodore C. Janeway, Professor of Medicine, Johns Hopkins University.

only, while the cards for which reprints can be obtained from the file are white.

Neoplasms, carcinoma
Wells, H. Gideon
1909
The resistance of the human body to cancer.
Jour. A. M. A., 1909. lii, 1731-1740.

O

It may be serviceable to analyze some of the main divisions. Taking the first large group, under "Symptoms," general articles on fever, edema, general pains, sudden death, will find a place. In the group, "Diseases of Metabolism," we have diabetes, insipidus and mellitus; gout, emaciation, and obesity. Because of the difficulty of differentiating between malignant and non-malignant growths, as the line of demarcation in many cases is exceedingly fine, no attempt need be made to subdivide the group of "Neoplasms." It must be remembered that this group is intended to cover merely general discussions of tumor growth; where definite anatomical regions are indicated, as cancer of the stomach or rectum, the cards would be filed under those sections. This plan will be found most serviceable for the general practitioner or diagnostician. If, however, he makes a specialty of cancer study and desires the literature of the various growths correlated, this section of neoplasms can readily be expanded to cover this need. It may be desirable to file the cards under two groups—in this section, as well as under the organ affected.

One of the most difficult groups to classify logically is that of the infections, because the etiology in many cases remains obscure. In the system under discussion the following arrangement has been adopted:

INFECTIONS
Etiology doubtful or unknown
Erythema
Hydrophobia
Measles
Parotitis
Pertussis
Rheumatic fever
Scarlet fever
Smallpox
Typhus fever
Yellow fever

Bacterial
Aerogenes capsulatus infection
Anthrax
Cholera
Diphtheria
Dysentery
Gas bacillus
Glanders
Gonococcus
Influenza
Leprosy
Malaria
Malta fever
Meningitis, epidemic
Paracolon infection
Parameningococcus infection
Plague
Pneumococcus infection
Pneumonia (See Respiratory System)
Poliomyelitis
Tetanus
Tuberculosis, pulmonary and general
Bacilli
Bovine
Congresses
Immunity
Miliary
Prophylaxis
Sanatoria
Treatment
Tuberculin
Typhoid fever
Vincent's angina

Fungoid
Actinomycosis
Leptothricosis
Streptothricosis

Metazoon
Distoma
Filariasis
Hookworm
Mosquito
Parasites
Tapeworm
Trichinosis
Trichocephaliasis

Protozoon
Amebiasis
Black water fever
Filaria loa
Oriental sore
Relapsing fever (spirillosis)
Sleeping sickness (trypanosomiasis)
Spirochaeta
Surra
Syphilis
Etiology
Diagnosis
Noguchi reaction
Wassermann reaction
Treatment
Salvarsan
Syphilis, tertiary

Pyogenic
Pyemia
Septicemia

This grouping has been given not as a conclusively established or complete list, but merely as an indication for a possible arrangement. In the main the system employed in Kelly's "Practice of Medicine"* has been followed. As science reveals the etiology of many of these affections the first group will diminish in volume. Tuberculosis as an infection of the lungs has been grouped with the infective diseases, but tuberculosis of the bones or the spleen, for instance, belongs more logically with those parts and has been so classified. Another division which might be useful under this head would be that of filterable viruses.

The various intoxications have been arranged in an alphabetical series. Articles on the toxic effects of alcohol and tobacco belong in this category, as well as the metallic poisons, cobra bite, etc. It has been suggested that a more logical grouping would be: (1) chemical intoxications, (2) toxins.

The category of "Blood and hematopoietic system" includes only diseases of the blood itself, strictly speaking, not affections related to the mechanics of the circulation. The various anemias, leucocytosis, polycythemia, are filed here, and under "Physiology" all articles bearing on blood analysis. Blood pressure studies, however, belong rather in the group of circulatory affections, as also hemorrhage and hemoptysis. Blood transfusion likewise belongs under the circulatory system.

The main divisions of the circulatory system are:

CIRCULATORY SYSTEM
Pericardium
Heart
Arteries
Veins
Capillaries

As needed, such subdivisions as endocardium, myocardium, aorta, pulmonary, and coronary arteries may be added under the proper section. These subdivisions are found in detail in the Brussels classification referred to.

The divisions of the respiratory system are:

RESPIRATORY APPARATUS
Upper air tract
Nose
Larynx
Trachea and bronchi
Lungs
Pleura
Diaphragm

The accessory sinuses would form subheadings under "Nose," the trachea and bronchi should each have a subdivision under the joint group. Pneumonia, though one of the infections, is so definitely related to the lungs that it has been classified here, rather than with the infections. Literature on insufflation and artificial respiration would appear under the therapeutics of the respiratory system, a section following that of pathology. The diaphragm which separates the respiratory from the digestive tracts has been arbitrarily grouped with the former.

The auditory apparatus and the eye have been considered parts of the general nervous system. The main divisions, together with the literature under the first two groups, are given below:

BRAIN AND NERVOUS SYSTEM
Cerebrum
Cerebellum
Spinal cord
Nerves
Sympathetic nervous system
Vasomotor system
Eye
Ear

Nervous System
Anatomy
Physiology
Pathology
Atrophy
Chorea
Clonus
Convulsions
Epilepsy
Heat prostration
Hysteria
Myoclonus multiplex
Neurasthenia
Neuritis
Neuroses
Paralysis agitans
Paraplegia
Paresis
v. Recklinghausen's disease
Syphilis
Therapeutics
Surgery

*"The Practice of Medicine," A. O. J. Kelly, Lea & Febiger, 1910.

Brain
- Anatomy
- Physiology
  - Hypnosis
  - Psychology
- Pathology
  - Abscess
  - Anemia
  - Aphasia
  - Apoplexy
  - Cysticercus
  - Degeneration
  - Dementia paralytica
  - Dementia præcox
  - Encephalitis
  - Headache
  - Hemicrania (migraine)
  - Hemiplegia
  - Hemorrhage
  - Hernia
  - Hydrocephalus
  - Idiocy
  - Insanity
  - Insomnia
  - Mania
  - Meningitis
  - Paranoia
  - Psychosis
  - Tumors
- Therapeutics
  - Psychoanalysis
  - Psychotherapy
  - Surgery

As the library grows, the subdivisions of gyri of the brain, frontal lobe, corpus callosum, optic thalamus, pia mater, lumbar spine may be added; under "Nerves," the trigeminus, facial, vagus; under "Eye," conjunctiva, choroid, retina; under "Ear," the external, middle, and internal ears, the vestibule, labyrinth, Eustachian tube, and the mastoid process which belongs logically with the auditory apparatus.

The digestive system with its subdivisions comprises:

DIGESTIVE SYSTEM

- Anatomy
- Physiology
  - Digestion
  - Eating
- Pathology
- Mouth
  - Tongue
  - Teeth
  - Palate and uvula
  - Glands
  - Lips
- Pharynx and esophagus
  - Pharynx
  - Tonsils
  - Esophagus
- Epigastrium
- Stomach
  - Pylorus
- Umbilicus
- Abdomen
- Intestines
  - Duodenum
  - Jejunum
  - Ileum
  - Large intestine
  - Cecum
  - Appendix
  - Colon
- Rectum and anus
  - Feces
- Liver
  - Bile duct
  - Bile
- Pancreas
- Peritoneum
- Omentum
  - Mesenterium

The bulk of the literature will fall under the heading "Stomach." Articles on fasting would be filed under the physiology or the therapeutics of the digestive system, as the case might be. It is necessary to include the general group "Abdomen" for the classification of literature on hernia, enteroptosis, and relaxed abdomen. Articles on the feces also belong with the digestive tract.

DUCTLESS GLANDS AND SPLEEN
- Spleen
- Hypophysis
- Thymus
- Thyroid
- Parathyroid
- Pineal gland
- Suprarenals
- Lymph glands

GENITOURINARY SYSTEM
- Kidney
- Urethra
- Male genital organs
- Female genital organs
- Uterus
- Breast

The subdivision, "Kidney," must, of course, include the extensive physiological and pathological literature on uranalysis as well as such conditions as polyuria, etc.

BONES, MUSCLES, ETC.
- Bones
- Articulations
- Muscles
- Tendons
- Skin
- Hair

PARTS
- Head
- Face
- Neck
- Thorax
- Pelvis
- Extremities
  - Arms
  - Legs

THERAPEUTICS
- General
- Animal extracts
- Vaccine therapy
- Drugs
- Infusions
- Physical therapeutics
- Hydrotherapy
- Electrotherapy
- Radium
- Thorium X
- Gymnastics
- Massage
- Surgery

"Animal extracts" will comprise literature on adrenalin, thyroid, and thymus extracts, etc. "Physical therapeutics" covers articles on air, climate, cold, heat. The *x*-ray literature finds a place under "Electrotherapy." Psychotherapy, on the other hand, is more logically classed with the brain than with general therapeutics. In a system of this kind a group of "Surgery" may be useful, to cover discussions of surgical technique irrespective of definite anatomical parts. Articles on the surgery of the brain, stomach, etc., would, of course, be grouped with those organs.

Notwithstanding the comparatively comprehensive plan here outlined, it is not possible to avoid the "Miscellaneous" group, which must cover general biographical accounts, articles on medical education, general hygienic considerations, such as water and milk supply, sewerage systems, social hygiene, sanatoria, the management of hospitals, clinics, and the like.

In conclusion I may add that a system of this kind is admirably adapted to serve as an index of case histories filed alphabetically, using index cards to indicate the primary and secondary diagnoses. If different colored cards are used, for instance white for the primary and yellow for the secondary diagnoses, it is possible at a moment's notice to select all the cases of a certain affection that have been observed for say a decade. The value of a mechanical aid of this sort for making clinical data readily available for teaching and research cannot be overestimated.

THE DIABETIC TYPE OF PYORRHEA ALVEOLARIS.

THE NECESSITY FOR ITS EARLY RECOGNITION BY THE MEDICAL PROFESSION.

BY DAVID BERNHARDT FREUNDLICH, D.D.S.,
NEW YORK.

AFTER a period covering several years during which time I have made a close study, clinically and pathologically, of a large number of cases of all varieties of pyorrhea, I am convinced that the diabetic type is the least amenable to treatment.

The etiology, pathology, bacteriology, and prognosis of diabetic pyorrhea has been more or less studied and commented upon by the medical and dental professions but at no time have the teeth and gums been given the serious consideration that they should have in this condition.

The clinical picture presented by this form of pyorrhea is so definite that in 90 per cent. of patients suffering from diabetes the general condition might be tentatively diagnosed by it. This is particularly so in middle-aged patients. I have, in many instances, advised patients coming to me for pyorrhea treatment to consult their physician in reference to a possible systemic disturbance and had my diagnosis confirmed by a subsequent uranalysis report.

It is not the purpose of this paper, however, to convey the idea that diabetes can be diagnosed by the clinical picture of the gums alone. A positive diagnosis should be made only from the history and urinary findings.

The patient complains of sore gums and teeth during an acute exacerbation and the gums present a beefy-red appearance. The exacerbations as they come on affect groups of teeth not previously affected. The teeth are extremely sensitive at the beginning of an attack, but when brought together are not painful. Later there is a sensation of elongation; the teeth become loose, and the pain becomes often so severe as to render mastication practically impossible. On gentle pressure, a thin white or cream exudate oozes at the gum margins and if the gums are massaged, profuse hemorrhage, difficult to control, follows. The bleeding does not relieve the pain in this variety as it does in most of the other types.

A thin bladed instrument may be passed deeply down between the root and the gum. The tissues around the teeth have very little resistance and any irritation, whether it be traumatic, chemical, or bacteriological in origin may cause the destruction of the gum and alveolar process. The depth of the pocket becomes less after the exacerbation. In patients having a number of attacks, particularly if they are severe, the pockets become deeper with each exacerbation. In practically all cases there is a loss of tissue followed by the extraction of the affected teeth.

Following are two cases selected from my private practice:

Woman, 45 years old. Came to me for pyorrhea treatment. Examination showed gums to be beefy red in color. Scrapings were made from the pocket, prepared and stained. A microscopical examination made immediately disclosed the entamoeba buccalis in fairly good numbers.

The regular pyorrhea treatment was instituted, supplemented by local injections of emetine hydrochloride. After the sixth treatment of emetin, scrapings from the pockets were again examined and no entamoeba were found, with an appreciable decrease in the inflammatory symptoms.

Whether this response to treatment was due to the emetine I am unprepared to say, as other cases in my experience have responded equally as well to other forms of treatment.

The patient was instructed at the beginning to consult her physician and did so. A uranalysis showed 3.5 per cent. sugar.

Woman, 35 years old. Complained of neuralgic pain and nervousness. The exacerbation extended over a week's time. The attacks recurred every three or four weeks, each time attended by excruciating pain. At the end of a week the pain subsided, but the pyorrhea was continuous. Every form of treatment was instituted without avail. This case is cited as typical of many which come under my attention, and whose etiology should be closely studied by the medical profession, since dental treatment has been proven of little or no value.

I have frequently been asked, "What *can* be done in these cases?"

With my cases I have adopted the following method of procedure with slight modifications to suit the individual case: (1) Cooperation of the physician; (2) Expert pyorrhea treatment; (3) Education of the patient in oral prophylaxis; (4) Local injections into the gums (pyorrhea pockets) of a one-half of a 1 per cent. solution of emetine hydrochloride every day or every other day according to the severity of the case. In the majority of cases the inflammation and pain subsides before the seventh injection has been given.

Pyorrhea alveolaris of any type is bound to recur if the patient does not at all times maintain a hygienic condition of the mouth and consult his dentist at stated intervals. With the diabetic form, it is equally necessary that he should consult his physician at stated intervals in order to avoid errors in diet, etc.

The duty of the dentist and the physician to the diabetic patient is about equally divided. It is the physician's duty to have an oversight of his diabetic patient's mouth and teeth and to warn him of possible complications. If pyorrhea symptoms present, it is his duty to advise dental treatment. In this way, taken at the onset, the condition will respond to treatment and many teeth be saved that might otherwise be sacrificed.

It is the dentist's duty upon recognizing this form of pyorrhea to make careful inquiries into the patient's history and ascertain if he has been advised by his physician of any systemic disturbance and if he has not seen his physician very recently to insist upon his doing so at once, explaining to him the fact that without medical treatment the dental treatment will be of little avail.

212 West One Hundred and Twelfth Street.

Medicolegal Notes.

Divorce—Physician's Fees for Services to Children.—A divorce decree provided that the defendant should pay $10 a week for the support of his two children, the custody of whom was given to the mother, and the expense of necessary medical attention to be rendered the children by a doctor who was named in the decree. This doctor died, and it was agreed that another physician should be substituted. One of the children needing the services of an eye specialist, the substituted physician recommended one, who prescribed for the child. In an action by the specialist against the father for compensation it was held that the father's liability for medical attention to the child was limited by the terms of the divorce decree, and hence he was not liable for the plaintiff's services, rendered without his consent.—Ryder v. Perkins, Massachusetts Supreme Court, 107 N. E. 387.

Medical Works—Cross-Examination of Expert Witness.—The law is well settled in Illinois and is the general rule, that scientific books may not be admitted in evidence before a jury, and that such books cannot be read from to contradict an expert witness, except where such expert assumes to base his opinion upon the work of a particular author, in which case that work may be read in evidence to contradict him. A physician, testifying that hysteria can never result from a physical injury, but is congenital, based his opinion on his own observations and experience, without relying on any textbooks or writers on the subject. It was held that a cross-examination consisting of references to medical works, so as to convey to the jury the impression that the physician was testifying against recognized authority on the subject of hysteria, was improper.—Ullrich v. Chicago City Ry Co., 265 Ill. 338.

Privileged Communications.—Under Ohio Gen. Code, §11494, providing that a physician shall not testify as to a communication made to him by his patient, a "communication" may be, not only by word of mouth, but by exhibiting any part of the body to the physician for his opinion. The qualification that a physician may testify by express consent of his patient, and if the patient voluntarily testifies the physician may be compelled to testify on the same subject, requires an express consent of the patient, or the patient's voluntarily testifying as to the matters communicated to the physician.—Ausdenmoore v. Holzback, Ohio Supreme Court, 106 N. E. 41.

Boards of Health—Ordering Examination of Cows.—The Supreme Court of Mississippi holds that Code 1906, §§2487, 2489, 2494, 2511 requiring the State Board of Health to supervise the health interests of the people and make all reasonable rules necessary to discharge its duties and powers, etc., empower the State Board of Health to require a semi-annual examination by competent veterinary surgeons of cows used in the dairy business to ascertain whether they suffer from tuberculosis or other contagious diseases.—Hawkins v. Hoye, (Miss.) 66 So. 741.

Malpractice—Necessity for Expert Evidence.—Under the rule that a surgeon treating a patient's diseased limb does not impliedly contract to restore the limb to its natural condition, but only to use a degree of diligence which is ordinarily possessed by the average of the members of the profession in similar localities, giving consideration to the state of the art at the time, it is held that a surgeon unsuccessfully treating a badly sprained ankle by the use of a remedy known and approved by the profession, and which in some instances has achieved remarkable results, is not guilty of malpractice. In an action for malpractice in treating a limb it is not sufficient for the plaintiff to show the facts surrounding the injury to the limb, the subsequent treatment, and the ultimate loss of the limb, but there must be expert testimony tending to show malpractice, or the jury may not draw inferences of the negligence. The question of malpractice in the treatment of a limb is a scientific question and can only be answered by an expert.—Miller vs. Toles, Michigan Supreme Court, 150 N. W. 118.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 5, 1915.

THE OCULO-CARDIAC REFLEX.

THIS phenomenon which was first described in 1908 by Aschner and to which considerable attention has recently been paid consists in a change in the pulse-rate, usually a slowing, and sometimes in a change in the pulse rhythm, following compression of the ocular bulb. The reflex occurs in normal individuals, its path consisting of the fifth nerve, the medulla, and the vagus or sympathetic nerve. Persons showing the usual type of this reflex, in which the vagus forms part of the arc, are designated as vagotonics; persons in whom the sympathetic is part of the reflex arc, react to ocular compression by means of a very slight slowing or an actual increase of the pulse; these individuals are known as sympathicotonics.

Two important clinical studies of the oculo-cardiac reflex have recently appeared. The first of these, by Noel Orlandi, is contributed to *Riforma Medica*, February 27 and March 6 and 13, 1915. He finds that compression of the ocular bulb causes a slowing of the pulse in normal persons to the extent of four to twelve pulsations a minute. The same effect is observed whether the two bulbs are compressed simultaneously or alternately. If compression is repeated three or four times at intervals of a few minutes the reflex disappears. It may show considerable variation in the same individual; on one day light compression of the bulb may cause a reduction of twelve or fourteen in the pulse rate, whereas on the following day similar compression may cause a reduction of only four. In no normal subject has Orlandi ever observed an inversion of the reflex. In two instances, upon the repetition of the test following the production of bradycardia he obtained a transient acceleration of the pulse. Age has an important influence upon the phenomenon. Infants react with a more pronounced bradycardia than do adults; in women the reflex is more marked than in men. On the basis of his observations Orlandi concludes that the oculo-cardiac reflex is a normal phenomenon dependent upon the integrity of the vagus path; apparently, however, the reflex arc is frequently exhausted, for in certain instances the repetition of the stimulus causes the nerve impulse to be propagated along the sympathetic, in which case tachycardia results.

The oculo-cardiac reflex is abolished in chronic aortitis. It is absent in tabes dorsalis with a constancy comparable with the presence of the Argyll-Robertson pupil. The reflex is exaggerated in the vagotonic syndrome and inverted in the sympathicotonic syndrome. It is a useful diagnostic aid in cases of bradycardia and in certain cases of changed conductivity in the atrioventricular path, by showing the integrity or impairment of the extracardiac innervation. In other words, the oculo-cardiac reflex is an index of the functional efficiency of the vagus. But before attributing any diagnostic value to this reflex one must bear in mind the wide limits of its variability under normal conditions, and the fact that the reflex is easily exhausted by repetition.

E. B. Gunson (*British Journal of Children's Diseases*, April, 1915) has studied the oculo-cardiac reflex with the aid of the polygraph in cases of diphtheria and scarlet fever occurring in children under twelve years of age. He notes that the positive vagal effect or slowing of the pulse is an indication of the normal state of the nervous mechanism of the heart, and may be obtained even in the presence of a myocardial degeneration. The reflex is positive in about 92 per cent. of children convalescent from diphtheria and scarlet fever. The negative reflex, that is, one in which there is no slowing or an actual quickening of the pulse, occurs in all cases of so-called "cardiac paralysis" that terminate fatally; in cases that recover the reflex becomes positive when the heart returns to the normal state.

The study of the positive oculo-cardiac reflex in cases of scarlet fever and diphtheria with the aid of the polygraph shows a slowing of the whole pulse, with stoppage of the heart in some cases for as long as four seconds; a production of premature contractions; a reduction of the $a - c$ interval; a production of $c + a$ beats; and, in diphtheria cases only, a complete dissociation of auricles and ventricles. Gunson concludes that the oculo-cardiac reflex is of diagnostic value in confirming the neural origin of the great majority of the post-febrile bradycardias and in differentiating them from cases of auriculoventricular heart block.

THE ABDERHALDEN TEST IN VETERINARY DIAGNOSIS.

THE importance and reliability of the Wassermann reaction demanded that all practitioners familiarize themselves to a certain extent with its theoretical foundation, and one of the effects of its introduction has been the great interest shown in all the biological reactions which have been proposed since that time. Of all these tests the one proposed by Abderhalden, which was claimed to demonstrate defensive ferments in pregnancy and the infectious diseases, has excited the greatest interest and has had the greatest vogue. This reaction has passed through the early period of enthusiastic acceptance and has fallen into the second stage in which its reliability is being assailed on all sides. The literature on the subject is tremendous in amount, but a large percentage of it is of very little value. Now, however, the popular interest is dying out and the field is being occupied by careful scientific workers who are gradually sifting the true from the false and we can hope before long to be able to record the

demonstration of the exact value of the reaction.

Pfeiler, Standfuss, and Roepke have recently published (*Centralbl. f. Bakt.*, 1915, lxxv, 525) the results of a most careful piece of work. They devoted their attention chiefly to animals, investigating the reaction in pregnancy, tuberculosis, swine pest, hog cholera, and glanders, and in pregnancy and cancer in man. Their results were not encouraging. They obtained correct results in 59 per cent. of pregnant and 45 per cent. of non-pregnant cows, in 29 per cent. of non-tuberculous, and 70 per cent. of tuberculous animals. In horses and asses the test agreed with the actual condition in 30 per cent. of the pregnant and 27 per cent. of the non-pregnant animals. One-third of the infected animals gave a correct reaction for swine pest while none of the healthy swine gave a negative reaction. In the human cases tried the results were verified in but 50 per cent. of the cases. Many of the reactions were extremely confusing in that pregnant sera would digest tuberculous tissue and so on. They conclude that ferments which will digest placental or tuberculous tissue may be demonstrated in the serum of pregnant and tuberculous animals. These ferments are not strongly specific, but the serum of a gravid animal may attack tuberculous tissue and vice versa, or entirely different organs, as the liver, may be digested. What is more, the serum of non-pregnant and non-tuberculous animals may also contain these ferments.

In a critical résumé of the literature and of their own work the writers justify their own technique, showing it to be as free from error as possible, but complain that the method, so far from being a simple one, demands more controls than any other biological procedure. They show how the most impossible claims have been made for the application of this method to diagnosis in general, one man giving figures to show that he could thus differentiate between gastric and duodenal ulcer. They question the specificity of the defensive ferments and think that there are many uncontrollable sources of error in the method. In a word they present good reasons for believing that proteolytic ferments are constantly being produced in the blood and that under certain conditions, such as pregnancy, they may be increased, while in other circumstances their action may be interfered with. The test then becomes merely a quantitative one and devoid of diagnostic value. They have apparently not investigated Bronfenbrenner's work in which he attempted to show that the reaction was an autodigestion of the serum, subject to restraint by the presence of antiferments. The article is discouraging and yet not wholly conclusive. The favorable reports should be explained in a more satisfactory manner and many obscure points cleared up.

In the meanwhile it would perhaps be well for physicians not to place too great reliance upon the results of the test even though it be performed in the most reliable laboratories. It is probable that within the next few years it will be entirely discarded or its technique will undergo a decided alteration. Further studies may serve to clear up some of the present obscurities.

THE ACTION OF BENZOL AND ITS HOMOLOGUES.

In 1897 Santesson noted among the symptoms of benzol poisoning in workers exposed to the vapors of this substance a pronounced diminution in white blood cells. Thirteen years later Selling of the Johns Hopkins Hospital reported three cases of benzol poisoning in young girls in whom a marked purpura hemorrhagica was associated with a considerable degree of leucopenia. Two of these patients died and the principal autopsy finding was an intense atrophy of all of the hematopoietic organs. On the basis of the above observations, Koranyi essayed with success the use of benzol as a therapeutic agent in severe cases of leucemia. This experience has been confirmed by a host of others although a number equally as great have reported failures.

Recently Guiberto Bianchi (*Archivio per le Scienze Mediche*, April 1, 1915) has studied the effects upon the blood of benzol and its homologues, toluol, xylol, and cumol. He finds that benzol produces in man as well as in animals a definite leucopenia as well as an almost total atrophy of the leucopoietic apparatus. On the other hand, the other hydrocarbons belonging to the same group and having a saturated side chain, namely, toluol, xylol, and cumol, produce in the rabbit a distinct leucocytosis and a hyperplasia of the leucopoietic elements, more especially of the bone marrow. As regards the effect upon the red blood cells, benzol as well as its homologues causes a moderate diminution amounting to about 20 per cent. The blood platelets behave in a different manner. Under the influence of benzol they disappear almost entirely from the circulation; whereas under the influence of toluol, xylol, and cumol they show a relative and persistent increase in number.

The outstanding feature of the above investigation is the fact that benzol and its homologues have a similar action upon the white blood cells, the leucoblastic elements, and the blood platelets; whereas they have little or no influence upon the red blood cells or erythroblasts. Indirect evidence is also furnished in opposition to the view that the blood platelets are derived genetically from the red blood cells.

Intranational and International Ethics.

Most persons, and especially those who have kept their heads, have been greatly surprised by the conduct of some scientific men in relation to the war in Europe. It has often been said, and has been generally believed, that "science has no country," but the war to a large extent has dissipated this belief. Men eminent in science have revealed their racial antipathies with as much venom and vituperation as have ordinary citizens; indeed, they have often exceeded the latter in their foolish vaporings of hate. In an address delivered before the Columbia University Biochemical Association Dr. S. J. Meltzer inveighs and no doubt rightly against socalled international morality, although he also draws attention to the fact that war unquestionably elevates the intranational morality. It is pointed out that although science lends itself willingly and enthusiastically to the art, if it may be so termed, of destruction, there is one inspiring ex-

ception to this sorrowful rule. It is the utilization of the medical sciences and the behavior of medical men in war. In order to counteract the maleficent influences which permeate and govern international morality, the author of the address suggests that a medical brotherhood be established for the purpose of upholding and accelerating the progress of international morality. Medical men might thus become the standard bearers of civilization and humanity and by their example might guide the less altruistic members of the human race into the paths of international morality. The idea is a great one, and though it may be utopian, it is worthy of initiation by this powerful nation.

The Tuberculosis Preventorium for Children.

The knowledge that tuberculosis is contracted, to a large extent, in early childhood, has considerably altered views as to its prevention.' Dr. Alfred F. Hess in a paper contributed to the *Journal of the American Medical Association*, December 19, 1914, urged the need for segregating young children born of tuberculous parents especially of tuberculous mothers and who react to tuberculin. A move in this direction has been made at the Farmingdale Tuberculosis Preventorium for Children, where more than 180 children are accommodated and recently provision has been made for the reception of infants under one year of age. The children are kept here for an average period of about four months, so that the institution provides for nearly 600 children a year. The scheme of treatment is simple: Plenty of good food, a twenty-four-hour day in the open air, an intimate acquaintanceship with the fields and woods, and practical lessons in cleanliness and hygiene. The work of the Preventorium is intimately connected with that of the many tuberculosis clinics of New York. These clinics under the direction of Dr. James Alexander Miller are the admitting stations of the institution and every six months after release from the Preventorium the children are revisited in the home, and their physical condition and surroundings noted. The principle underlying the establishment of these institutions is eminently rational and in practice, so far, the results have been satisfactory. If tuberculosis is to be stamped out children in whom are the seeds of tuberculosis should be so cared for that they may become strong and not live to be a menace to others. Preventoriums of this character should be founded in all large cities and would doubtless prove to be factors of no mean efficacy in the prevention of tuberculosis.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—The treasurer, Dr. F. F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, reports the receipt of the following contributions for the week ending May 29, 1915:

Dr. J. E. Talley, Philadelphia, Pa.	$10.00
Dr. Leonard W. Ely, Palo Alto, Cal.	5.00
Receipts for the week ending May 29	$15.00
Previously reported receipts	6,993.50
Total receipts	$7,008.50
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20	$3,575.00
1,274 Standard boxes of food at $2.30	2,930.00
213 Standard boxes of food at $2.28	485.64
Total disbursements	6,990.84
Balance	$17.66

Owing to the fact that it is not permissible to ship salt into Belgium, a recent change in the price of the boxes of food from $2.30 to $2.28 caused an error in the report of May 1st. The correction is made in this issue.

Forty American Physicians in Serbia.—The Serbian Government has asked for a total of forty American doctors to fight the typhus and other epidemic diseases. Those now there, under Dr. R. P. Strong, of Harvard, number sixteen.

To Study Typhus in Montenegro.—Dr. H. A. Young sailed from New York last Saturday for Montenegro to study and report on the epidemic of typhus fever which is said to be raging there as well as in the other Balkan States and Austria. He had with him a supply of antityphus vaccine to observe its prophylactic and therapeutic value. He went under the direction of the Montenegran Relief Commission which despatched at the same time a large quantity of hospital supplies. There will probably be an opportunity for another physician, or possibly more, who may wish to work in the same field. Information regarding this may be obtained from the Secretary of the Montenegran Relief Commission, 527 Fifth Avenue, New York City.

The Cancer Campaign in New England.—The Vermont State Medical Society has arranged for a series of clinics and public meetings at Rutland, Burlington, Montpelier, and St. Johnsbury on June 8 to 11 to urge the need of early recognition of and early operation for cancer. Among the speakers will be Dr. Francis Carter Wood, chief of the Crocker Institute; Dr. W. S. Bainbridge, of New York, and Dr. J. M. Wainwright, of Scranton, Pa.

Death Rate in New York.—The Health Department reports 1,492 deaths in the city during the week ending May 22, with a rate of 13.41 per thousand, as against 1,592, with a rate of 14.88, for the corresponding week in 1914.

Rabies in New Jersey.—Under a law passed at the recent session of the New Jersey Legislature, every person knowing of a case of rabies, or of a suspected case, is required to notify the local officials, under penalty of $50 for first offense and $100 for subsequent ones. The local health boards are also empowered to quarantine any suspected animals.

Dr. Edward C. Rosenow of Chicago has been appointed chief of bacteriological research, Mayo Foundation, Rochester, Minn. Dr. Rosenow will begin his new work on July 1.

Homeopathic College and Flower Hospital.—At the commencement exercises of this school, held Wednesday evening of last week sixty-eight diplomas were given. Addresses were made by Dr. Royal S. Copeland, dean of the faculty, and the Rev. J. Henry Jowett, pastor of the Fifth Avenue Presbyterian Church.

Raising the Requirements for Health Inspector.—Dr. S. S. Goldwater, Commissioner of Health, of New York City, has announced that in future all applicants for the position of medical inspector in the department, to which physicians only are eligible, must show at least one year of hospital experience as an interne in addition to the four-year medical course.

A Hundred to One Bet on Golf.—A wealthy resident of Philadelphia has wagered $100,000 to $1,000 that he can defeat a well-known surgeon of that city at a game of golf to be played in the autumn. If he is beaten he agrees to give $100,000 to endow

a chair of surgical research in the University Medical School. The money is to be paid into the treasury of the university before January 1, 1916. If he wins, the surgeon must buy ten $100 shares of the stock of the golf club.

"Twilight Sleep" Unsatisfactory.—The St. Louis City Hospital has discontinued the "twilight sleep" treatment in maternity cases. The treatment has been employed at the hospital since last February. The reason given is that the method has not proved to be entirely satisfactory.

An American Field Hospital for France.—A field hospital, an exact duplicate of those used in the United States Army, has been presented to France by three Americans whose names are not published. The field hospital, in which are twenty tents, has been set up in the Bois de Boulogne. Six of the tents are of large size, being capable, if crowded, of taking care of 200 wounded men.

Gift of a Hospital to Cold Spring.—By the will of Mrs. Julia Lorrilard Butterfield, which has just been admitted to probate, the sum of $50,000 is left to build and equip and $100,000 to endow a general hospital for the village of Cold Spring, N. Y.

Long Island State Hospital for the Insane.—Governor Whitman has signed a legislative appropriation permitting the State Hospital Commission to enter into contracts for additional quarters for patients at the Long Island State Hospital to the amount of $400,000, $200,000 of which is available at once.

The Study of Occupational Diseases.—An opportunity to do research work in the study of occupational diseases is offered in the Occupational Clinic of the Department of Health recently established at 49 Lafayette Street. It is desired to secure the assistance of competent clinical workers in this field. A list of volunteers will therefore be established, from which to draw medical assistants for work in the clinic. In the budget for 1916, request will be made for the establishment of a number of positions for clinic physicians at $300 per annum. The hours of work will be from 10 a. m. to 12 or 12:30 p. m., three days a week. Those to whom this opportunity makes an appeal, should make application in writing to the Director of the Bureau of Preventable Diseases, Department of Health, New York City, stating their clinical experience.

The Crocker Research Fund.—The trustees of Columbia University have appointed the following board of managers of the George Crocker Cancer Research Fund: Dr. T. Matlack Cheesman, Dr. Walter Mendelson, President N. M. Butler, Dean Samuel W. Lambert, Professor Warfield T. Longcope, Professor William G. MacCallum, and Professor Francis Carter Wood.

Tuberculosis and Typhoid Fever in Pennsylvania.—In the campaign against tuberculosis, which ten years ago was the chief cause of death in Pennsylvania, one hundred and fifteen tuberculosis dispensaries have been established and three State sanatoria have been constructed at Mont Alto, Cresson, and Hamburg under the supervision of Dr. Dixon, State Commissioner of Health. In ten years tuberculosis has fallen from first to second place as a cause of death in this State, and the rate is steadily declining year by year. Four thousand deaths and forty thousand illnesses from typhoid fever was the annual toll exacted from Pennsylvania's citizens ten years ago. Today this has been decreased more than 75 per cent., and although in the meantime the population of the State has increased more than a million, the number of deaths from this cause is only one-fourth the former figure. The General Assembly has appropriated $4,632,387 for public health work in the State during the next two years, $2,975,807 of this amount being for the campaign against tuberculosis.

American Association of Medical Jurisprudence. At the third annual meeting of this association held at Long Beach, L. I., on May 22, the following officers were elected: *President*, D. Percy Hickling, M.D., Washington, D. C.; *Vice-Presidents*, Oscar W. Ehrhorn, Esq., New York; Philip Coombs Knapp, M.D., Boston; *Secretary*, Charles P. Blainey, Esq., New York; *Treasurer*, John C. West, Esq., New York.; *Members of the Council*, Drs. Reynold Webb Wilcox, New York, and Donald D. MacTaggart, McGill University, Montreal.

Examination of Dentists for the U. S. Army.—The Surgeon General of the Army announces that examinations for the appointment of acting dental surgeons will be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Missouri; Fort Logan, Colorado, and Fort McDowell, California, on Monday, October 18, 1915. Application blanks and full information concerning these examinations can be procured by addressing the "Surgeon General, U. S. Army, Washington, D. C." The applicant must be a citizen of the United States, between 21 and 27 years of age, and a graduate of a dental school legally authorized to confer the degree of D.D.S. Acting dental surgeons are employed under a three years' contract, at the rate of $150 per month. They are entitled to traveling allowances in obeying their first orders, in changing stations, and in returning to their homes at termination of service. They also have a privilege of purchasing certain supplies at the army commissary. After three years service, if found qualified, they are promoted to the grade of dental surgeon with the rank of first lieutenant, and receive thereafter the pay and allowances appertaining to that rank. Applications must be in the possession of the Surgeon General at least two weeks before the date of examination. There will be 12 vacancies to be filled.

Obituary Notes.—Dr. SIGISMUND COHN of New York, a graduate of the University of Berlin, Germany, in 1888, and a member of the American Medical Association, the American Electro-Therapeutic Association, the New York State and County Medical Societies, and the German Medical Society, died at his home on May 18, aged 54 years.

Dr. ARTHUR F. BISSELL of New York, a graduate of the College of Physicians and Surgeons, New York, in 1847, died in Baltimore, Md., after a short illness, on April 28, aged 88 years.

Dr. JAMES SPENCE of Toronto, Can., a graduate of the Toronto School of Medicine in 1884, died at his home after a short illness on April 19, aged 61 years.

Dr. ARTHUR ERNEST GALE of Chestnut Hill, Mass., a graduate of the University of Michigan, Department of Medicine and Surgery, Ann Arbor, in 1898, died at his home, following a nervous breakdown, on April 27, urged 46 years.

Dr. EMORY LINCOLN WHITE of Somersville, Mass., a graduate of the Harvard University Medical College, Boston, in 1872, and a member of the Massachusetts and Middlesex South District Medical Societies, died suddenly on April 29, aged 67 years.

Dr. Jay W. Seaver of New Haven, Conn., a graduate of the Yale University Medical School, New Haven, in 1885, a member of the Connecticut State and New Haven County Medical Societies, and for twenty years director of the Yale gymnasium, died at Berkeley, Cal., on May 6, aged 60 years.

Dr. William Fred Hutchinson of Minneapolis, Minn., a graduate of the Indiana College of Medicine, Indianapolis, in 1885, died at his home on April 24, aged 74 years.

Dr. Gardner C. Hill of Keene, N. H., a graduate of the Castleton (Vt.) Medical College in 1856, for seven years city physician of Keene, and county physician for the same length of time, a member of the Board of Education for thirty-three years, and a member of the American Medical Association and the New Hampshire and Cheshire County Medical Societies, died at his home on April 30, aged 86 years.

Dr. Franklin C. Clark of Providence, R. I., a graduate of the College of Physicians and Surgeons, New York, in 1872, died at his home, from apoplexy, on April 26, aged 67 years.

Dr. Hugh R. Rutledge of Greenville, S. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1846, and a surgeon in the United States Army during the Mexican War, died at his home on May 6, aged 93 years.

Dr. William Winslow Ogden of Toronto, Ont., a graduate of the Toronto School of Medicine in 1860, and for many years a member of the Faculty of Medicine of Toronto University, died suddenly at his home on April 22, aged 78 years.

Dr. George Jerrald Potts of Clinton, Ont., a graduate of Victoria University, Medical Department, Toronto, in 1867, formerly of Toronto, Ont., and Portland, Ore., a surgeon-major in the United States Army during the Civil War, died at his home on April 22, aged 79 years.

Dr. George F. Horn died at Darby, Pa., on April 29 at the age of 23 years. He was graduated from Jefferson Medical College in the class of 1914, and he had served as intern in Cooper Hospital, Camden, N. J.

Dr. Josiah E. Bauman of Telford, Pa., died at St. Agnes Hospital, Philadelphia, on April 30, at the age of 69 years, as the result of injuries received in being struck by a railroad train. He was graduated from Bellevue Hospital Medical College of New York City in the class of 1867.

Dr. Thomas Shriner died of heart disease at Philadelphia on May 2 at the age of 72 years. He was graduated from Jefferson Medical College in the class of 1869. He was Secretary of the Board of Directors of the Northern Dispensary.

Dr. Peter S. Donnellan died during the first week of May in London, England. He was graduated from the Royal College of Physicians and Surgeons of Ireland in the class of 1886 and from the Medico-Chirurgical College of Philadelphia in the class of 1894. He resided for a number of years in the city of Philadelphia, and he was a member of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. Niles H. Shearer died at York, Pa., on May 5 at the age of 73 years. He was graduated from the University of Maryland School of Medicine in the class of 1866.

Dr. George Cornelius Bailey of Hartford, Conn., a graduate of the New York University Medical College, New York, in 1886, president of the medical staff of St. Francis' Hospital, Hartford, and a member of the Connecticut State and Hartford County Medical Societies, died at his home, from pneumonia, after a short illness, on May 10, aged 49 years.

Dr. Robert A. Stewart of Phillipsburg, N. J., a graduate of the New York University Medical College, New York, in 1878, and a former Town Councilman of Phillipsburg, died at his home on May 14, aged 64 years.

Dr. Charles N. Shellenberger of Colorado Springs, Col., a graduate of the Pulte Medical College, Cincinnati, O., in 1878, died on April 29, from heart disease, aged 59 years.

Dr. William L. McCandless of Pinckneyville, Ill., a graduate of the Rush Medical College, Chicago, in 1872, and a member of the Illinois State and Perry County Medical Society, died at St. John's Hospital, St. Louis, from pneumonia, on May 2, aged 66 years.

Dr. Seth Wight Kelley of Woburn, Mass., a graduate of the Harvard University Medical School, Boston, in 1874, the first president of the Choate Memorial Hospital, chairman of the Board of Health of Woburn, and a member of the Massachusetts and Middlesex East District Medical Societies, died at his home, suddenly, on May 5, aged 67 years.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

EPIDEMIC OF CEREBROSPINAL FEVER—DISCUSSION ON IT IN DUBLIN AND LONDON—CANCER FUND—OBITUARY.

London, May 14, 1915.

I mentioned a fortnight ago that cerebrospinal meningitis was occupying much attention; it has continued to do so, and that naturally enough considering the late outbreak in Ireland. More than one of our societies have been discussing it, and as it was most prevalent in the military district of Dublin, and the Royal Academy of Ireland meeting is held there, its discussion may claim first notice. Dr. G. E. Nesbitt began by saying 89 cases had been notified to the local government board since January, the mortality rate being 50 per cent.; so far as he had been able to secure figures. No source of infection had been traced and no two cases occurred in the same building. Early diagnosis was most important, if necessary by lumbar puncture. In military practice great search was made for carriers, but he thought in civil practice in Ireland this was not sufficiently attended to.

Dr. McWeeney suggested that cases of this disease were, in fact, instances of an epidemic catarrhal affection with a meningitis complication which occurred in a few cases. The recent discovery of the diplococcus in the blood threw light on the puzzle as to how it got from the pharynx into the cranial cavity. In a suspected case he advised examination of blood from the arm. For treatment he urged early lumbar puncture—easy enough if a proper needle was employed. The tendency of this bacillus to die off was extraordinary, and it might be due to a fulminating character of certain cases that difficulties were found in procuring the organisms.

Sir John Moore compared the statistics with those of whoopingcough which, notwithstanding its enormous mortality in infancy, was not notifiable. He was glad Dr. Nesbitt had not mentioned that misleading term "spotted fever," and asked if any

of his cases had been marked by a purpuric eruption.

Dr. A. J. Matson had attended two cases; one was so spotted that at first it looked like typhus; the other had no spots at all; both recovered.

Dr. Marshall had six cases, two of them from outside the city and so not notifiable in the Dublin district. All died except one. All hospital cases had spinal injections, but with little success except in the one case. In a prolonged case in a child he tried fibrolysin injections. Rapid improvement followed and patient was discharged, but came back in a fortnight stone deaf. In another case of a child, nearly blind, fibrolysin was tried and sight returned. No connection with any previous cases could be traced, though close investigation was made.

In London the discussion was held by the Harveian Society. It was opened by Dr. Batten, who remarked that epidemics of the disease had occurred in Europe and America during the last century; one in England in 1907-8. But it was generally with us as an endemic with seasonal variations. Flexner had inoculated the disease in monkeys and saved those so affected by intrathecal injection of an immune serum obtained from a horse. He said serum treatment greatly reduced the mortality, but there were several strains of the meningococci so a serum should be as polyvalent as possible. Sophian advocated the gravitation method of injecting, but the ordinary method was quite safe and easily regulated.

Dr. D. Nabarro gave an account of the bacteriology of the disease from the discovery of the meningococcus by Weichselbaum in 1887 down to the recent epidemic, describing the morphology and biology of the organism. Also the chemistry and cytology of the cerebrospinal fluid and its alterations in inflammation and those produced by the injection of serum. He then showed a number of lantern slides illustrating his statements.

Dr. Arkwright dealt with the disease in three periods: (1) before discovery of the organism; (2) from the isolation of the diplococcus intracellularis in 1887; (3) from the discovery of the organism in the nasopharynx of a patient and one carrier by Albrecht and Gohn in 1901. Several observers have found that though carriers are usually free from the organism in two or three weeks, in a few it remains for much longer. It has been seen from two to seven months, and Mayer relates one case in which he thought it had probably continued two years. As to prevention early detention and isolation is most important and all carriers should be separated from the outbreak of an epidemic. Overcrowding is most dangerous. Large bodies of troops should be divided into smaller units. Prophylactic vaccination is as yet uncertain.

Dr. Colebrook regarded treatment by vaccines not as alternative to intrathecal injection, but rather as complementary thereto. It was most important to exploit the vaccine very early, for choice on the second or third day. Probably nothing could help fulminating cases which ran their course within 24 hours. It might even do harm to inoculate a person so suddenly overwhelmed with the infection. An autogenous vaccine was preferable on account of the different reactions toward sera of various origins, but during an epidemic resort to a polyvalent stock vaccine might well be resorted to. Such a vaccine has been prepared of late at St. Mary's Hospital. He had had best results with doses of two to five million cocci in children and 7½ to 20 millions in adults. These small doses can be repeated every third or fourth day. He had used the stock vaccine described as a prophylactic and had hoped to get rid of the microbe from the pharynx of carriers, but this had not happened with any regularity. He had used doses up to 2000 millions, subcutaneously, and 300 millions intravenously. There was seldom any reaction except after intravenous doses.

Dr. Armstrong related some facts of an outbreak of 94 cases between January 24 and February 8. A baby of one year exposed to infection died on the second day. An infection of a roseolar type was seen on some cases of relapse, mostly on abdomen, arms, and legs; in one case general, like measles; in another resembling scarlatina. Several had herpes labialis and other erythematous patches. In one fatal case the microbe was found in both the spinal fluid and the blood. All cases of relapse with rashes had vomiting of straw-colored fluid.

Dr. John Jefferson, honorary medical officer of Rochdale Infirmary, has died at the age of 59. Qualifying at the College of Surgeons in 1879, he afterward graduated at the University of London, taking M.B. and B.S. in 1885 and proceeding to M.D. in 1887. He was at one time resident at Manila, Philippine Islands, where he was surgeon to the British Consulate. He wrote a work on "Men and Manners in Manila," another entitled "The Anglo-Saxon and the Spaniard; a Plea for Cosmopolitanism."

Walter Samuel Simpson, senior medical officer of the Worthing Hospital and Lowering College and well known for work in relation to education, has also died. He qualified in London in 1874.

SANITARY CONDITIONS IN NORTHEASTERN BORNEO.

(From Our Special Correspondent.)

DIVISION OF BORNEO—POPULATION—MEDICAL ADMINISTRATION—HOSPITALS—PREVALENT DISEASES—PROBABLE RESULTS OF IMPROVED SANITATION.

JESSELTON, BORNEO, March 15, 1915.

THERE is very little known by the outside world of conditions in Borneo, and still less about its medical and sanitary status. It may not be amiss therefore to give a brief description of what is being done by the medical profession in that isolated country to combat the diseases that afflict man.

The equator passes through Borneo, and it lies between the lower end of the Philippine Archipelago and the Malaysian peninsula, and to the north of Java. Borneo has also the distinction of being the world's largest island. It is under the jurisdiction of various forms of government. Roughly stated, the lower three-fourths belongs to Holland, and is administered as a Dutch colony more or less directly from Java. The northern fourth is more or less under British control and embraces Sarawak, which is governed by the Rajah of Sarawak, who is a Britisher. Brunei is east of Sarawak, and is governed by a Sultan who has a British advisor. Then comes a small section still more easterly, known as Labuan, which is administered as a dependency of the Straits Settlements. The northeastern part is administered by the British North Borneo Company, which is a British chartered company with sovereign powers much the same as the old Hudson Bay Company and similar organizations. It is of the

northeastern territory that this letter will deal. It may be readily reached from Singapore by a two and one-half day journey, or in a half day from the American port of Jolo. Regular steamers may be had from either of these ports at least every ten days, and, in addition, there are other steamers that make occasional calls. British North Borneo has two capitals, one Sandakan, which is used during a part of the year, and the other Jesselton, which is used during the remaining period. There are scarcely any roads or trails, and the interior is practically unsettled so far as Europeans are concerned. Expeditions into the interior have been confined almost entirely to the territory which lies immediate adjacent to and which may be reached by ascending the rivers, of which there are many.

The population of British North Borneo is estimated at 200,000 natives, 300 Europeans, and about 20,000 Chinese. As one of the primary objects of the company is to earn dividends, one would not expect to find the defenses against and the means of treating disease as adequate as in a country directly administered by a regular government. It is, therefore, interesting to note that for the calendar year 1914 the sum of 72,000 dollars (or $41,040 U. S. currency), or about 20 cents per capita; the previous year 57,858.45 dollars (or $32,979.21 U. S. currency) was spent. It is understood that the increased amount available in 1914 was the result of an investigation and report of a high ranking British medical officer.

The medical service consists of a Principal Civil Medical Officer, who has general charge of the work. Under him there are two European medical officers who are located at Sandakan and Jesselton respectively. There is an Indian physician at Kudat. In addition fees are paid to private doctors who are called upon from time to time for special service. There is a European nurse at the hospital at Jesselton, and one is proposed for Sandakan. A few apothecaries and a few hospital attendants who appear to be poorly trained, and an odd sanitary inspector or two complete the service.

A hospital of about thirty beds is maintained at Sandakan and one at Jesselton. There are smaller ones at Kudat, Tawao, and Beaufort. Sick wards are also provided at the jails. None of the hospitals has a proper operating room, but these are now in course of construction. There is also an outpatient service attached to these hospitals, at which 19,485 cases were treated during 1913. Simple remedies are distributed at a number of stations. The large rubber and tobacco estates employ physicians who look after the medical needs of the plantation employees as well as the primal sanitary necessities. All of these estates are under the general supervision of the government medical service.

The physician on duty at Sandakan is expected to look after the hospital, the insane asylum, and the leper colony. All the medical officers are required to act as health officers in the communities in which they are stationed. This includes the inspection of incoming vessels, the management of quarantine, such laboratory work as may be required by the hospitals, the analyses of food imports, meat inspection at the slaughterhouses (only beef is inspected), and such other work as falls to the lot of the municipal health officer in other countries. The hospital facilities for Europeans are very limited, and as the latter are required to pay 1 per cent. of their annual salary per day for hospital service, it practically means that the medical officer must visit them in their houses.

From the foregoing it will be apparent that the medical man in the employ of the North Borneo Company has many and varied duties to perform and of necessity has not the time to make much of a success of any of them.

Sections that have not been infected with the diseases brought in by the Chinese and other immigration seem fairly healthy. But in districts which have been so infected the death rate is high. Smallpox and other diseases and headhunting are rapidly eliminating the native dajaks, and this loss in the labor supply constantly stimulates greater immigration. The death rate for Sandakan is given at 36.02 per thousand per annum, but it is admitted that this does not include all of the deaths.

Cholera occurs frequently and usually spreads quite generally along the main routes of travel. In Sandakan 80 deaths from cholera were reported for 1913. At present the disease is again reported present along the east coast, and to be spreading. It is quite likely that it has spread to the Sulu group of the Philippines.

Malaria is the big problem and prevails throughout the country. Jesselton has an evil reputation in this respect. All types are said to occur, but the subtertian is the most frequent variety. Bacillary dysentery is infrequent but amebic dysentery is common.

There is practically no attempt made to dispose of human excrement in a safe manner. Most of the native population builds its houses over tidal flats and the nightsoil on these is washed about and furnishes food for the crabs, which are in turn used for human food. Contrary to the usual custom in Oriental countries, there is little evidence that nightsoil is used to fertilize vegetables.

Neat buildings well adapted for the purpose have just been completed at Sandakan for housing the insane. A new leper colony has been built on Berhala Island at the entrance of Sandakan Harbor. There are thirty-five lepers confined there. No attempt is made to isolate all the lepers in the territory, and at least an equal number are still at large, so that there is no opportunity to draw conclusions as to the effectiveness of isolation in reducing the incidence of the disease.

In conclusion, it may be stated that there is much reason to believe that by the application of simple sanitary measures much could be done to make the country healthier than at present. Systematic vaccination, safe disposal of human excrement, artesian wells, undermilled rice, anti-mosquito measures, hookworm treatment, and so forth would be sure to reduce the death rate within a short period.

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 20, 1915.

1. "Do's" and "Don'ts" in the Diagnosis of Early Pulmonary Tuberculosis in Adults and Children. J. B. Hawes, 2d.
2. A Study of 260 Cases of Acute Appendicitis at the Massachusetts General Hospital. L. Davis.
3. Obesity and Malnutrition. Wm. E. Preble.
4. The Relation of Alcohol to Accidents. W. J. Brickley.
5. Acidosis in Children. A. A. Howard.
6. The Parenteral Administration of Horse Serum in Cases of Horse Asthma. J. L. Goodale.
7. Gangrenous Epiploic Appendix. Report of a Case. A. R. Kimpton.

1. Diagnosis of Early Pulmonary Tuberculosis.—J. B. Hawes, 2d, calls attention among other things to the importance of a subnormal temperature, accompanied

by a high pulse, which often constitutes an early sign in tuberculosis. Early cases of exophthalmic goiter may simulate early pulmonary tuberculosis in every way. Practically all pleurisies are tuberculous. In children one should distinguish the difference between tuberculous infection and tuberculous disease. Most individuals at some time in their life harbor a latent tuberculous focus.

2. Appendicitis.—L. Davis analyzes his experience in the treatment of 260 cases of appendicitis at the Massachusetts General Hospital. The study of this series of cases has brought out nothing new. It merely emphasizes certain points already familiar, but which perhaps cannot be too often reiterated. The great factor in the mortality of acute appendicitis is delay; delay in making the diagnosis; also to a less degree, delay after the diagnosis is made. A second factor is the practice of giving a purge during the acute attack. There is still need of preaching these doctrines to the laity and the profession. A temperature above 102.5° in acute appendicitis is distinctly rare. In the few cases in which it occurs it is of bad prognostic import. The Ochsner treatment has a distinct field of usefulness. The operation in cases involving peritonitis should be directed to removal of the primary focus if accessible, and to securing of drainage with as little disturbance as possible of the general peritoneal cavity. The use of rubber tissue or gutta-percha wicks, rectal saline, Fowler's position, the avoidance of catharsis by mouth, and the leaving of wicks undisturbed, have simplified and safeguarded the after-treatment to an enormous extent.

4. Relation of Alcohol to Accidents.—W. J. Brickley, as the resident surgeon of a Relief Station, treating 40,000 patients each year, may speak with authority upon this subject. His experience is summarized as follows: Alcohol causes accidents, obscures the diagnosis, increases the danger of infection at the time of the accident, prevents adequate treatment, increases the danger of intercurrent complications, retards the process of repair, gives a poorer end result, and increases the mortality in accidents.

5. Acidosis in Children.—A. A. Howard concludes that acidosis in children is of frequent occurrence. Recurrent or cyclic vomiting, as distinguished by the absence of predisposing factors is extremely rare. Cases apparently of this type should be subjected to careful study for possible concealed pathological conditions. The common clinical type of acidosis is what might be termed a complicating acidosis with predisposing factors. Clinically there are numerous conditions which seem capable of acting as predisposing etiological factors in the production of an acidosis. This should be considered a serious condition, the early recognition and treatment of which is of practical clinical importance. Prophylactic measures are indicated and practical. A more thorough understanding of the biological-chemical processes producing acidosis should prove of real value in the scientific treatment of the disease—which should be considered of definite clinical importance to both general practitioner and pediatrician.

6. Horse Serum Treatment of Horse Asthma.—J. L. Goodale records his experience with the parenteral administration of horse serum in the treatment of horse asthma. A case with a high initial sensitization to horse serum acquired in the course of thirty injections of progressively increasing doses of serum a determinable increase in resistance. This resistance is characterized by failure of the serum to excite hyperemia and itching when applied to the mucous membranes or to a scratch of the skin, although edema can still be produced by hypodermic injection.

New York Medical Journal.

May 22, 1915.

1. The Duty of the Medical Profession in Regard to Street Conditions. B. Sachs.
2. One Hundred Years Ago. J. M. Swan.
3. Whooping Cough. P. Luttinger.
4. Optic Neuritis Concurrent with Whooping Cough. E. S. Clouting.
5. Forceps. S. S. Arluck and J. Girsdansky.
6. Rectal Polyp in Childhood. H. Neuhof.
7. One Thousand Submucous Resections of the Nasal Septum. L. Fisher.
8. The Military Surgeon on the Firing Line. P. J. H. Farrell.
9. Case of Infantile Facial Eczema Cured by Reduction of Carbohydrates. C. N. Sturtevant.
10. Congenital Diverticulum of the Urinary Bladder in Infants and Children. J. M. Wallfield.
11. Water as a Physiological Tonic. A. C. Geyser.

1. The Medical Profession and Street Conditions.—B. Sachs states that there are two reasons why the problem of cleaning the streets is a baffling one: (1) The people are generally indifferent to the appearance of the streets and (2) the problem of street cleaning concerns many departments of the city government, which should work in co-operation. Methods should be devised by which street sweeping may be done in dustless fashion. The open garbage and the open ash can are a distinct menace to the community. Covered ash carts and covered garbage carts should be provided. It is most important that the public should be aroused from their indifference to outdoor cleanliness.

3. Vaccine Treatment of Pertussis.—P. Luttinger presents a tentative report on the curative and prophylactic value of this treatment. Pertussis stock vaccines as prepared by the Bureau of Laboratories of the Department of Health of New York City seem to have a prophylactic value when given in high doses. These vaccines seem to have shortened the duration and severity of the paroxysmal stage; the average duration of the whoop being twenty-five days, compared to forty days of those treated with drugs.

5. Forceps.—S. S. Arluck and J. Girsdansky emphasize the following points: The total percentage of forceps (5.5 per cent.), used in a series of 6,000 cases, is a very low one. They ascribe this to the fact that the patients were given a very strenuous test of labor. The high forceps has been practically eliminated as an operative procedure, thereby materially decreasing the infant mortality. Cæsarean section and pubiotomy have proved admirable substitutes, and with more experience and improved technique are continually giving better results. Pituitary extract has proved of extreme value in cases of dystocia due to dry labor—posterior or parietal positions, etc., where no disproportion exists, as is shown in the statistics of the last two years compared with those of previous years. In a series of "twilight" cases, small compared to the grand total, the use of forceps was markedly increased from 4.5 to 9 per cent. In order that one may practise obstetrics scientifically, the cases must be individualized, so that proper treatment may be instituted to meet certain definite conditions. Furthermore, due consideration must be given to patients suffering from relative disproportion between fetal head and pelvis, and a proper test of labor permitted before interference is decided upon in order to conserve the best interests of both mother and child.

6. Rectal Polyp in Childhood.—H. Neuhof states that the question of the relation of rectal polpy to rectal prolapse in children has received very scant attention; widely divergent opinions are held by different observers. Rectal polypi were found in ten of thirty-three cases of prolapse; this does not include the transient prolapse of infancy. The removal of the polypi resulted in permanent cure of the prolapses. Visible prolapse does not result when polypi protrude from the anus. Rectal prolapse associated with blood and mucus in

the stool indicates a rectal polyp almost invariably; prolapse without blood and mucus in the stool excludes a rectal polyp almost invariably. Rectal polypi are readily overlooked; special methods of examination for their detection are described. A rectal polyp should not be removed by avulsion but invariably by ligation through the base of its pedicle.

Journal of the American Medical Association.

May 22, 1915.

1. Analysis and Cost of Ready-to-Serve Foods. An Introduction by Graham Lusk.
2. Scopolamine-Morphine Treatment in Labor. A Critical Analysis of Sixty Cases. J. L. Baer.
3. Scopolamine and Narcophine Seminarcosis During Labor. W. E. Libby.
4. Mechanics and Pathology of Tuberculous Hip-Disease in Their Relation to Its Diagnosis and Treatment. P. W. Nathan.
5. Benzol in Leukemia. F. H. Smith.
6. Gastrointestinal Studies. V. The Protein Curve of Gastric Digestion in Normal and Pathological Cases. J. A. Clarke, Jr., and M. E. Rehfuss.
7. The Diagnosis and Treatment of Infectious Endocarditis. G. E. Ebright.
8. Intestinal Obstruction Due to Sigmoid Valvulus with Report of a Case Occurring in a Child. A. McGlannan.
9. Gastric and Duodenal Ulcer. The Influence of Operative Procedure on Gastric Motility and Secretion. W. W. Humburge and J. J. Leach.
10. Some Surgical Experience Among Indians of Alaska. E. Krulish.
11. Extension of the Limits of Operability of Recurrent Carcinoma of the Breast.
12. Fracture of the Patella. An Original Method of Retaining the Fragments in Apposition. J. A. Wyeth.
13. A New Bone Clamp. R. E. Farr.
14. Tubes for Intraurethral Medication. M. Goldman.
15. A New Method of Ether Administration. J. W. Snyder.
16. An Actual Pocket Mercurial Sphygmomanometer. H. Hamilton.
17. Adjustable Splint for Fractures About the Elbow Joint—Convenient Stand for the Diagnosis of Pes Planus. W. E. Hartshorn.
18. A Simple Colorimeter for Use in the Phenolsulphonephthalein Test for Kidney Function. J. S. Brotherhood.
19. A Controller of the Tongue and Palate During General Anesthesia. J. E. Lumbard.

2. Scopolamine-Morphine Treatment in Labor.—J. L. Baer concludes from his experience that the prolongation of labor, the increase in the number of fetal asphyxias, the excessive thirst and intense headaches that are so distressing, the difficult control of patients and avoidance of infection by soiling of the genitals, the more frequent postpartum hemorrhages, the blurred vision, the ghastly deliriums persisting far into the puerperium, the inability to recognize the onset of the second stage unless by risk of more frequent examinations, the masking of early symptoms such as antepartum hemorrhage, rupture of the uterus and even eclampsia, the violence and uncertainty of the whole treatment, the general bad impression given to one's patients who are being taught to approach the "horrors of labor" in fear and trembling, constitute so severe an arraignment of this treatment of labor cases that the author feels compelled to condemn it, leaving open the question of the merits of a single dose of morphine and scopolamine in those cases in which morphine and atropine have hitherto been given.

3. Scopolamine-Narcophine Seminarcosis. — W. E. Libby following the method of Siegel, who has used narcophine as a substitute for morphine and thinks it has less effect on the child, has tried this drug in thirty-five cases, giving it after the commencement of labor and the cervical dilatation had progressed for from two to four centimeters or more. Siegel's schedule, if implicitly followed, sometimes seemed to cause the cessation of uterine contractions or asphyxiation of the infant. Consequently the author has limited the use of narcophine to the initial dose unless the effects of that dose were insufficient or wore off. Except in five cases chloroform inhalations were employed toward the conclusion of the second stage of labor and he believes that aseptic measures can be better carried out when this is done. The prolongation of labor due to the use of scopolamine has been admitted and this may be three or four hours in primiparæ and one hour in multiparæ. The contractions may or may not be impaired in the first stage of labor and unless frequent examinations are made it becomes difficult to determine when the first stage ends. As a rule patients who have been quiet become restless when the second stage begins. Pituitary extract does not stimulate patients in seminarcosis to employ their abdominal muscles and it was effective only in three out of nine cases in which it was administered. Forceps were indicated in some cases in which it failed and the frequency of forceps operation was increased. The narcosis passed away in from two to four hours. The establishment of respiration in the newborn infant is frequently delayed. It is important to make the infant cry as soon as it is born and the infant should be carefully watched for at least an hour. After the first day the effect of scopolamine and narcophine may be disregarded. The difficulty occasionally encountered in resuscitating the infant is the chief objection to the use of scopolamine and an opiate during labor. As far as the effects on the mother are concerned, the author is inclined to favor its use. He has seen no bad effects in this way but he had taken care to reject cases in which complications were anticipated. Physicians must recognize that the method is not perfect. Even slight pelvic contraction should contraindicate it, and the primary inertia not infrequent in elderly primaparæ is a contraindication. For the present it would seem advisable to employ the method only when a normal confinement can be anticipated. An intimate knowledge of obstetrics is essential and hospital facilities are desirable.

4. Tuberculous Hip Disease.—P. W. Nathan states that tuberculosis of the hip is a destructive disease, which practically always leads to marked impairment of the joint structures. So far as one knows, there is no treatment which prevents or limits the destructive process and there is, therefore, no method that prevents permanent impairment of joint function. Such being the case, it must be admitted that there is no adequate treatment for hip-disease. For the present, one must be content to choose the method which will give the patient the strongest limb to stand and walk on, irrespective of joint motion or shortening. The treatment with the short plaster-of-paris spica, with all its shortcomings, is better than any other heretofore in use, provided it is scientifically carried out.

7. Infectious Endocarditis.—G. E. Ebright notes that this condition may be secondary to rheumatism, tonsillitis, pyorrhea, septic endometritis, and other disorders, but there are many instances in which no discernible disturbance has preceded the involvement of the endocardium. In the chronic infectious type of endocarditis the beginning lesions are subendothelial bacterial embolisms. The valve leaflets being relatively poor in vascularity, the bacteria may grow faster than the leucocytes are able to destroy them, and there result hemorrhage and the formation of vegetations going on to ulceration. Resolution may, however, occur before advanced vegetations are formed, and in fortunate cases, though the physical signs are marked, there may be recovery without scar formation impairing the valve function. Leucocytosis is not found as a rule before the stage of ulceration, and may not be present when large numbers of bacteria are in the blood. Simple endocarditis differs only in degree from the malignant form and may become malignant. There is much encouragement for treatment in the case of well-marked cardiac inflammation in which ulceration has not yet taken place and bacteria have not appeared in the blood stream. Several cases of this type are reported as illustrations. In none of them was there any leucocytosis

and in none more than a slight fever. The pulse was variable. As regards treatment, the author lays most stress on absolute rest. It is advisable also to regulate the diet so as to prevent distention of the stomach and colon and eliminate as much as possible a rise in blood pressure. The use of the ice bag is also mentioned. The rest should be as nearly absolute as possible, and the patient should see very few persons. When the inflammation has disappeared and myocardial irritability has sufficiently subsided, massage and passive exercise may be of use. A safe minimum of rest in bed is three months. The use of vaccines is not unattended with danger and cardiac stimulants are unnecessary as long as the proper amount of cardiac work is performed.

The Lancet.

May 15, 1915.

1. Some Infections of the Tonsils. F. C. Pybus.
2. A Case of Peritheliома of the Superior Maxilla and Ethmoid. G. H. L. Whale.
3. Spinal Anesthesia in 43 Suprapubic Prostatectomies. H M. Page.
4. A Note on Tuberculin Administration and Graduated Labor. E. Taunton.
5. Report on a Few Cases Illustrating the Removal of Foreign Bodies on the *X*-Ray Table. J. R. Caldwell.
6. Chemistry of Rice-Polishings. H. Fraser and A. T. Stanton.
7. A Bolt for the Treatment of Fractures. C. Wallace.

1. Infections of the Tonsils.—F. C. Pybus states that the tonsils may act as lymphatic glands for certain regions of the nasal cavities. They act also as a protection against the constant presence of organisms in this part of the pharynx—either in the mouth, lacunæ, or tonsil substance—should they reach it through some breach in the surface. It is also probable that in the exercise of this phagocytosis they confer some immunity against the organisms inhabiting this region. The tonsils are subject to the presence of organisms during almost the whole life, both on their surface and in the lacunæ which penetrate their substance. Under normal conditions no active invasion is apparent, but under the influence of local injury or lowered resistance infection takes place with effects of very varying magnitude. The tonsil is frequently the seat of tuberculosis; its situation is such that any bacteria entering the mouth and being swallowed pass over its surface and may gain entrance to the crypts, whether dust-borne in the air or in the food. The tonsil is readily infected with either form of tubercle bacilli, investigations showing that the bovine type is most frequently present in children.

4. Tuberculin Administration and Graduated Labor.—E. Taunton concludes from his experience that the administration of tuberculin to selected phthisical workers does not shorten but, on the contrary, lengthens, the duration of treatment. The use of tuberculin does not increase the ability to do work. It appears not only to delay the improvement in working ability, but also diminishes the ultimate ability achieved by a more prolonged course of treatment. So far as the gain in weight and the rate of gain enable one to judge, the administration of tuberculin is detrimental to the nutrition of patients to whom it is given under these conditions. The after-results in fitting patients to do their work after leaving the hospital in these cases are less favorable where tuberculin has been used than in the cases where it has not.

6. Chemistry of Rice-Polishings.—H. Fraser and A. T. Stanton find that the existence of "vitamine" in the sense that Funk has employed that word is disproven. The word itself is not objected to and may be applied to the substance when it is isolated, but the premature publication of results which, on the findings of the writer himself, are subsequently shown to be erroneous creates confusion and retards progress. At the present day the problem is no nearer solution than it was four years ago, nor is progress likely to be made until improvements are effected in the methods employed by chemists in this work; those now employed are crude and imperfect.

British Medical Journal.

May 15, 1915.

1. Cases of Nervous and Mental Shock Observed in the Base Hospitals in France. W. Aldren Turner.
2. Epidemic Cerebrospinal Fever: its Recognition and Treatment. A. Lundie, D. J. Thomas, S. Fleming, and P. W. Maclagan.
3. Eight Cases of Epidemic Cerebrospinal Meningitis in Infants. T. Ashby.
4. Aluminum Skeleton Splints in the Treatment of Compound Fractures. C. M. Page.
5. The Treatment of Malignant Disease by *X*-Rays; its Present Limitations, and the Lines Upon Which They May Be Overcome. J. A. Codd.
6. Malignant Edema. F. McKelvey Bell.
7. A Case of Urinary Amœbiasis. H. J. Walton.
8. Chronic Intestinal Stasis Associated with Lane's Heal Kink and Hypothyroidism. C. Mayer.
9. A Case of Lacrymal Concretions. G. Maxted.
10. Excessive Reaction Following the Use of Tincture of Iodine. W. J. Rutherfurd.

1. Nervous Shock in War.—W. A. Turner has studied the early symptoms of nervous and mental shock, from whatever cause, during a period of three months at the base hospitals in France. He distinguishes three groups of cases. In the first there is a definite type of mental shock in which the symptoms are essentially of a psychical character. In the second group there is a spinal type characterized by a limitation of the symptoms to the extremities and usually to the lower limbs. In a third group the symptoms are referred more particularly to the special senses. In this class the remarkable cases of blindness or amblyopia, deafness and deafmutism have been included. More specialized symptoms, such as stammering or hesitation of speech, local palsies and tic-like movements, have been included in a fourth group. In the more severe class of case the patient is entirely unconscious of his surroundings. All the usual tests applied with the object of arresting attention—such as throwing a bright light on to the eyes, pinching the skin, or clapping the hands close to the ears—fail to provoke a response. The deep reflexes, however, are normal or brisk, and the plantar response is of the flexor type. The pupillary light reflex is frequently impaired or lost. Urine is passed normally; swallowing is carried out usually without difficulty. There are cases of loss of memory or transitory amnesia which are admitted to the base hospitals for further observation. Deafness of a transient character is not an uncommon symptom resulting from the explosion of big shells in close proximity to the patient, while blindness or impairment of vision from the same cause is relatively infrequent. Hesitation of speech has been observed in several cases. The outstanding symptom of spinal shock is loss of power in the legs. There is observed a form of temporary "nervous breakdown" occurring in those who have been strong and well, and is ascribed to a sudden or alarming psychical cause, such as witnessing a ghastly sight or undergoing a harassing experience. As the result of such a shock the patient becomes "nervy," unduly emotional and shaky, and most typical of all, his sleep is disturbed by bad dreams. The dreams are of experiences through which he has passed, of shells bursting, of duels between aeroplanes, or of the many harassing sights of the war in the trenches.

6. Malignant Edema.—F. McKelvey Bell records the results in the treatment of this condition, which is also called septic gangrene, in eleven cases in a Canadian Stationary Hospital at Le Touquet, France. In other wars the mortality of malignant edema has reached as high as 90 per cent., and yet the author believes if the treatment is instituted early enough, the mortality

should be nil. It is necessary to make immediate and deep incisions down to the bone, under chloroform, by means of a 6-inch blade amputation knife. These incisions were, in the cases at Le Touquet, 4 to 6 in. in length. They were afterwards kept wide open with fenestrated rubber tubes, 1 inch in diameter, passed on transversely through the muscle to a counter incision. Not less than three, and in one case six, large openings were made. The wounds were irrigated with solutions of hydrogen peroxide of the ordinary strength, followed by a mixture of the same solution with an equal quantity of carbolic acid 1 in 100. The wounds were also lightly packed with gauze. Dressings and irrigation were repeated every three hours. A high cradle was placed over the wounded part so as to admit plenty of air. After a few hours (as soon as checking of bleeding would permit) the gauze drainage was removed and only a thin layer of gauze left to cover the wound. It is thought quite possible that had these wounds been exposed for hours to direct sunlight there would have been a more rapid result. The wounds have a great tendency to close in a few hours, and this, unless prevented by the surgeon, brings about the anaërobic conditions one is trying to avoid. A pair of forceps and the moving about of the rubber tubes prevent this accident. Night and day special nurses were employed, and since the adoption of this system of treatment (in the last seven cases) there have been no deaths. Recovery took five to seven days.

7. **Urinary Amebiasis.**—H. J. Walton describes the case of a Brahmin aged 18 years who had been suffering from hematuria for six months and from anasarca of the legs, penis, and scrotum for about three weeks. The urine corresponded with that of a patient with chronic nephritis and in addition contained numerous actively-motile entamebæ. Urinary amebiasis appears to be a very rare condition; Braun refers to nine cases, and Doflein, under the heading of entamebæ urogenitalis, gives references to 4 of the same cases as those mentioned by Braun. Baelz's case occurred in a woman in Japan; entamebæ were found both in the bladder and the vagina, and Baelz was of opinion that the parasites were introduced into the vulva with the water used for washing the parts, and that they penetrated thence into the bladder and vagina. The amebæ are said to have been very motile, with a diameter of about 50 μ. Apparently it was not stated whether they contained ingested red blood corpuscles, though the urine is described as sanguineous. Baelz's paper was published in 1883, twenty years before Schaudinn pointed out the distinctive characteristics of the pathogenic and non-pathogenic entamebæ.

Berliner klinische Wochenschrift.

April 19, 1915.

Tetanus Lateralis.—Harf mentions the new symptoms of tetanus which are coming to light during the present war. Some of these are not in reality new, because old observers have noted their presence either in mankind or animals. The author is referring to more or less localized forms of the disease. Rose claimed that local tetanus is non-existent because trismus always accompanies. Brunner, however, devoted an entire monograph to local tetanus and by consulting old authorities was able to present a number of cases, and recently modern cases have been reported. It readily appears that tetanus may not only develop asymmetrically, but may also be practically unilateral. Rose had, therefore, assumed a reactionary pose, whether consciously or not. In order to give us an idea of lateral tetanus, the author presents a case history, through which it appears that a man was wounded in the left forearm and that gradually the entire extremity became rigid. Next there developed unilateral spasm of the left facial and motor branch of the left tri-facial, and later the left half of the neck and trunk, with slight implication of the left lower extremity. Involution occurs in the inverse order. Analysis appears to show that this unilateral tetanus is due to a toxic excitation of the medulla and spine. The failure to cross to the other side may be variously explained. The infection is clearly very mild in type, the small amount of toxin ascending along the peripheral nerves with no general outbreak.

Case of Oriental Boil.—Pulvermacher describes a case of so-called leishmaniosis cutanea, not because of its rarity in Berlin, for cases are not so uncommon in skin clinics, but because on account of its infectious nature it is important to prevent its dissemination. It possesses a large number of local and descriptive designations, which lead to a certain amount of confusion. Nevertheless, it is well described in textbooks. Its full geographical location is probably not yet known. The earlier names show that it has long been known in India, Asia Minor, and Egypt, and from these centers has spread over Northern and Central Africa, Central Asia, Greece, Italy, and Brazil. The methods of distribution, the insect hosts, are not yet fully understood. In a case given the patient had been an engineer in Syria, and first of all contracted syphilis. He had received salvarsan and secondaries had never appeared. He was in Bagdad before sailing for home, during 1914, and nearly all his business associates developed the Oriental boil. He had been one month in Berlin when two lesions appeared on the back of his left hand; another followed on the upper arm, which had not been exposed to insects, and was perhaps due to autoinoculation. In diagnosis it was necessary to exclude a great number of diseases. The method of contracting the disease was not cleared up. The treatment should consist of extirpation, perhaps preceded by a salvarsan cure. The affection heals spontaneously in a year, hence proper management ought to abort its course seasonably.

Ethylhydrocuprein in Pneumonia. — This resource, known in part under a proprietary name, represents one of Ehrlich's attempts at a rational cure of pneumonia. Two articles on this subject appear in the present number. In order to be efficacious, this substance must be given very early in the disease. In the army the remedy, according to Rosenow, is given immediately after the chill. He claims that ethylhydrocuprein is entirely superior to symptomatic treatment, and that when given in season its use is invariably followed by improvement. Peiper agrees that when given early, even as late as the third day, the disease is shortened and the crisis hastened. Undoubted failures occur. No cases of diminished vision have followed the treatment.

Münchener medizinische Wochenschrift.

April 13, 1915.

Typhoid Spondylitis of Quincke.—Galli states that not over a hundred cases of this affection have been placed on record. It is so rare that one case may be expected among 1800 typhoid patients. It is an affection peculiar to the young, although the author reports a case in a man of 59. It begins as a sequel with most violent pains in the spine, and is greatly aggravated by gentle pressure. The pain is refractory to all narcotics, even to opium in ordinary doses. The patient lies on his back as if nailed to the bed. The medical examination and still more the act of defecation are associated with severest suffering. Painful areas are located readily, usually over an apophysis and often between two ver-

tebræ. Local disturbances are present—edema in the painful localities and a sort of yielding of the spine, which may develop into a gibbosity. In 80 per cent. of all cases the trouble is localized in the lumbar spine. No good reason has as yet been advanced to explain this condition, as a whole. Only in the individual case may some causal element be suggested. Finds of bacilli in the vertebræ, etc., are too slight and infrequent to be of significance. Pus has seldom formed. The affection, as narrowed down by the author to a typhoid sequela has a favorable prognosis. It may persist for several years. The best treatment is the prompt application of a plaster of paris corset.

Treatment of Diabetes in the Field.—Rüdiger states that many soldiers at the front have diabetes. A dietetic treatment is out of the question, for at the front there is but one diet. The medical treatment must be chiefly symptomatic, and the author knows of but three remedies—opium, bromides and salicylic acid. The first named controls the polyuria, thirst, and excretion of sugar and holds back the inevitable loss of weight. Diabetics have besides a natural tolerance towards opium. The action of the latter even persists after its withdrawal. Bromides are of use only when it is desirable to suspend the opium for a brief period—about one week. Salicylic acid in some way lessens the production of sugar in certain patients by whom it is well tolerated. As not all patients bear opium well, it may be tested as a substitute. The author does not believe in the high initial doses of opium. At most he would limit the daily dose to about two grains of the drug given in three doses. One-half or less of this amount should give the desired effect. The daily dose of bromides should be from 3 to 5 grams.

Appendicitis in the Field.—Pflaumer records the occurrence of a large number of cases of this affection in a military hospital during the Christmas holidays. This cumulation was undoubtedly determined by the senseless indulgence in food articles sent from home, in addition to the regular diet. The men were warned of the risk. Numerous cases of gastric and intestinal catarrh developed and served to bring the two conditions into relationship. The question of operation in such cases becomes a delicate one. These patients are stricken on the field. Should they be operated on at once or transported to a field or reserve hospital? Should they be operated on in the acute or interval period? Only protracted experience can answer these questions. Twenty-three cases of appendicitis developed before and after Christmas. In fifteen immediate operation was advised, and in twelve the patient's consent was obtained. The patients of this series were all in a reserve hospital and some of the cases were far advanced. In five cases there was perforation with ichorous abscess and all the patients were saved and able to rejoin the ranks. In the other seven cases operated on the condition was relatively benign and all rapidly recovered.

Deutsche medizinische Wochenschrift.

April 15, 1915.

Functional Testing of the Heart.—Katzenstein gives the results of ten years' clinical experience in this direction. Many years ago he sought to develop the principle of the intercalation of resistance somewhere in the blood circuit. Recently others have made reports upon this procedure. The principle involved is compression of both femoral arteries in order that the behavior of the left ventricle may be watched. Back of this lies the ability to form a collateral circulation to obviate the results of compression. When large arteries are ligated the blood pressure rises, while the pulse is undisturbed. This pressure rise cannot be due to increased fluid in the circulation, for it is persistent, and several arguments are advanced to prove that it is due wholly to increase in the work of the left ventricle. The author applies a Gärtner's tonometer, and obtains several pressure readings, the patient being in bed. The femoral arteries are compressed digitally for from 2 to 2½ minutes. If now the blood pressure rises and the pulse becomes slower the action of the heart is normal. If we find no rise in the pressure and no change in the pulse the heart is nearly normal, *i.e.* but slightly damaged. Finally, if the blood pressure sinks and the pulse rises we may infer that the heart is notably damaged, or markedly insufficient. The author is a surgeon and makes use of this method almost daily; in all he has made 3,000-tests of this sort. The mortality in 3,000 operations has been 3.2 per cent., with no death from narcosis. The patients with poor hearts were refused operation, save when the latter alone could save life. The author believes that he has eliminated sudden death from heart failure. The above mortality record concerns chiefly secondary mortalities evidently not attributable to cardiac insufficiency.

A Procedure for Fastening the Liver in Hepatoptosis.—Gross speaks of the great frequency of visceroptosis, especially in women. The organs concerned chiefly are the liver, stomach, and colon. The loosened liver by reason of its weight plays a greater rôle through the movements of the body than is commonly believed. In abdominal enlargement, as in pregnancy, the pull at the navel upon the ligamentum teres of the liver is perhaps a cause of the sinking of that organ. In the course of laparotomies it is not difficult to perform hepatopexy, but considerable time is added to the intervention. It is a matter of sutures and drainage. The author quite accidentally in operating for a complicated condition in the bowels recalled the fact that the hepatic ligament is used to constrict the pylorus after a gastroenterostomy. As a rule, the ligament remains very strong. If one divides it near the umbilicus and makes traction on it, the liver is strongly tilted upwards, just as in spontaneous hepatoptosis. When a suitable case came along the author drew the cut ligament upwards sharply and attached it to the ninth rib. As a result the anterior margin of the fallen liver was raised at least 10 cm. In a case reported by the author the woman also had gastroptesis of the third degree (below the navel), which required a posterior gastrostomy. As a matter of fact, the chief indications for operation came from the stomach.

Treatment of Frozen Digits.—Wittek saw a very large number of frostbites of varying degrees and recalled the experience of Noesske in saving a gangrenescent finger by withdrawing all the stagnant venous blood, and then using methods of forcing fresh arterial blood into the member. The author contented himself with making free incisions into the lifeless fingers (an anesthetic was not necessary). Afterwards he dressed with collargol. The incisions were of undoubted benefit in antagonizing the process, reducing the amount of slough, and producing a more peripheral line of demarcation, so that a lower amputation could be made. Bundschuh writes on the same subject, to wit, the application of Noesske's principle in frostbites of the third degree. He used in addition to incisions, the finger stall (Bier method) to force blood into the scarified finger as suggested by Noesske, and believes that it should be employed daily for a time for 10 to 15 minutes. The dressing was an oil tamponade.—*Münchener medizinische Wochenschrift.*

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN" BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 916.)

We now see what we had previously been led to expect, that the measurements and weight figures of the tuberculous cases do not invariably lie below the average or below the normal, but just as is the case with controls themselves, show a marked excursion in positive and negative directions. However, and this is very important for us, the negative variations prevail in a striking fashion; so that about two-thirds of the chest measurements and about three-fourths of the waist measurements and weight figures can be counted as subnormal. It further appears that the form of the thorax does not play the rôle in the doctrine of predisposition that has been imputed to it by Freund and Rothschild. The more or less paralytic or otherwise altered thorax is of value only as part symptom of an inferior constitution. The essential moment is the general nutrition, *i.e.* the subdevelopment as expressed simultaneously in girth and weight.

The investigations may be carried to still greater completion, however, if we isolate certain classes of tuberculous cases. Thus I have investigated how the course of the deviations of the tuberculosis death cases present themselves when we exclude those who had been engaged in occupations which had to do with the manufacture and sale of alcoholic beverages. The deviations to the negative side became at once more conspicuous, while a portion of the extreme positive deviations vanished, and would vanish entirely if we could take out all the chronic alcoholics who succumb to phthisis on an alcoholic basis. Fundamentally these cases do not belong to our investigation series. They are allowed to remain because otherwise we could not have evaded the reproach that investigations had been made in a material specially selected as tuberculous.

In the case of genuine phthisis—and this it is which alone interests us here—it is all the more certain that the inferior constitution is a decisive factor in the origin of the disease, and in estimating the constitution the girth and weight are of first importance, the chest measure less so. The inferior constitution is not the only factor as it is not the absolute predisposing cause of phthisis; but it stands out distinctly above the other predisposing factors, which group themselves about it and often maintain their importance only in connection with it.

That infection is necessary in order to acquire the disease is self-evident; but how very seldom this is demonstrable in life insurance practice is apparent from the statistics which show that of 1,428 deaths from tuberculosis there were but 11 in which the husband or wife of the deceased was tuberculous. Of course, in medical selection one must certainly consider the risk of infection when it is so evident as in conjugal intercourse, but in general so far as life insurance is concerned one may regard tuberculous infection as purely a matter of chance. The real deciding factor is the morbid tendency, or disease substratum—in other words, the constitution.

In what relation, however, does the latter stand to heredity? That there is actually an heredity problem in the etiology of tuberculosis Table 5 gives us no reason for doubt. This table shows the number with tuberculous taint among those dead of tuberculosis and among the controls. A comparison of the percentages speaks so plainly that any further discussion of them would be a waste of words.

The result of a comparison of the tainted tuberculous cases with the tainted control cases is most striking and shows the importance of a careful study of the constitution in tuberculous selection. For only one answer is possible to the question, "why did the tainted subjects die, and not the others as well?" Because the others were quite differently, quite notably better constituted, because they had not, like those who died, an inherited constitutional inferiority or—as we could say, without prejudice to the selection—had not acquired the same in early life.

At the Fourth International Congress for Insurance Medicine in Berlin in 1906 I communicated the results of my various investigations. One of the chief topics for discussion was the precocious establishment of a tendency to tuberculosis and especially to pulmonary tuberculosis.

Not long before Gottstein had instituted a similar investigation with the material of the Victoria-Berlin Life Insurance Company, which was restricted, however, to the percentage relation between the chest measure and height in tuberculous and non-tuberculous subjects. He, too, had found in agreement with myself that in the tuberculous the chest measurements were relatively smaller than in the non-tuberculous, and also so remained, although for each age-group an increase appeared with increasing age. It was also established that this is independent of the duration of insurance and is present whether the interval between the date of insurance and the death is one of 1, 5, 10, or 20 years. It is, therefore, proved that the small chest measure of the eventually tuberculous subject is a primary manifestation and not the consequence of a pre-existing disease.

Lately, the medical director of the Lübeck Life Insurance Company, Dr. Mollwo, undertook a verification of my work upon the material of his own company and found that my results were correct. It would be superfluous then to reproduce his figures. I quote only the leading propositions which he derives from them for medical selection.

"There is a disposition to tuberculosis which may be expressed in figures. The inferior build is not the result of, but a predisposition to the disease. General inferiority of the measurements of the examined gives the first and best hint for the selection. Heredity is then present when it shows itself in a defective development of the body, in an inferiority determined by measurements. Finally infection is a matter of chance. The development of turberculosis is not so much dependent on chance, however, but can be predicted with some accuracy, and the most favorable determining factor is the constitution."

An excellent indirect confirmation of the above is afforded by the experiences of other domestic and foreign companies in connection with the tuberculosis mortality among their insured. Of these we may mention especially the heredity statistics of the Thule Life Insurance Company of Sweden.

(*To be continued.*)

Book Reviews.

Defective Children. Edited by T. N. Kelynack, M.D., Member of the Royal College of Physicians of London; Fellow of the Royal Society of Medicine; Medical Adviser to the National Children's Home and Orphanage; Hon. Physician to Mount Vernon Hospital for Consumption and Diseases of the Chest; Metropolitan Examiner for the David Lewis Epileptic Colony; Member Hon. Medical Consulting Staff, National Association for the Feeble-minded; Hon. Physician to the Ragged School Union; Editor of "Medical Examination of Schools and Scholars," "Tuberculosis in Infancy and Childhood," "National Health Manuals," "Human Derelicts," "The British Journal of Tuberculosis," "The Tuberculosis Year Book and Sanatoria Annual," "The Year Book of Open-air Schools and Children's Sanatoria," "The Child," etc. Price, $3.00 net. New York: William Wood & Company, 1915.

The rapid development of the system of medical inspection of school children has been a prelude to a more comprehensive phase of public health activity, namely, the prevention, cure, or mitigation of disease throughout the entire period of childhood. Interest in the defective child has passed beyond the statistical stage. The problem is now one of prophylaxis and of treatment. This forms the keynote of the present volume. Defective children are studied not from the viewpoint of technical methods of examination, of public health administration, or of educational supervision, but from the larger viewpoint of improving the physical and mental well-being of these children. The scope of the task is so broad that no one man can hope to master it. For this reason a large number of experts contribute their special knowledge to this volume which thus represents an elaborate symposium. The separate contributions are as follows: Defective children and the Co-relation of the Public Services, by E. W. Hope; The Mentally Defective Child, by H. C. Marr; Idiots and Imbeciles, by D. W. Hunter; The Epileptic Child, by A. F. Hewat; Criminal Children, by W. C. Sullivan; Paralytic Cripples, by W. R. Jordan; Tuberculous Cripples, by H. J. Gauvain; Defects of Vision, by N. B. Harman; The Deaf Child, by J. K. Love; Speech Defects in Childhood and Early Adolescence, by L. H. F. Thatcher; Spinal Defects in Young Subjects, by A. H. Tubby; Cardiovascular Defects in Children, by T. Fisher; The Rachitic Child, by A. S. M. Macgregor; Defective Growth and Development in Infancy, Childhood, and Youth, by Hastings Guilford; Defective Girls in Secondary Schools, by Catherine Chisholm; Defective Boys in Secondary Schools by J. Lambert; School Clinics, by L. D. Cruikshank; Dental Clinics for Children, by L. S. Shennan; Open-Air Schools and Residential Schools for Defective Children; Schools for Cripple Children, by R. C. Elmslie; Defective School Children in Scotland, by G. H. Brown and Kate Fraser; The Defective Child in Ireland, by J. D. Lindsay; Defective Children in Canada, by Helen MacMurchy; Defective Children in the United States, by W. S. Cornell; Defective Children in France, by L. Dufestel; Defective Children in Germany, by K. Biesalski, and Defective Children in Hungary, by E. Deutsch. The contributors to this volume are well known in their respective fields of work; the collective product of their pen is a substantial contribution to the science and art of child conservation. Appended to each article there is an ample list of references. The subject matter appeals not only to the pediatrist and general practitioner but also to the educator, the public health officer, the sociologist, the jurist, and the statesman. The volume is a mine of information presented in clear and terse literary style and available both for study and for reference.

Grundriss der psychiatrischen Diagnostik nebst einem Anhang enthaltend die für den Psychiater wichtigsten Gesetzesbestimmungen und eine Uebersicht der gebräuchlichsten Schlafmittel. Von Prof. Dr. Julius Raecke in Frankfurt a. M. Mit 14 Textfiguren. Fünfte vehrmehrte und verbesserte Auflage. Preis, Mk. 3. Berlin: Verlag von August Hirschwald, 1914.

We reviewed the fourth edition of this little compendium only a year ago. A fifth edition, appearing so soon, attests its popularity. It is based in large part on the writings of Binswanger and Siemerling. The writer also acknowledges the friendly assistance of the latter in his present revision. The book is increased in size by only three pages, and apparently received but few alterations to bring it up to date. As a compendium it is to be commended. If we were permitted to make a suggestion for a subsequent edition it would be to add a glossary of the more technical terms.

Contributions from the Psychopathic Hospital (Department of the Boston State Hospital), Boston, Mass., 1913.

While these "contributions" do not reveal much original scientific research, their publication is a step in the right direction. The eighteen physicians contributing the thirty-four articles contained are to be congratulated on their opportunities; and those who wish to be oriented on the possibilities of the psychopathic hospital will find in the volume several articles of interest.

Mental Medicine and Nursing. For Use in Training-Schools for Nurses and in Medical Classes, and a Ready Reference for the General Practitioner. By Robert Howland Chase, A.M., M.D., Physician in Chief, Friend's Asylum for the Insane; late Resident Physician State Hospital, Norristown, Pa.; Member of the American Medico-Psychological Association; Member of the Neurological and Psychiatric Societies, Philadephia. 78 illustrations; price, $1.50 net. Philadelphia and London: J. B. Lippincott Company, 1914.

The writer of this little handbook has been superintendent of a hospital for the insane for many decades. During that time mental medicine has undergone radical changes. The writer has endeavored to keep pace with these changes, at the same time retaining what he considers, probably, some of the helpful things of experience. He describes his book as an introduction to the study of nervous diseases, and this is what it may be considered to be. It comprises, at least, all that average nurses are able to grasp and perhaps a little more; and it falls short of being a textbook for physicians. Part I is devoted to a description of the central nervous system and neurosis; Part II, to a study of normal psychology; Part III, to the subject of general psychiatry; Part IV, to the special forms of mental disorder; Part V, to treatment; and there is an appendix on poisons, and a table of definitions. There are 78 interesting illustrations, chiefly of cases. The book is printed on excellent paper in very readable type. The style is clear and direct, and the book may be said to be practical and suggestive.

The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods. By Reginald Hayes, M.R.C.S., etc. Price, 3s. 6d. London: Baillière, Tindall & Cox, 1914.

This little octavo volume of sixty pages summarizes the inunction treatment of syphilis. The author does not claim inunctions to be a rival to salvarsan, but gives to each its sphere and limitations. He presents the advantages and objections to inunctions and points out their superiority to other methods. The book deserves praise, if for no other reason than that it calls the practitioner from the easier paths of injection and ingestion to the more scientific and safer method of inunction.

Glaucoma. A Symposium Presented at a Meeting of the Chicago Ophthalmological Society, November 17, 1913. Edited by Willis O. Nance, M.D., President Chicago Ophthalmological Society (1913); Ophthalmic Surgeon, Illinois Charitable Eye and Ear Infirmary; Former Oculist and Aurist, Cook County Hospital; Editor, *Journal of Ophthalmology and Otolaryngology*, and Wesley Hamilton Peck, M.D., President Chicago Ophthalmological Society (1914); Former Professor Ophthalmology, Chicago Eye, Ear, Nose and Throat College; Assistant Surgeon Illinois Charitable Eye and Ear Infirmary; Ophthalmic Surgeon, Oak Park Hospital. Price, $1.50. Chicago: Chicago Medical Book Company, 1914.

The articles in this volume, of 151 pages, were contributed by Lieut.-Col. Robert Henry Elliot, M.D., Edward Jackson, M.D., John E. Weeks, M.D., George Edward de Schweinitz, M.D., Casey A. Wood, M.D., Francis Lane, M.D., E. V. L. Brown, M.D., Nelson M. Black, Frank C. Todd, M.D., and Albert E. Bulson, M.D.

The book presents a careful review of the subject up to the date of issue, and, coming as it does from men of large experience and recognized high standing in the profession, merits the careful consideration of all who are interested in this very important part of ephthalmology.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 1, 1915.

THE PRESIDENT, DR. WALTER B. JAMES, IN THE CHAIR.

National Quarantine.—The Council recommended that the academy authorize it, in conjunction with the public health committee, to hold a conference on the subject of national quarantine in New York harbor, with representatives of other bodies that might be interested. Dr. Reginald R. Sayre moved that this recommendation be approved. This was seconded and passed.

The Elective Localization of Streptococci Following Intravenous Injection, with Special Reference to Appendicitis, Ulcer of the Stomach, Cholecystitis, Rheumatic Arthritis, and Erythema Nodosum.—Dr. EDWARD C. ROSENOW of Chicago presented this communication which was illustrated by lantern slides. He said that a year and a half ago when he had the honor of speaking before the academy he demonstrated gross specimens and lantern slides showing: First, that streptococcus viridans when injected intravenously in rabbits, and occasionally in dogs, produced a form of endocarditis resembling chronic septic endocarditis in man, and that arthritis developed relatively rarely and pericarditis and myocarditis scarcely at all. Second, that the streptococcus isolated from the joints of cases of typical rheumatic fever when injected produced a form of endocarditis which tended to heal just as in man, and multiple non-suppurating arthritis, pericarditis, and not uncommonly myocarditis. Third, that when streptococci attained a certain grade of virulency, irrespective of their original source, they were prone to localize in the mucous membrane of the stomach of animals, produring ulcers which resembled those in man in that they tended to persist and perforate. Fourth, the lantern slides illustrated the transmutation within the streptococcus-pneumococcus group. Dr. Rosenow said he wished to show by means of the lantern slides that appendicitis, ulcer of the stomach, cholecystitis, rheumatic arthritis, and erythema nodosum were due in many instances to streptococci because they were so commonly found in the lesions and because they produced the respective diseases in animals when injected intravenously soon after isolation. Similar results had been obtained with streptococci isolated from various foci of infection (infection atria) at the time of the acute attack, as during exacerbations, but usually not later. This fact suggested strongly that the tonsils, pyorrheal pockets, and other foci of infection not only afforded the entrance way for the bacteria, but the very conditions which he had shown in his transmutation work to be favorable for the acquirement of new properties of streptococci. Thus streptococci from appendicitis, on isolation, produced in the appendix in 41 out of 59, and after cultivation in only three out of 22 rabbits; streptococci from ulcer of the stomach, on isolation, produced ulcer in 50 out of 79, and after cultivation in no instance in 17 animals; from cholecystitis, on isolation, in 22 out of 27, and after cultivation in only one out of 12 animals, and from rheumatoid arthritis, on isolation, arthritis developed in 47, endocarditis in 33, myocarditis in 31, and pericarditis in 19, out of a total of 71 animals, and after cultivation this affinity had largely disappeared as shown in 14 animals injected. The strains from erythema nodosum produced similar results. The lesions in other organs were either entirely absent or slight in a large percentage of the animals.

Dr. W. T. LONGCOPE said that he was sure all had been extremely interested in the fine presentation which Dr. Rosenow had made of this important and complete study of experimental streptococcus infection. It was hard for anyone who had not an intimate knowledge of such work to realize the intricacies and difficulties of such a problem, and particularly the complicating factors which entered into the special problem of the localization of infection in disease. Formerly, of course, it had always been supposed that the body was itself in one way or another largely concerned in the localization of any infection. For a long time it had been assumed that an injury to any tissue made that tissue less resistant to infection and predisposed to localization of such pyogenic organisms as staphylococci and streptococci in that situation. With more complicated infections it had been shown that localization of the infecting organism depended upon the fact that certain fluids of the body were devoid of substances destructive to the infecting agent. This was particularly true of infection of the spinal meninges. Apparently the organism of poliomyelitis was rapidly destroyed by all the tissue juices and body fluids, except the spinal fluid. Consequently when the infection took place, though the entire body might be at first permeated by the infecting organism, the disease developed only when the organism reached the undefended spaces in the central nervous system. This adaptation between the infecting organism and the tissue of the host must, of course, vary in different infections, and it was evident that the properties of bacteria might change during their growth on artificial culture media or their repeated passage through animals; in the one instance the invasive power and pathogenic property of the organism diminished and in the other it was increased. But the development of such a highly specialized power of localization on the part of bacteria, which Dr. Rosenow demonstrated in these experiments, was of course entirely new and placed the subject in a most interesting light. If further experiments were to confirm these observations and show that the localization of infection depended to such a large extent upon the change in the organism which was brought about by its environmental development, this would prove a great advance in the study of infectious processes. They should be specially thankful to Dr. Rosenow for bringing before them such interesting and important observations.

Dr. RUSSELL L. CECIL said that J. Koch had shown that in typhoid cholecystitis the infections of the gallbladder were hematogenous in origin, due to lodgement of typhoid bacilli in the terminal capillaries of the mucosa. As far back as 1901 Adrian produced appendicitis in rabbits by intravenous injection of streptococci, pneumococci, straphylococci, typhoid bacilli, and colon bacilli. Recently Poynton and Paine had produced appendicitis in rabbits by intravenous injection of a streptococcus isolated from the joints in a case of rheumatic fever. Dr. Cecil thought that Dr. Rosenow's experiments added more evidence in favor of the hematogenous infection.

Dr. LUDWIG KAST said he wished to apologize for opening his remarks with a rather commonplace statement. We knew that different microorganisms in the bacteriological laboratory showed a predilection for different culture media. We also knew that different microorganisms showed different selective tendencies in their localization in the different organs of the human body. It was to the credit of Dr. Rosenow to have shown, as his experiments seemed to indicate, that at different times the same organism might manifest different selective tendencies, and furthermore, that it was possible to determine from the particular phase or stage of transmutation of an organism what its selective tendency was at that particular moment. The effect which these discoveries had upon our clinical conceptions seemed very far reaching. About twelve years ago, when Professor Pribram in Prague collected material for his monograph on rheumatism, he went through the records of post mortem examinations at the Pathological Institute in Prague, and determined in over 15,000 cases what the relation was between affections of the joints and affections of the heart valves. It seemed quite evident from these post mortem examinations that in one group of cases changes in the joints, severe or not severe, were associated with affections of the heart valves, whereas in another group of cases, particularly the deforming type of rheumatism, the heart valves were very rarely affected. In the light of the knowledge of that time it was justifiable to assume that these two groups represented two different clinical entities; that they were, in all probability, due to two different etiological factors. In the light of the knowledge which Dr. Rosenow's experiments seem to offer, it was plausible to assume that both groups of cases might be caused by the same organism in its different phases of transmutation. There was another side to this problem: When they spoke of selective localization of microorganisms, they must bear in mind also the selective attraction of different organs exercised upon the microorganisms. In other words, they could not deal with the problem of selective localization without dealing with the problem of the varying degrees or qualities of immunity of the different organs of the body. When a predilection was shown for the joints, the endocardium, the pericardium, and the tonsils, it might be that such predilection was purely a quality of the microorganism. On the other hand, it might be that there were certain qualities in these tissues—certain chemical qualities—

which predisposed them to the attack of the microorganism—invited the settling of the microorganism, so to speak. From the latter viewpoint, the problem became to a great extent a question of local immunity and of the chemistry of the different organs; and for this viewpoint they had chemical analogies: the phenomenon of ochronosis, for instance. An injection of the substance would color black the joints, the cartilages, the tendons, the endocardium, and the intima of the blood vessels. The predilection for these tissues seemed to be related to the fact that chrondroitine sulphuric acid was present in these tissues, whereas it was not present in others. The fact that there were such chemical similarities in different groups of organs in the human body had also another meaning. It seemed plausible to assume that a primary focus in the mouth might produce toxines which, carried by the circulating blood to the different parts of the body, would themselves show a selective action in fields remote from the primary infection. In other words, a peridental abscess might, through its toxines, affect the joints much as they would be affected if a secondary localization of the microorganisms in the joints had taken place. This would pertain particularly to those cases in which, without the presence of any microorganism, structural changes had occurred which were similar to those produced by direct action of the microorganism. Furthermore, such thoughts opened, possibly, a perspective in the field of therapy. Considering the work of Abderhalden on the specific defensive ferments of individual organs, one was tempted to think of the possibilities of a therapy which would help us, when the defenses of the body as a whole were in good condition, to overcome specific localized infections.

Dr. JOHN A. HARTWELL said that Dr. Rosenow had submitted the necessary evidence from an experimental point to show that intravenous injections of streptococcus could produce definite lesions in the gall-bladder, stomach, and appendix similar to the lesions seen in these organs clinically. In all cases large doses of the culture were used, and while there was a very evident selective preference of the various strains for the organ from which the strain had been isolated, there were also various other lesions produced. In some cases the dose employed seemed to have proved fatal. A long period of observation would be required to determine that the clinical lesions occurred as the result of a blood-borne infection, and that the selective action was equally definite. The lesion in the stomach differed quite markedly from the chronic indurated lesions seen in human ulcer. It was also difficult to see why multiple ulcers in the stomach were not more common if one assumed that streptococci in the blood were the exciting cause. Even granting a selective action, there was no explanation as to why many foci of ulceration did not often appear unless they limited the selection activity to a very circumscribed portion of the stomach. It was further a little difficult to accept a selective activity which showed a preference for a definite portion of the gastrointestinal tract or gall-bladder in man, dogs, rabbits, and guinea pigs. The nutritive chemistry of these various animals would seem to be further apart than those existing in various parts of the same animal. While, therefore, the experimental evidence as given by Dr. Rosenow was very convincing, there were many clinical factors that needed further elucidation. Confirmatory study from many workers could alone yield answers to all the questions which arose from a study of Dr. Rosenow's interesting work.

Dr. FENTON B. TURCK said that lesion of the stomach or duodenum following the intravenous or subcutaneous injection of cocci or bacteria usually appeared in the solitary lymph follicles. These small aggregates of lymphoid tissue acted as excretory channels and were identical with Peyers patches in the small intestines. Toxins, as well as bacteria injected, produced an inflamed appearance and remained so for some time, of an elevated irregular ring with central indentation, giving the resemblance of a peptic ulcer. On microscopical section, it might show smaller or larger collection of lymphoid cells with some necrosis and perhaps round cell infiltration, but they all healed up. This was not peptic ulcer nor the origin of peptic ulcer. On microscopic section of stomach or intestinal wall, many animals, especially dogs, normally showed a redundance of connective tissue, especially in regions of lymphoidal tissue. This, with fold or dipping down of the mucosa and submucosa and some necrosis, might be mistaken for chronic ulcers. The lantern slide shown illustrated this, and he thought more careful controls might show agreement with Bensley and also Carlson views, who had especially emphasized this source of error. Holman's objections to the elective infection of streptococci were based on the fact that owing to the ease with which streptococci entered these tissues from the normal intestine or respiratory tract, isolation of streptococci from these animals could not be used as proof that they were the same as those injected. He further showed that intravenous injections of bacteria brought about invasion, particularly streptococci derived from the normal alimentary or respiratory tract. It had been supposed that much local damage might be brought about by the streptococci of certain strains, but the careful work of Canavan and Southard questioned the effect of cocci forms which they say might produce some irritative effect but no destruction. Injury to the blood vessel by the streptococci might be inferred as indirect cause of many lesions, but Klotz found that in twenty cases of infection causing destructive effect upon the blood vessel, ten of the series were caused by the colon group of bacteria, five from pneumococci, and only three from streptococci. Proskauer reported a case of purulent peritonitis which showed streptococci and caused death without perforation of an ulcer or mesenteric gland. The paratyphoid bacilli were obtained in culture from many typical ulcers found in stomach and duodenum but no streptococci. No agglutination with streptococci—only with the paratyphoid bacilli. These typical peptic ulcers might have been interpreted as a streptococcus infection perhaps originating from the mouth. The conclusions of Koll, David, and others showed that 90 per cent. of kidney infections were due to colon group of bacteria, and chronic constipation was given as the direct etiological factor in kidney as well as appendicitis and gall-bladder diseases. In 1895 he published the result of three years' bacteriological work on cases indicating some relation of the mouth, nose, and throat to gastric disease. This lead to a more definite study of intestinal flora in relation to lesions of the stomach and duodenum. His work on the etiology of ulcer in relation to the colon group of intestinal bacteria in symbiosis was still in progress. Part of the work had already been published, with the confirmation from the work of others. The accumulating evidence of surgeons operating all over the world who found few of these cases in the non-meat eating, hygenically moderate eating, non-constipated individuals. His own recent studies indicated that the intestinal flora played an important rôle in the etiology of peptic ulcer. Recent developments showed that the bacteria passed into the submucous tissue and were there destroyed, and by their destruction created alteration in the circulation, a reduction in the antiferments, and finally, as the process continued, ulcers were formed in all the various stages depending upon the factors that permitted either constant or periodic invasion from the intestinal lumen. That streptococci could also accomplish this in symbiosis he had already shown, but they could not exclude the constant effect of the ubiquitous colon group of bacteria. The specific, elective, solitary etiological factor assumed by streptococci in all these diseases, as an hypothesis so brilliantly presented by Dr. Rosenow, must be met by thoughtful consideration and careful control work.

Dr. ROBERT T. MORRIS said that bacteria were simple morphologically but highly organized chemically, and changes produced by them through selective affinity related to the chemistry of their peers, the organic body cells of the particular structure which was involved. It was important to know if mutant varieties of a species remained as fixed variants, and in that case, if they might be called new species. If they returned to "ancestral type" under a new set of conditions they were given the key which opened a very large question in biology. It was extremely important for them to know if the mutant with special affinity for the appendix retained that characteristic through several generations, or if it would revert to the type which showed selective affinity for duodenal structures. Dr. Rosenow's work suggested the thought that Darwinians, Mendelians, and Eugenists might begin their basic studies from streptococcus viridans, which underwent mutation into several variant forms having the clinical value of species and then might return to "ancestral type," all in the course of a couple of weeks.

Dr. ROSENOW, closing the discussion, said he feared from some of the remarks made by some of the men that he had given the impression of not desiring to give due credit to men who had done work in these respective fields. He assured them with all his heart that this

was only apparent on account of the large amount of ground necessary to cover in so short a time. Full credit would be given in the publications. He fully realized that colon bacilli had been isolated from ulcer of the stomach after death and that ulcer of the stomach had been produced experimentally with colon bacilli, but that colon bacilli had much to do with the etiology of especially chronic ulcer of the stomach in men did not seem likely because he had succeeded in finding it only once and then in only small numbers in one of a series of ulcers removed during life at operation. The inability of a number of workers to verify his results on the transmutation of streptococci and pneumococci was clearly due, it seemed to him, to the fact that they had not followed closely his technique. Since the publication of his paper on this subject he had made many observations which supported the idea and he was more convinced than ever that his contentions, as voiced in his original paper, were correct.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, Held February 15, 1915.

THE PRESIDENT, DR. THOMAS S. SOUTHWORTH, IN THE CHAIR.

Presentation of Roentgenograms Illustrating Various Conditions.—Dr. JOSEPH FRIEDMANN gave this demonstration, which included a number of rare cases and others in which an obscure diagnosis was cleared up by means of the *x*-ray.

The Nagelschmidt Modification of the Kromayer Quartz Lamp in the Treatment of Diseases of the Hair and Scalp.—Dr. RICHARD W. MULLER read this paper (page 743).

Organotherapy in Chronic Disease, with Special Reference to Its Possibilities in Cancer.—Dr. HENRY R. HARROWER read this paper. He said that the mere fact that disease had been present for more than the proverbial forty days, and that a considerable proportion of chronic invalids perambulated from one doctor's office to another, as well as the fact that many widely differing forms of treatment were advanced from time to time, seemed to be convincing evidence that the treatment of chronic disease is still an unsolved problem, and hence worthy of persistent study. There appeared to be fashions in medical matters, just as there were in others, and apparently it was beginning to be the fashion to study and write about the internal secretions. From all sides there came evidences of profound interest in the subject, and in these days of advance in physiological and pathological research there had been gradually accumulated a fair knowledge of the series of organs which until recently had been almost entirely unknown. We had learned that the ductless glands exercise an intimate control over metabolism and the cellular activities, that in all probability this is brought about by definite chemical substances produced by these organs, the hormones, and by them conveyed to others by means of the blood and lymph; and, best of all, that it is possible to secure from animal glands certain active hormone-bearing substances in a more or less pure state which are available in the treatment of disease. None could now deny that certain of the ductless glands produce extremely active principles which have an equally powerful influence in the control of both normal and morbid phenomena. The organs of this class were concerned in what was now termed the "hormone balance," and this delicate balance, brought about by the interrelation of the internal secretions, was concerned not less in the maintenance of essential health than in the production of deviations therefrom. It might be stated as an axiom, he thought, that it was impossible for an individual to manifest the evidences of chronic disease without a corresponding disturbance in some or all of these hormone-producing organs; and, furthermore, he believed that many of those intractable symptoms-complex to which it was sometimes so difficult to give a suitable name were often aggravated by a disturbance of what had been termed the altruistic function of the cell. This function was one of extreme importance, for the cell itself might seem quite healthy, and yet gravely fail in this regard—thus serving to disorganize the delicate hormonic balance. Granting, then, that chronic disturbances were associated with general cellular inactivity, and that in certain conditions this deprived the body of essential stimuli, it must be obvious that the effective treatment of such conditions must include a consideration of the ductless glands and of means capable of re-establishing their normal functions. One of the most common disorders in which so-called "pluri glandula insufficiency" was evident was neurasthenia, and here pluriglandular therapy would not only serve to replace, to some extent at least, the missing secretions, but also favor an increased production of them by the homo-stimulant action which had been referred to. This seemed very plausible theoretically and practically it had been found to work well, although in this class of cases there was as yet no definite proof as to which of the ductless glands was deficient. Having referred to the functional neuroses and psychoses, many of which were now regarded as resulting from or being associated with disordered secretory action in certain of the ductless glands, the speaker said that many of the problems of the medical gynecologist had a purely endocrinous origin, and the metabolic disturbances of women constituted a large class of chronic diseases in which apotherapy was an extremely useful measure, as illustrated in the case of pituitary and extracts of the corpus luteum. One of the most neglected organitherapeutic remedies in gynecological practice, however, was mammary extract. The mamma was the direct antagonist of the ovary, and hence extracts from it might be of value in controlling conditions due to superactivity of the ovaries, such as menorrhagia, metrorrhagia and uterine fibroids. Personally, he had gathered together sufficient evidence in its favor to warrant the use of mammary extract in cases of fibroid for a period before operative procedures were undertaken, and to indicate that eventually this method of treatment would be held in much higher esteem than at present. The subject of organotherapy in chronic diseases was a vast one, and time did not permit but the barest reference to the use of thyroid extract in the well-known conditions associated with thyroid deficiency, or the advantages of pituitary extract in the equally chronic conditions of hypopituitarism. In connection with the relation of the glands of internal secretion to cancer, and the possibilities of opotherapy in this condition, certain well-substantiated theories regarding the disease might be mentioned: (1) Cancer is a chronic intoxication; (2) Its incidence evidences the lack of an element in the blood which permits cell proliferation at a point of particularly lowered resistance; (3) it is essentially a disease of senescence or, as termed by Gilford, "cell senilism." We knew that cellular activity is influenced by the harmones, or chemical messengers, that nutrition responds in a greater or less degree to their influence, and that it is possible to favor the reaction of the body against disease by the use of certain organic extracts. The questions naturally suggested themselves here: Is not cancer more than a chronic disease such as the more benign metabolic disturbances referred to? Is it possible to influence by means of opotherapy an unquestionably organic condition when the action of the endocrinous principles is supposed to be upon function rather than structure? Undoubtedly no form of internal medication at present known would destroy or remove the fundamental organic conditions pathognomomic of cancer; yet it was entirely possible that the resistance of the sufferer from cancer might be increased to such a degree that other measures in common use might be reinforced by an increase in the responsiveness of the cells and a general enhancement of nutrition. At present it could only be conjectured why some individuals presented a special receptivity to the implantation and growth of cancer cells and how these cells became implanted, but he believed that the day would come when it would be found that the disease was much more intimately associated with the internal secretions than was now generally supposed, and that quite probably it would be shown that the hormones may be very intimately concerned in its prevention and cure. If it were admitted that an important factor in all cancer cases was chronic cellular intoxication, obviously a part of the treatment consisted in favoring the activity of the known detoxicating organs, as well as removing all nidi of further trouble, chiefly, of course, in the alimentary canal. The thyroid-prathyroid apparatus was intimately concerned in the destruction of toxins, and in the literature there were a number of references to the fact that in cancer subjects the thyroid is usually found to be more or less atrophied. Indeed, thyroid underfunction was much more common than had until recently been believed, and it was entirely possible for the thyroid cells to be seemingly nor-

mal, and yet be failing very materially in the production of those substances responsible for carrying out the "altruistic" work of this gland. One of the well-known manifestations of the cancerous cachexia was achlorhydria and the resulting digestive disabilities, and for this reason it might be recommended as a reasonable procedure in all cases of cancer to attempt to re-establish the activities of the digestive glands by the adthe blood of the cancerous was not yet established, although the researches of Abderhalden and others inministration of secretin. Just what was missing from dicated that a definite series eof substances might be concerned in the matter. The missing element would, very likely, be found to be produced by the endocrinous system, and if this were the case our therapeutic possibilities would be increased, since we now knew with considerable certainty that when there is a functional hypoendocrinism or reduction in service to the body of certain of the secretory organs, not only can the missing substances be replaced, but the semiactive organs may be stimulated by certain organic extracts, in accordance with Hallion's law of homostimulation. The spleen and thymus appeared to offer greater possibilities than many of the other glands, although it seemed probable that eventually the optimum preparation would be a pluriglandular extract containing these and other synergists. The clinical findings of Little of Rochester, N. Y., warranted the use of several organic extracts, particularly those from the pituitary, parathyroid, adrenal cortex, and the islands of Langerhans. In his most recent paper, in addition to emphasizing the value of sugar feeding in many cases of cancer, Little had settled down to three glandular extracts as essential; total pituitary extract for the ectodermic variety of cancer, extract of the adrenal cortex for the mesodermic, and an extract of the pancreas rich in the islands of Langerhans for the endodermic. From the clinical results of his work one could not but be convinced that they warranted the continued investigation of the subject by a much larger number of students. The third postulate mentioned concerned the relation of the incidence of cancer to senility, and, according to Gilford, certain somatic cells became dead while the tissue around them was still in a state of comparative youth. These expressed their senility by returning to a more embryonic form, and as they did so they increased in number, the faculty of proliferation being one of the manifestations of regression. These senile changes might be presumed to be connected with disturbances in the harmone balance. Unquestionably in cancer there was a definite hypoendocrinism, and attempts to modify this, while possibly without specific effect upon the cancer itself, might be of assistance in modifying other accompanying conditions. Altogether, the possibilities of various pluriglandular combinations were almost without number, and suitable combinations might be given impirically where a more or less obvious deficiency was presumed. In such cases pluriglandular therapy was helpful whether they were in the cancerous or precancerous stage, and such a procedure would eventually attain a much more extended usefulness. The whole subject was not only of great theoretical interest but also undoubted practical value, and therefore deserved to be studied with renewed assiduity now that the matter of the internal secretions and the hormones were beginning to receive the attention of which it was so worthy.

Dr. Robert T. Morris said there could be little doubt that the medicine of the coming century would be the medicine of "home rule." Empirical remedies would be done away with more and more, and we would depend upon the resources of the system itself. As to one of these organic extracts, pituitary, it had been found for a time that it did not accomplish all that was expected of it; but when it came to be administered intravenously it was seen that it could do its work very rapidly and very efficiently. The technique was therefore a matter of importance. In certain cases of uterine fibromyoma thyroid extract had appeared to be curative, while in others it did not seem to have any effect. In regard to the relation of the tests to neuroses and psychoses, everyone from Hippocrates to Freud had had something to say, and we now believed that in dementia præcox the lipoid cephalin has lost its oxygen-carrying power because of injury from abnormal sex cell secretion. Dr. Harrower had referred to the colloidogenic function of the spleen, and in Nature the interchangeability between colloids and crystalloids was exceedingly interesting. The jelly-fish and other low organisms, although without alimentary tracts, were able to maintain their activities simply by the absorption of colloids and crystalloids from sea water, and the soft-shell crab could in the space of a few hours assume its hard mineral shell in consequence of the absorption of calcium salts which had not previously been contained in its economy. If such elaborate processes were conducted under the guidance of hormones, we might well assume that application of hormones in a therapeutic way would require a more profound knowledge of physiology than that to which we had as yet attained. If Dr. Harrower could produce five well-authenticated cases of cancer cured by organotherapy, the surgeons would refrain from operating in cases of this disease until he (Dr. Harrower) had had an opportunity to try out gland extracts.

Dr. William Seaman Bainbridge said that at present the whole subject of organotherapy must be regarded as *sub judice*. Great praise should be given those who had been and were making a special study of the internal secretions; but no subject, to his mind, was more full of pitfalls. He recalled that when he was studying medicine more than one of his professors pronounced Brown-Séquard a quack; so, too, the so-called quack of to-day might be the honored scientist of tomorrow. In this field what was still needed was more extended laboratory research and the correlation of the findings of this with clinical work. He could not agree with Dr. Morris that five cases of cure of cancer would be a sufficient test of any method of treatment for that disease. Many illustrations might be cited of alleged cures of many times more than five cases treated by reputable physicians, and pronounced by them cured, by methods which further test proved to be totally inefficient and perhaps entirely worthless. There seemed always to be within the ranks of recognized medicine certain enthusiasts whose credulity outweighed their judgment, and who could see curative merits even in such remedies as the notorious "Mattei electricities," the indisputable efficacy of which was proclaimed by Mother Ballington Booth upon her death bed; yet which proved, upon analysis, to be nothing but distilled water and inert coloring matter. The entire subject under discussion called for "watchful waiting."

Dr. Siegfried Block said that in Dr. Harrower's paper, so full of facts and suggestions, we had had the rare privilege of getting something which was really new. From the neurological point of view it might be said that we were gradually getting away from old obscure terms, and each year fewer cases were diagnosticated as functional disorders. The old term neurasthenia was one used to express a condition with indefinite and multitudinous symptoms, the best definition of which was that "the doctor can find no trouble and does not know the ailment present." When we realized that any chronic disease carried with it exhaustion neuroses to some degree, we at least knew that something was not being supplied to the economy in the way in which it was during health. This was the case in cancer, and the physical and mental wasting associated with this disease was to his mind quite as important as the growth itself. It was well known that with the stoppage of the sex glands in the female neurasthenic symptoms were met with. It made no difference whether this was by means of the menopause or of oophorectomy, cancer was liable to start up at this time. In certain persons there existed a predisposition to cancer, and in certain persons a predisposition to neurasthenia, and it was possible for both to be found in the same individual. The beginning of cancer was painless, and he had had at least one patient consult him for the nervous symptoms associated with the condition, in complete ignorance of the fact that cancer was present; and probably many others had had similar experiences, the nervous symptoms being the cause of the first visit to the physician. We should not be too enthusiastic in regard to organotherapy until more research work had been done on the ductless glands. All cases which were not bacterial or not traumatic in origin were not necessarily glandular. He was of the opinion that certain lymph glands have special functions to perform—for instance, the epitrochlears in syphilis and tuberculosis. Especially in the diagnosis of syphilis they furnished such great aid that a special function might be thought of; possibly they manufactured a special antitoxin selective in character. Another curious fact was that the *x*-ray at times arrested the growth of cancer and also put a stop to testicular power. Both these actions, however, were often only temporary. In actual experience he had seen only one case of cancer in which benefit had apparently resulted

from the use of organic extracts. A woman who had been suffering for the past four years from a large carcinoma of the breast had been treated, in addition to the employment of the *x*-ray, with thyroid, ovary and thymus extracts, in doses of five grains each, for weeks at a time. Although during the past year there had been no improvement in her condition, she was at least very little worse than before. She was also getting much less morphine now than formerly. The growth had remained about the size of a baby's head, and the fact that the patient was still living, while the progress of the disease had been so slow, seemed to point to a favorable influence exerted by the pluriglandular extracts. In no other cancer case had he observed any result at all from their use. It might be of interest to mention that in tertiary syphilis with such conditions as sclerosis of tracts of the cord the results of the administration of thyroid and thymus extracts combined, five grains of each, were often surprising. He would like to ask Dr. Harrower whether he had found much more benefit from fresh extracts than from tablets made by a reliable manufacturer. Some observers had claimed that the former were preferable, and personally he had found the fresh capsules more expeditious in their effects. In cases of cancer, glycosuria was often met with, and, so far as he knew, no reason for this had been given. Perhaps some relation of the thyroid and the pancreas, or possibly the adrenals, might explain it. It was now generally acknowledged that the thyroid and pancreas were dependent upon one another for proper action.

Dr. Samuel G. Tracy said he would like to know whether any actual cures had been effected by means of these organic extracts; so far we had heard nothing but theory on the subject.

Dr. Harrower, in closing, said that as to the efficacy of thyroid extract in certain cases of uterine fibroids, this, it seemed to him, might be explained by antagonism which undoubtedly existed between the thyroid and the ovaries, just as it did between the mammary glands and the ovaries. These fibroid growths were beginning to be regarded as an expression of hyperophorism. The pitfalls of this subject to which Dr. Bainbridge had alluded were offset, he thought, by the vistas of encouragement so frequently seen. Brown-Séquard, far from being a quack, had been one of the two men who had contributed most largely to our knowledge of the internal secretions and opotherapy. As to research work on this subject in laboratories, it was his opinion that while this was naturally of great value, at present it was not so much needed as clinical work by practising physicians. In regard to the matter of glycosuria in cancer, Little had found that cancer patients have hyperglycemia, but rarely glycosuria. Every case of coincident cancer and glycosuria, or of glycosuria followed by cancer, where he could verify the facts by autopsy or otherwise, showed that the pancreas was involved. The relation of the islands of Langerhans to diabetes was generally accepted, and, this being granted, failure of the islands resulted in diabetes or cancer or both, depending on various other factors. According to this theory of Little, if cancer were the result, such cancer should occur in endodermic tissues, since the islands were of endodermic origin. He could not say whether fresh glandular substance was of greater therapeutic value than the tablets on the market, but he had always found the latter satisfactory if they had not been kept too long. The endocrinous system, it would appear, was not confined to the ductless glands. It had been asserted by Blair Bell that every cell in the body might be an internal secretory organ, and Wright had expressed his conviction that the opsonins must be considered as products of the endocrinous glands. In regard to the efficacy of the glandular extracts in cancer, all that had been claimed in the paper was that they serve to ameliorate the condition and relieve pain; thus offering an encouraging field for both speculation and useful practical application. As to their curative effects, the results obtained by Little, Bazzoche, Billard, and others might be cited.

Philadelphia Neurological Society.

At a stated meeting held April 23 Dr. Williams B. Cadwalader exhibited "A Case of Cerebellar Diplegia." The patient was a boy six years old who from an early time in life presented difficulty in walking of an ataxic-spastic character, without sensory disturbances, ocular phenomena or marked change in reflexes.

Dr. George E. Price presented a patient exhibiting "Arteriosclerosis with Symptoms Resembling Pseudobulbar Palsy of Gradual Onset." The case occurred in a man 62 years old who for five years or more had increasing difficulty in locomotion, with thick speech, in conjunction with evidences of sclerotic changes in the vascular system.

Dr. John H. W. Rhein exhibited "Two Patients, Brothers, with Chronic Contractions of the General Musculature." One was 39 years old and the other 37. The disorder had existed in the one for 19 years and in the other for 18 years. Besides, two other members of the family presented similar symptoms. The patients presented a constant jactitation, involving practically all parts of the body, increased by observation and emotional influences, but without spasticity or contractures or noteworthy alteration in the reflexes. One of the cases had previously been presented to the Society first as a case of pseudosclerosis and at a later time as one of lenticular degeneration.

Dr. Rhein presented also "A Specimen Showing Multiple Sarcomata of the Brain," and also "A Specimen of Tumor in the Cerebello-pontile Angle." With respect to the latter it was known that the patient had presented disorder of locomotion and the tumor was found to be easily separable from surrounding tissues.

Dr. Ezra Allen presented a communication entitled "A Study of Cell-division in the Cerebellum and Demonstration of a New Technic for Staining Mitotic Figures."

Dr. Milton J. Greenman presented a communication entitled "Regeneration of Peripheral Nerves." It was found that following section of the peroneal nerve in lower animals there occurred in the course of regeneration an increase in the number of nerve-fibers at the point of division and subsequent union and for a short distance distad and peripherad, although the nerve itself had become smaller. In addition the corresponding nerve on the opposite side of the body in the same situation also was reduced in size, although there had been no symptomatic indication of disturbance of function on the unoperated side. It was further found that when the extremities of the divided nerve were surrounded by a tube of celloidin the increase in the number of nerve fibers was markedly less.

Dr. G. Hudson Makuen presented a communication entitled "The Psychology of Stammering." He accepted the view that stammering is an expression of auditory amnesia and exhibited illustrative cases showing the results of education and training.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

State Board of Medical Examiners of New Jersey.

October, 1914.

(*Concluded from page* 882.)

OBSTETRICS.

1. Give average normal pelvic measurements which you would take at examination of a woman in her first pregnancy. Give smallest measurements which would permit natural delivery.
2. Give mechanism of second stage of labor in L. O. A.
3. Give treatment of different degrees of uterine inertia.
4. Give three causes for postpartum hemorrhage, and treatment for each.
5. Give management of shoulder presentation.
6. Give causes for non-engagement of head at brim, and give management of each condition.

GYNECOLOGY.

1. Name two conditions in which cystoscopy would aid in diagnosis, and give cystoscopic findings in each.
2. Differentiate subinvolution of uterus, chronic metritis, and uterine fibroid.
3. Give history and symptoms of tubal pregnancy in third month, and its possible terminations.
4. Give blood supply of the uterus and ovaries.

SURGERY.

1. Define a compound, comminuted, and complicated fracture. Give treatment.

2. Give diagnostic symptoms and treatment of acute epididymitis.
3. Give diagnostic symptoms of stone in ureter.
4. Describe the deformity and the method of reduction of the same in Pott's fracture.
5. Describe congenital dislocation of the hip.
6. What conditions may give rise to symptoms simulating those of appendicitis?
7. What is the clinical aspect of a beginning carcinoma of the female breast?
8. Define hernia; give different varieties of abdominal hernia.
9. What are the symptoms produced by gallstones?
10. Define and give symptoms of hypothyroidism.

ANSWERS.

OBSTETRICS.

1. The diameters and measurements of the female pelvis are easily remembered from the following table:

	Antero-posterior	Oblique	Transverse
Brim	4 inches	4½ inches	5 inches
Mid-plane	4½ "	4½ "	4½ "
Outlet	5 "	4½ "	4 "

In external pelvimetry four measurements are generally taken: (1) between the anterior superior spines of the ilium, normally about ten and a quarter inches; (2) between the external edges of the iliac crests, normally about eleven inches; (3) between the heads of the two great trochanters, normally about twelve and a quarter inches; and (4) between the spinous process of the last lumbar vertebra and the upper margin of the anterior surface of the symphysis pubis, normally about eight inches.

"The *conjugata vera*, or true conjugate, is measured from the center of the promontory of the sacrum to that point on the posterior surface of the upper end of the symphysis pubis which is crossed by the iliopectineal line. This is the shortest diameter at the brim through which the head must pass. It cannot be accurately measured, but is estimated in the normal pelvis at 10.5 to 11 centimeters (4¼ to 4½ inches). The *diagonal conjugate* is measured from the summit of the subpubic arch, or the subpubic ligament, to the promontory of the sacrum; it is from this diameter that we estimate the true conjugate. To estimate the true conjugate from the diagonal, we deduct from ½ to ¾ of an inch (1.5 to 2 centimeters). The amount to be deducted depends (*a*) on the depth of the symphysis pubis—the greater the depth the greater must be the allowance; (*b*) on the thickness of the pubic symphysis, for increase in the thickness increases the allowance to be subtracted; (*c*) on the inclination of the symphysis and the inclination of the brim of the pelvis, for when the promontory is high a greater deduction must be made."—(Polak's *Manual of Obstetrics.*)

The smallest conjugate diameter which will permit of natural delivery is probably about three inches.

2. *Mechanism of Labor in L. O. A.*—"(1) Accommodation of the size of the fetal skull to the size of the pelvic canal by flexion; accommodation of the shape of the fetal skull to the shape of the pelvic inlet by moulding; accommodation of the direction of the head to the direction of the pelvic canal by lateral inclination. These movements occur prior to labor, when the head enters the pelvic inlet with the subsidence of the uterus. (2) Further flexion, molding, and accommodation of the head to the pelvis by lateral inclination, when labor-pains appear, and the head is subjected to a propulsive force and to the resistance of the lower uterine segment, the cervix, and the pelvic walls. (3) Dilatation of the lower uterine cavity and of the cervical canal. (4) Descent of the head to the pelvic floor, mainly by an extension of the fetal spine. The fetal body, as a whole, is not yet propelled along the birth-canal, because, during a pain and while the head is obviously descending to the pelvic floor, the fundus uteri and the breech do not sink to a lower level. On the contrary, there is a slight elevation of the fundus, and elongation of the uterus, and the distance between the head and the breech increases during a uterine contraction. (5) Anterior rotation of the occiput. (6) Propulsion and extension of the head in the direction of least resistance under the pubic arch until it is delivered, again following the direction of the lower pelvic floor, which is now upward, forward, and outward. (7) Restitution. The rotary movement of the head is not followed by the shoulders. As the former escapes from the vulva with the sagittal suture running anteroposteriorly, the neck is necessarily twisted. As soon as the head is released from the forces which compel its rotation, it immediately resumes its natural relationship with the shoulders, which lie with their long axis in the oblique diameter of the pelvis. (8) External rotation. This movement of the head is explained by the movement of the shoulders within the birth-canal. (9) Descent, rotation, and birth of shoulders. The anterior, or right, shoulder first strikes the resistance of the pelvic floor. In obedience to the universal law that whatever portion of the fetal body first encounters this resistance is directed downward, forward, and inward, the anterior shoulder is compelled to travel in these directions by a rotary movement of the shoulders on the spine. The anterior shoulder finally appears under the arch of the symphysis; unable to move further forward, the posterior shoulder and arm are propelled over the floor of the pelvis and are born, their escape being followed by the birth of the anterior shoulder and arm. (10) Delivery of remainder of the body by a movement so rapid that the eye cannot well follow it, the birth-canal being so widely dilated that its walls offer no resistance to the escape of the small and compressible thorax, abdomen, and lower extremities."—(From Hirst's *Obstetrics.*)

3. "*Treatment of uterine inertia:* Endeavor to ascertain and remove the cause. Place the woman under the best hygienic conditions. If the source of reflex disturbances cannot be removed, we may quiet the nerve center by chloral, opium, or the bromide of potassium, after which the inertia is commonly relieved. When the patient is suffering from fatigue during a protracted labor, quinine is of great use. Massage and stroking of the uterus through the abdominal walls may be tried. If over-distention exists we should early rupture the membranes."—(Landis' *Obstetrics.*)

4. POSTPARTUM HEMORRHAGE. *Causes:* Anything interfering with the firm contraction of the uterus after the expulsion of the child; retained placenta, or membrane, or clots; weakness of the uterine muscle; rapid labor; delayed labor; poorly developed uterine muscle; inflammation or disease of uterus.

Treatment: Grasp the uterus at once, through the abdominal wall, and massage it firmly. Anything in the uterus should at once be cleaned out. Pass one hand into the uterus, and with the other on the outside make firm pressure. A hypodermic of ergotin or ergot can be given by an assistant. An intrauterine douche of hot sterilized water (about 115° F.) may be given. Sometimes a very thorough packing and plugging of gauze of uterus and vagina may be necessary. Whatever is done must be done promptly; and everything likely to be needed for this emergency should be prepared beforehand in every labor.

5. In cases of *shoulder presentation*, if seen before labor, version should be performed to correct the malpresentation; in case of impaction a cesarean section is indicated; sometimes decapitation or embryotomy has been performed, but a cesarean section is preferable. Cases of shoulder presentation have been known to terminate spontaneously, but it is not advisable to rely on this possibility.

6. The chief causes are hydramnios, hydrocephalus, contracted pelvis, malpresentation.

"*Treatment:* Empty the bladder and rectum; determine if there is a faulty presentation, as bregma, brow, or face. Measure diagonal conjugate and height of symphysis and determine the true conjugate. If this latter measures less than 2¾ inches in a simple flat pelvis, or three inches in generally contracted pelvis, the contraction is absolute, and only cesarean section or craniotomy is possible. Ascertain by palpation whether there is serious disproportion between head and pelvis. Malpresentations must be corrected with one hand in vagina pressing upward on the fetal anterior portion of the presenting part, and if possible drawing down in the occipital pole, aided by external manipulation. Press the head downward into the pelvis; this maneuver may be aided by Walcher's position. If there is marked disproportion, cesarean section and craniotomy must be considered. If disproportion is apparently not insuperable, rupture the membranes just after the acme of a pain, when the cervix is fully dilated, keeping the patient in Walcher's position. If the head thereupon engages during the next few pains, allow spontaneous delivery, or aid with forceps, if necessary. If the head still refuses to engage, apply axis-traction forceps in Walcher's position, tentatively; if unsuccessful, perform podalic version by combined

or internal method. If membranes have already ruptured, note whether there is marked retraction ring. If not, podalic version is proper, subject to limitation of slight disproportion; but if the uterus has retracted markedly, forceps, and that failing, only cesarean section, symphyseotomy, or craniotomy is admissible."—(From Scott's *State Board Obstetrics.*)

GYNECOLOGY.

1. Tuberculous cystitis and gonorrheal cystitis.

TUBERCULOUS CYSTITIS.	GONORRHEAL CYSTITIS.
1. Located chiefly about the trigone.	1. Not at all so confined.
2. Inflammatory reaction zone absent or not well defined.	2. Clear inflammatory reaction zone, later changing to dull-brown color.
3. Tuberculous cystitis not common.	3. Common.
4. Characterized by presence of small tubercles situated about the trigone and ureteral orifices.	4. Characterized early by insular areas of reactive inflammation, with healthy or nearly healthy intermediate mucosa. Later insular areas may become confluent and extend over the whole mucosa.
5. No projecting tufts of pus.	5. Projecting tufts of gonorrheal pus are apt to be present. In chronic stage regions of elevation may be excavated by ulceration.
6. No subperitoneal extravasation of blood.	6. In very acute stage there is subperitoneal extravasation of blood.
7. Bacillus tuberculosis.	7. Gonococcus.

—(Dudley's *Gynecology.*)

2. In *subinvolution of the uterus* there will be a history of a more or less recent pregnancy, with prolonged labor or puerperium; the uterus is larger than normal, and there may be hemorrhage and leucorrhea.

In *chronic metritis* the uterus is uniformly enlarged, and is of uniform hardness; the enlargement is moderate; there is tenderness on pressure; generally there is a history of infection.

In *uterine fibroid*, the uterus may be enormously enlarged, the enlargement is irregular, and the fibroids are generally harder than the uterus; no tenderness on pressure; and no history of infection.

3. TUBAL PREGNANCY. "Prior to the fourth month the three cardinal and practically constant points in the diagnosis of beginning extrauterine pregnancy are (1) disturbance of menstruation, (2) sharp pelvic pain, usually accompanied with faintness, and (3) the presence of a mass adjacent to and connected with the uterus. Certainty of diagnosis is based upon a logical analysis of these three factors."—(Jewett.)

The *possible terminations* are: Rupture of the tube, followed by hemorrhage, shock, peritonitis, and perhaps death; tubal abortion; and continuance of the pregnancy to term.

4. *Blood supply of the uterus:* The uterine and ovarian arteries.

Blood supply of the ovaries: The ovarian arteries.

SURGERY.

1. A *compound fracture* is one in which an open wound extends from the seat of the fracture to the surface of the body.

A *comminuted fracture* is one in which the bone is broken into many fragments.

A *complicated fracture* is a fracture with the addition of some injury to neighboring structures, such as joint, artery, vein, nerve, or soft parts.

Treatment of simple fracture: "In simple fractures there are four essentials: (1) Reduction; (2) coaptation; (3) immobilization; (4) promote the nutrition of the part and prevent adhesions in the neighboring joints and muscles."

Treatment of compound fractures: "The most important thing is to render the wound aseptic by enlarging it and washing its depths and surroundings thoroughly with 1 in 20 carbolic or 1 in 500 biniodide. An anesthetic is nearly always necessary. Loose fragments should be removed, hemorrhage dealt with, and the bones fixed by wires or screws. The wound should be drained by a tube at the most dependent spot, and the rest of the wound closed. The limb should then be fixed on a splint, and in most cases will be found to do well."—(*Aids to Surgery.*)

2. "Acute epididymitis is characterized by swelling about the testicle, pain in the groin, and tenderness over the posterior part of the testicle. The pain becomes acute, swelling rapidly increases, and the constitution sympathizes. The swelling is due partly to engorgement of the epididymis and partly to fluid in the tunica vaginalis (acute hydrocele).

"*Treatment* by septic puncture with a tenotome, if fluctuation is marked, will relieve tension and pain. Leeching over the external abdominal ring, the use of an ice-bag, elevation, application of guaiacol, and administration of laxatives and opium constitute the usual treatment in the acute stage. Applications of guaiacol over the cord, epididymis, and testicle seem to relieve pain and distinctly lessen swelling. Two applications a day should be made for one week. At each application paint the scrotum and over the external ring with 15 drops of guaiacol in one dram of glycerin or olive oil. Strapping is employed as the inflammation subsides."—(Da Costa's *Surgery.*)

3. *Stone in the ureter* is characterized by: Severe colic, with pain radiating along the ureter; tenderness over the ureter; hematuria; the stone may be felt through rectum or vagina; a skiagram may show the stone; ureteral catheterization through the cystoscope may allow of the stone being touched by the catheter, and a waxed tip may receive a scratched impression.

4. *Pott's fracture* is very common, and is due to indirect violence, such as turning over on the inside of the foot. The strain tears through the internal lateral ligament of the ankle or tears off the tip of the malleolus; then the astragalus is pressed against the inner side of the external malleolus by the continuation of the violence. The fibula is overbent, and breaks about three inches above the tip of the malleolus. At the same time the foot is displaced outward or outward and backward. In many cases, however, the displacement is slight.

Treatment: "An anesthetic should always be given, and the fracture reduced by relaxing the calf muscles and applying traction to the foot. The limb must then be fixed on the back-splint, with side-splints in addition. The foot must be at right angles to the leg, the bony points in line, and the posterior displacement corrected. The surest way of maintaining the foot in good position is to at once apply plaster of Paris. Other splints used are Dupuytren's and Syme's horseshoe splint. Massage and passive movement at the end of ten days are advisable, the fragments being firmly grasped to prevent displacement."—(*Aids to Surgery.*)

5. "*Congenital dislocation of the hip* is usually due presumably to arrested development. It may be inherited. It occurs more frequently in females. It is seldom apparent until the child begins to walk. Rarely it occurs during birth due to cramped position of the child *in utero*. The dislocation results in atrophy of the acetabulum, the cavity becoming more and more shallow, and of the head of the femur which rests behind the acetabulum on the dorsum of the ilium. The neck of the femur and the thigh muscles are shortened. The capsule is stretched, an hourglass constriction sometimes being found between the head and the pelvic bone. In unilateral dislocation there is scoliosis and limping; in bilateral, there is a waddling gait and lordosis."—(*Pocket Encyclopedia.*)

6. *Symptoms simulating those of appendicitis* may be found in: Gastroenteritis, intestinal obstruction, typhoid fever, gastric ulcer, duodenal ulcer, salpingitis, ovaritis, kinking of ureter, renal colic, hepatic colic, ruptured extrauterine pregnancy, peritonitis.

7. *Clinical aspect of a beginning carcinoma of the female breast:* "Scirrhous carcinoma is usually met with in women between the ages of thirty-five and fifty, and it often begins while the patient is still menstruating regularly. It sometimes occurs in patients below thirty. The most common site is the upper and outer quadrant of the breast, but it may occur in any part of the gland. Sometimes there is more than one nodule in the breast. In its early stages the condition is quite painless, and the existence of the tumor is usually discovered accidentally. In some cases indrawing of the nipple or dimpling of the skin over the breast first attracts attention. It is often noticed that there is

a difference in the level of the two nipples, that of the affected breast being at a higher level than the other (Watson Cheyne). As the disease progresses the patient experiences a dull, aching pain, with occasional sharp twinges shooting through toward the shoulder, up into the neck, or down the inner side of the arm. On palpation, a more or less circumscribed and fairly well-defined tumor of stony hardness may be felt in the substance of the breast. Not being encapsulated, it cannot be moved apart from the breast. When firmly pressed against the chest wall with the flat of the hand the tumor becomes more evident, and its stony hardness is fully appreciated. The skin over the growth may for a long time remain free, but, as the disease progresses, it becomes tacked down, and is later dimpled by contraction of the suspensory ligaments of Cooper. When the skin becomes invaded by the tumor it assumes a characteristically coarse and indurated appearance, aptly compared to that of the skin of an orange or to pig's skin. When the tumor is near the center of the breast, it causes retraction of the nipple by dragging on the large ducts. It cannot be too strongly emphasized that the presence of all or any of these symptoms is not necessary for the diagnosis of cancer, and that when there is any doubt the patient should be given the benefit of an exploratory operation." —(Thomson and Miles' *Manual of Surgery.*)

8. *Hernia* is the protrusion of a viscus or other structure, either in whole or in part, through the cavity in which it is normally placed.

Varieties of abdominal hernia: Inguinal (oblique and direct; the oblique may be congenital, acquired, or infantile); femoral; umbilical; ventral, and postoperative.

9. The *symptoms of gallstones* are: *"Indefinite pains;* fullness in right hypochondrium and epigastrium. *Paroxysms of colic* begin in hypochondriac and epigastric regions, spread toward navel and right scapula; generally begin in daytime, during exercise, and last a few minutes to several hours; collapse, sickness, or vomiting. *Sickness and malaise,* quite independent of colic. *Vomiting.*—At end of paroxysm; bile-stained vomit; calculus is rarely vomited. *Collapse.*—Feeble pulse; clammy skin, low temperature. *Calculi in feces.* —Absence in some cases accounted for by stone having failed to reach the intestine. *Jaundice.*—Usually occurs 12 to 36 hours after colic; skin, urine, conjunctiva are yellow; feces are clay colored and offensive; rarely, and in old people, jaundice occurs without preceding colic; does not occur when stone is in cystic duct; is partial, *i.e.* feces contain bile when obstruction is partial, or when fistulous communication exists. *Temperature.*—Sometimes rigors, with temperature 103° or more, occur after colic; probably due to septic infection at seat of ulceration; fever may be of an intermittent type, associated with catarrh of bile-ducts and an impacted calculus; may be remittent, and lead on to septicemia or septic endocarditis; associated with suppuration in bile-ducts."—(*Synopsis of Surgery.*)

10. *Hypothyroidism* is the condition produced by absence or diminution in the secretion of the thyroid gland. The *symptoms* are: "(1) *Changes in the subcutaneous tissues.*—Great increase of fat and mucoid tissue; the hair is brittle and falls out; supraclavicular fatty masses are very conspicuous. (2) *Changes in the nervous system.*—Amentia or dementia are prominent; in the case of cretinism a state of childishness or imbecility continues throughout life unless the case is treated. (3) *Changes in the skeleton.*—The terminal phalanges become broad and spatulous; in cretinism growth is arrested, so that the stature of the adult is that of a child of about six. (4) *Changes in the genital organs.*—The cretin has undeveloped sexual glands, undescended testes, and no secondary sexual characters; in myxedema sexual feeling and power are lost."—(*Synopsis of Surgery.*)

Effect of Sarcoma Autolysates upon the Development of Sarcoma.—B. Morpurgo states that the injection of the autolysates of a sarcoma in a mouse from which part of the tumor has been removed has no effect in retarding the further development of the remaining portion of the growth. These autolysates have several times facilitated the attachment and development of sarcoma grafts in races little receptive to these grafts. They have no effect upon individual refractoriness to the latter. No effects are observed after the injection of sarcoma extracts in physiological salt solution.—*Archivio per le Scienze Mediche.*

Therapeutic Hints.

Tincture of Boxwood in the Treatment of Cholangitis.—A. De Vevey alludes to the apparent specific action of this preparation in the treatment of the so-called intermittent hepatic fever of Charcot. Tincture of boxwood is both cholagogue and purgative. It is given in doses of 5 grams.—*Bulletin Générale de Thérapeutique.*

Treatment of Post-typhoid Proctitis.—M. Loeper and P. Leroy recommend the use of the following suppositories:

℞ Ichthyol, 0.15 to 0.20 gram.
Tannin, 0.15 gram.
Extract of belladonna, 0.02 gram.
Cocoa butter, 3 grams.

One of these should be inserted into the rectum every evening.—*Progrès Médical.*

Antipyrine in Chorea.—Comby is credited with the following formulæ:

℞ Antipyrine, 10 grams.
Simple syrup, 190 grams.
Spirit of peppermint, 1 gram.

℞ Antipyrine, 10 grams.
Fluidextract of licorice,
Glycerine, aa 15 grams.
Water, q.s. ad 150 c.c.

The dose of either of the above is one tablespoonful three times a day.—*Riforma Medica.*

Lavage in Carbolic-Acid Poisoning.—D. J. Macht concludes from his experimental study that the efficiency of lavage in phenol poisoning depends on the quantity of poison taken, on the time after poisoning that the lavage is begun, and on the solution used for washing the stomach. A strong solution of sodium sulphate appears to be the most useful for the purpose; next in efficiency comes plain water. The influence of alcohol in phenol poisoning depends on the time of its administration. An animal that is previously intoxicated with alcohol can withstand better the effect of phenol taken afterward. On the other hand, alcohol administered to an animal after poisoning with phenol will aggravate the symptoms and hasten death. The use of alcohol in carbolic acid poisoning should be strongly discouraged.—*Bulletin of the Johns Hopkins Hospital.*

For the Lightning Pains of Tabes.—G. Rummo recommends the following:

℞ Acetphenetidine.
Methylacetanilide.
Quinine hydrobromate, āā 1 gram.

M. et div. in pulv., No. X. Sig.: Five or 6 powders to be taken in the course of the day.—*Riforma Medica.*

Treatment of Nervous Depression Following Influenza.—Sir Richard Douglas Powell has recommended the following in the treatment of sweatings associated with nervous depression following influenza in a patient suffering from congenital disease of the heart:

℞ Strychnine hydrochloride, gr. 1/3.
Dilute phosphoric acid, ♏ ij ss.
Tincture of belladonna, ♏ ss.
Tincture of digitalis, ♏ ss.
Syrup of orange, ʒ j.
Chloroform water, ad ʒ vi.

M. et Sig.: One tablespoonful in a wineglass of water at 10.30 A.M. and 3 P.M. It may be advisable to add twelve minims of the tincture of the chloride of iron at the time of taking.—*Clinical Journal.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 24.
Whole No. 2327.

NEW YORK, JUNE 12, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

RECENT STUDIES OF PANCREATIC SECRETION.*

BY MAX EINHORN, M.D.,

NEW YORK.

PROFESSOR OF MEDICINE AT THE NEW YORK POSTGRADUATE MEDICAL SCHOOL.

THE pancreatic secretion being of paramount importance to life, it deserves our closest attention. In several other papers[1-3] I have given my experiences with the duodenal contents in man. In the present article I intend to embody my recent observations in this line.

A. Physiological.—It is well known that the pancreatic secretion contains a milk-coagulating ferment.

In the duodenal contents a similar ferment is found. The question arises, is this rennet ferment due to the pancreas or is it perhaps the rennet ferment of the stomach. In order to decide this point it was necessary to look for some points of differentiation between these two ferments, viz., the gastric and pancreatic rennets.

I accidentally observed that boiled milk did not curdle with the duodenal contents. I therefore investigated this point. The experiments with gastric and pancreatic secretions, mixed with boiled and unboiled milk (1 drop of either secretion to 1 c.c. of milk), are given in tables 1 and 2.

TABLE I.—BEHAVIOR OF RENNET FERMENT IN DUODENAL CONTENTS 1 DROP TO 1 C.C. OF UNBOILED AND BOILED MILK AFTER 30-60 MINUTES

No.	Date	Name	Unboiled Milk	Boiled Milk
1	II. 13, '15	N. R	+	0
2	14	Tr	+	0
3	..	A. M	0	0
4	15	P. K	+	0
5		S. M	0	0
6	.	A. A. M	0	0
7	16	E	0	0
8	18	Dr. G	0	0
9	.	Dr. G	0	0
10	19	R.	+	0
11	20	F	+	+ (weak
12		H	0	0
13	21	A. A. M	+	0
14		S	+	0
15	23	S. M	+	0
16	24	Mrs. M	+	0
17		S	0	0
18		Mrs. Sh	+	0
19		E	+	0
20	27	Mrs. Sh	+	0
21	28	S	+	0
22		F	+	0
23		Mrs. M	+	0
24	III, 2, '15	Miss J. T	+	0

It is seen at a glance that the gastric juice coagulates milk, without any difference whether it be raw or boiled, while the pancreatic secretion (as found in the duodenum) curdles raw milk and not boiled milk, the latter remaining fluid for four to six hours. This clearly shows that the rennet ferment, found in the duodenum, belongs to the pancreas and is different from the gastric rennet.

TABLE II.—BEHAVIOR OF RENNET IN NATURAL STOMACH CONTENTS, 1 DROP TO 1 C.C. OF UNBOILED AND BOILED MILK

No.	Date	Name	After 1-10 Minutes		Coagulum Left After 24 Hours	
			Unboiled Milk	Boiled Milk	Unboiled Milk	Boiled Milk
1	II. 13, '15	J. C	+	+		
2	14	M. B	+	+		
3		R	+	+		
4	18	Mrs. C	+	+		
5	III. 1, '15	Mrs. St	+	+		
6	2	F. W. S	+	+		
7	4	S	+	+	+1/5	+2/3
8		D	+	+	+1/5	+2/3
9	.	P	+	+	+1/15	+9/10
10	20	Miss B	+	+	+1/10	+7/8

There exist two more points of differentiation: (1) Gastric rennet curdles milk in from five to ten minutes, while the pancreatic rennet requires from twenty to sixty minutes to do this; (2) the gastric juice, made alkaline to phenolphthalein, loses its coagulating faculty for milk; the duodenal contents, made alkaline to phenolphthalein, retain their ability of curdling, milk.

The following experiments show this distinctly. (Tables 3 and 4.)

TABLE III.—BEHAVIOR OF RENNET IN STOMACH CONTENTS, THAT HAVE BEEN DISTINCTLY ALKALINIZED, USING PHENOLPHTHALEIN AS AN INDICATOR, 1 DROP TO 1 C.C. OF UNBOILED AND BOILED MILK

No.	Date	Name	Original Total Acidity	Unboiled	Boiled
1	II. 23, '15	T	80	0	0
2	27	Miss B	60	0	0
3	III. 1, '15	Mrs. St	50	0	0
4	2	F. W. S	80	0	0
5	S	H	70	0	
6		Tr	40	0	
7	9	H	55	0	
8		F	70	0	
9	10	Mrs. B	100	0	
10		Mrs. D	40	0	
11	14	R	45	0	0

TABLE IV.—BEHAVIOR OF RENNET IN DUODENAL CONTENTS ALKALINIZED USING PHENOLPHTHALEIN AS AN INDICATOR, IN UNBOILED AND BOILED MILK AFTER 30-60 MINUTES AND AFTER 24 HOURS, WITH AMOUNT OF COAGULUM REMAINING

No.	Date	Name	After 30-60 Minutes		After 24 Hours Amount of Coagulum Remaining	
			Unboiled	Boiled	Unboiled	Boiled
1	II. 24, '15	E	+	0		
2	27	Mrs. Sh	0	0		
3	III. 2, '15	Miss J. T.	+	0		
4	3	S	+	0		
5	.	Miss J. T.	0	0 (After 7 hours)		
6	.	Miss J. T.	+	0	+1/5	+2/3
7		S			+1/4	+2/3
8	S	Mrs. M	+	0	+1/8	+7/8
9	14	E. P	.		+1/10	+1/2

One drop of pancreatic secretion, as found in the duodenum, mixed with 1 c.c. of milk and left at blood temperature for twenty to twenty-four hours,

*Read before the American Gastroenterological Association on May 10, 1915, at Baltimore, Maryland.

very often shows almost an entire disappearance of the white milky color, the fluid now being watery or slightly straw colored and transparent. At times there is a small coagulum left at the side of the tube. The amount of coagulum left depends prob-

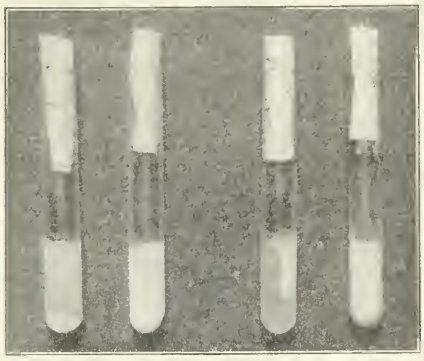


FIG. 1.—A Duodenal contents (patient S); B, gastric contents; each 1 part to 20 parts milk (*a*, raw, *b*, boiled), after 20 hours' digestion at blood temperature.

ably on the amount of trypsin present. This would make it possible to use milk as a coarse test for the presence or absence of trypsin. Boiled and unboiled milk show a great difference in their action with the pancreatic secretion, with regard to the amount of coagulum left undissolved after twenty-four hours, boiled milk showing a coagulum sometimes ten times as large as unboiled milk. (Table 5.) But this difference of boiled and unboiled milk with regard to its coagulum is also noticeable in its relation to the gastric juice (Fig. 1, A and B). Table 2 illustrates this fact.

TABLE V.—BEHAVIOR OF RENNET FERMENT IN DUODENAL CONTENTS, 1 DROP TO 1 C.C. OF UNBOILED AND BOILED MILK AFTER 24 HOURS, WITH RELATIVE AMOUNTS OF COAGULUM LEFT

No.	Date	Name	Amount of Coagulum	
			Unboiled Milk	Boiled Milk
1	III, 4, '15	Sh	+1 10	+2/3
2	"	F	+1 5	+1 2
3	"	S	+1 4	+7/8
4	"	Miss B	+1/8	+1/2
5	12	Br.	+1/5	+9/10
6	14	P	+1/10	+1/2
7	"	K	+1/10	+9/10
8	16	B	+1 4	+7/8
9	20	Kl	+1 8	+3/4

It appears from these experiments that unboiled milk is changed more thoroughly than boiled milk. The conclusion seems to be justified that unboiled milk would be easier for digestion than boiled milk.

Technique.—After these cursory remarks on pancreatic rennet and milk, I go over to the technique used by me for the determination of the three main ferments of the pancreas: amylopsin, steapsin, trypsin. In the last two or three years I have used one uniform method, so that comparisons may be made more easily and the results should be of greater value.

The method used is that of agar tubes, described by me[1] in the MEDICAL RECORD.

I shall here again state the procedure for making the tubes, which is as follows:

I. Starch Tubes.—Agar powder, 2.5; starch, 5.0; distilled water, up to 100.0. Rub the starch and agar in a mortar with sufficient water to make a smooth paste, then add the balance of the water. This mixture is put into a flask and heated to the boiling point. It is then drawn by suction into a capillary glass tube (inside diameter, 1.5 mm.) which has previously been warmed in the flame. The tube and contents are allowed to cool and are then cut into 3 cm. lengths. These are sealed at each end with melted paraffin.

II. Olive Oil Tubes.—Olive oil, 25.0; agar powder, 2.0; aqueous solution of nile-blue sulphate (1:2000), sufficient to make 100.0.

Rub the olive oil and agar together, add sufficient water to make a thin paste, then add the nile-blue-sulphate solution to make the balance of 100 c.c. Then proceed the same as with the starch tubes.

III. Hemoglobin Tubes.—Hemoglobin powder, 1.0; agar powder, 2.5; distilled water, sufficient to make 100.0.

Rub the hemoglobin with about 10 c.c. of water until it is smooth, add the agar powder and the balance of the water; then proceed in the same manner as with the starch tubes.

The agar tubes* are best kept on ice until used. They retain their efficiency for a month or six weeks, then they begin to deteriorate. They become dry and are apt to give wrong results.

Mode of Procedure.—Take one each of the starch, oil, and hemoglobin tubes, scrape off the paraffin at one end, and put them vertically into a bottle containing the duodenal secretion (Figs. 2 and 3). Add a few drops of toluol and keep the bottle at blood temperature for sixteen to twenty-four hours. The examination is made in the following way: The agar tubes are taken out from the bottle, wiped off, and inspected. The hemoglobin tube shows a change of appearance (due to the action of the trypsin) and a clearing up of the end part, becoming more or less transparent; the oil tube manifests a bluish appearance (the steapsin ferment splits the oil into fatty acids producing this color) at the end. The lengths of transparency in the hemoglobin tube and of bluish color in the oil tube are measured and stated in millimeters (Fig. 4). The starch tube is further examined by pushing out the agar column and dipping it into a weak iodine solution. The portion of the starch column remaining colorless indicates the part changed (by the amylopsin ferment) into sugar and is given in millimeter lengths.

Thus, the hemoglobin serves to gauge the trypsin, the olive oil the steapsin, and the starch the amylopsin ferments. As a thermostat I have recently used Freas' electric oven, which is very convenient indeed.

Characteristics of the Duodenal Contents.—They mostly consist of pancreatic juice, bile, and some duodenal secretion proper. The mixture looks golden yellow, is clear (transparent), viscid, and

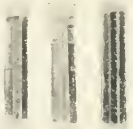


FIG. 2.—The agar tubes sealed with paraffin.

alkaline to litmus and methylorange (alkalinity = about 20), but rather acid to phenolphthalein.

* The agar tubes for testing the pancreatic ferments may be obtained at Eimer & Amend, 205 Third Ave., New York City.

(I have as yet never encountered duodenal contents that gave a reddish discoloration with phenolphthalein.)

The yellow color ordinarily changes after a few hours of standing, losing much of its brightness

Fig. 3.—The agar tubes have been put in the bottle containing a small amount of duodenal contents. The specimen is ready for the digestion test in the oven.

and becoming slightly greenish and also turbid. The fresh contents are free from any particular odor. After standing a few hours, however, they begin to manifest an unpleasant odor, which rapidly increases (due to decomposition or rather putrefaction through the influence of bacteria). They then present a fetid odor resembling feces.

I have made the observation that patients who take about three to four teaspoonfuls of glycerin daily furnish duodenal contents that do not decompose for two or three days. They retain their freshness and remain without any particular odor for that length of time. This fact seems to be due to some derivatives of glycerin being excreted with the bile and exerting this antizymotic influence. When glycerin is directly added to duodenal contents, it likewise preserves them from decomposition.

The observation that glycerin acts in the manner described can be utilized therapeutically for affections of the liver and mainly of the gall-bladder.

The Duodenal Contents in Normal Individuals.—In order to ascertain the condition of the duodenal contents in health, several apparently perfectly healthy persons were examined with regard to the state of their pancreatic secretion. They took the duodenal tube either at night before retiring, or between 4 and 5 A. M., with a glassful of water. They then slept, arose at 8 A. M., and called at my office at 9 A. M. in the fasting condition, when duodenal contents were obtained. I am greatly indebted to them for their willingness to be thus examined. In Table 6 are given their names and the result of the duodenal contents examination in the fasting condition.

The amount of ferments in normal individuals fluctuated as follows: Amylopsin, 4 to 8 mm.; steapsin, 2 to 5 mm.; trypsin, 0.5 to 5 mm.*

The average figures were: Amylopsin 6 mm., steapsin 3.5 mm., trypsin 2.8 mm.

The alkalinity, as determined by one-tenth standard solution of hydrochloric acid with methyl-orange as an indicator varied between 15 to 40. The rennet ferment was present in all.

B. Pathological.—During the last three years I have examined 170 patients with regard to their duodenal contents, making about 275 analyses of the pancreatic secretion. The examination took place either in the fasting condition of the patient or after tea and sugar or clear bouillon, ordinarily about one to one and a half hours after the ingestion of the latter into the stomach. The duodenal tube was introduced either the night previous or two or three hours preceding the examination. The contents were obtained first by aspiration, then being followed by syphonage. The quantitative examination of the amounts of the different ferments was determined by the agar tubes described above. The alkalinity was determined in 57 patients and averaged 22. Ordinarily it fluctuated between 10 and 30. One patient showed an alkalinity of 80, which was exceptional. As far as I can see there is no relation between gastric acidity and pancreatic alkalinity.

In looking over the results obtained by these examinations there exists a noticeable independence between the three different ferments with regard to quantity in the same individual—*i.e.* one ferment may be present in large amounts, while the other two may be present in small amounts or may be absent. The quantity of one ferment does not permit us to presume the amount of the two other ferments. It is, thus, necessary to test for each of the three ferments separately. This is accomplished in the most convenient way by means of the agar tubes.

The pancreatic secretion is subject—similar to the gastric juice—to functional anomalies or deviations from the normal. The juice may contain an overabundance of ferments or too small an amount of them. Again there may be hypersecretion or greatly diminished secretion. While in the gastric juice the functional activity is generally reckoned by the amount of hydrochloric acid present, there has as yet no definite substance of the pancreatic secretion been selected for this purpose. The trypsin ferment being the most important ingredient of the pancreatic juice, I would suggest to use it as a gauge for the functional activity of this gland. The following terms may then be advantageously used:

Table VI.—Examination of Duodenal Contents in Normal Persons

No.	Name	Date	Amylopsin, Mm.	Steapsin, Mm.	Trypsin, Mm.	Remarks
1	Miss E. Plate	III, 14, '15	8	6	4	Goldeo yellow, clear, alk. = 20.
2	Miss J. Todd	III, 2, '15	8	4	3	Goldeo yellow, clear, alk. = 15.
3	Dr. F. Gorham	III, 18, '15	4	5	3	Watery, greenish, alk.
		III, 18, '15	5	5	4	Bile stained.
4	Miss H. Lohr	III, 7, '15	8	2	0·5	Greenish, turbid.
5	Dr J. McCafferty	III, 31, '15	11	5	5	Goldeo yellow, clear, alk. = 45. In 10 minutes 14 c.c. rennet present.
6	Miss E. Schmz	IV, 3, '15	5	2	1	Goldeo yellow, slightly turbid at bottom. Slightly acid (=4 c.c. In 8 minutes, 2 c.c.
7	Miss M. Hartmann	IV, 3, '15	8	—	2	Golden yellow, watery, neutral. After water in 5 minutes, 20 c.c.
8	Miss A. Jansen	IV, 3, '15	15 (Erythrodextrin)	8	3	Golden yellow, somewhat turbid at bottom. Alkal. = 10. In 10 minutes, 2 c.c.

* The trypsin figure of 0.5 mm. in case 4 cannot be considered normal,—the secretion looked greenish and turbid,—nor that of 5 mm. in case 5,—as evidenced by the great amount of secretion (14cc. in 10 minutes), which is a great exception.

Eupancreatism = normal function; all three ferments present, trypsin showing the normal quantity (1 to 4 mm.).

Hyperpancreatism = increased activity; all three ferments present, trypsin existing in excess (above 4.0 mm.).

Hypopancreatism = diminished activity; the three ferments present, trypsin decreased (below 1 mm.).

Dyspancreatism = disturbed function; one or two of the three ferments are absent.

Heteropancreatism = varied function; the presence and amount of ferments showing no constancy, but variations every now and then.

In addition to these qualifications of the pancreatic juice which refer to its strength in ferment activity, we must discern the secretion as regards its quantity. There is then normal pancreatic secretion (euchylia), too much secretion or hyperchylia, and too little secretion or hypochylia pancreatica. Achylia pancreatica would mean there exists no pancreatic juice at all. Adolf Schmidt has used this term, but not exactly in the sense meant here. According to the terminology above stated, his cases would rather belong to the group: "dyspancreatism."

True pancreatic achylia—by this is not meant absence of pancreatic juice in the duodenum, due to the occlusion of the Wirsungian canal, for here secretion takes place but does not reach the intestine—does exist, but is very rare. It is encountered in the last stages of chronic pancreatitis and is, therefore, of grave significance.

The list of my cases being too large, even for publication in table form, I shall rather limit myself to a résumé of my collective cases, giving the more important items in greater detail.

The bulk of the cases consisted of patients with gastric and duodenal ulcers. The reason for this is that these patients were treated with duodenal alimentation, and their pancreatic secretion could thus be obtained at any time without any further trouble. There were 75 gastric and 24 duodenal ulcers.

The pancreatic function in the cases of gastric ulcer was as follows: Eupancreatism in 33 (44.5 per cent.); hyperpancreatism in 8 (10.5 per cent.); hypopancreatism in 27 (36 per cent.); dyspancreatism in 7 (9 per cent.).

In duodenal ulcer the following relation was found: Eupancreatism in 9 (37.5 per cent.); hyperpancreatism in 2 (8 per cent.); hypopancreatism in 9 (37.5 per cent.); dyspancreatism in 4 (17 per cent.).

We submit in the following table (7) the results of the analysis of pancreatic secretion in cases of achylia gastrica, chronic pancreatitis, cirrhosis of the liver, cholecystitis and cholelithiasis, and diabe-

Table VII.—The Duodenal Contents in Cases of Achylia Gastrica, Chronic Pancreatitis, Cirrhosis of the Liver, Cholecystitis and Cholelithiasis, and Diabetes Mellitus

No.	Name	Diagnosis	Stomach Contents	Date	Amylopsin	Steapsin	Trypsin	Remarks
1	Mrs. St.	Achylia gastrica, pancreatitis chronica, hepatitis chronica, icterus haematogenes.	HCl 0 Ac = 4	II, 2, '14	8	0.5	0	
				11	0	0	0	
				I, 13, '14	0	0	0	
2	J. L. M	Achylia gastrica, enteritis chronica	HCl 0 Ac. 4	III, 18, '14	2	18	0	Golden yellow, mixed with mucus, turbid. Alkal. 25. Trace of blood.
3	H.	Achylia gastrica	HCl 0 Rennet 0	XII, 1, '12	3	0	0	
4	Alex. MeK.	Achylia gastrica, dilatatio ventriculi	HCl 0 Ac. 6	XI, 13, '12	4	1	1	
				20	4	3	4	
5	N. R	Achylia gastrica	HCl 0 Ac. 4	II, 12, '15	5	3	4	Golden yellow, slightly turbid. Alkal. 25 Rennet present.
6	Mrs. W	Achylia gastrica, pancreatitis chronica		XI, 11, '14	6	0	0	
7	B. S.	Pancreatitis chronica, ulcus pylori.	HCl 0 Ac. 26	I, 3, '14	2	0.5	0.5	
8	Mrs. L	Pancreatitis chronica		III, 30, '12	+	0	+	
9	M. P. D	Pancreatitis subacuta, ulcus ventriculi, cirrhosis hepatis.	HCl + Ac. 48	I. 13, '13	0	12	2	
10	W. J. D.	Pancreatitis chronica, cirrhosis hepatis, cholecystitis.	HCl + Ac. 50	VI, 10, 14'	9	0	1	Yellow, slightly turbid, mucus, alkal. = 10.
				12	4	0	0	Greyish white, alkal.
				14	4	0	0	Turbid, greenish red, strongly alkal.
				14	3	0	0	Lemon yellow (after washing).
				16	1	10	0	Dirty dark yellow, turbid, alkal. 15.
				19	8	0	Trace	
11	A. E	Pancreatitis chronica.	HCl 0 Ac. 16	II, 16, '15	5	1	0	Yellow, slightly turbid, alkal. = 20, Rennet present.
				24	4	2	33	Golden yellow, viscid. Alkal. 20, Rennet present.
12	MeC	Cirrhosis hepatis, ulcus ventriculi, stenosis pylori, dilatatio ventriculi	HCl + Ac. 80	VI, 1, '12	0.5	4	0	
13	N	Cirrhosis hepatis		IV, 30, '13	4	5	0	
14	K.	Cirrhosis hepatis.	HCl + Ac. 46	II, 16, '15	5	0	0	Yellow, alkal.
		Gastritis chronica		18	15	4	3	Golden yellow, alkal. 45.
15	B.	Cirrhosis hepatis.		I, 20, '15	25	4	20	Greenish, somewhat turbid, alkal. 20 Rennet present.
				25	5	3	2	Golden yellow, somewhat turbid, alka 20, Rennet present.
16	F. C	Cirrhosis hepatis, ascites, syphilis		XII, 20, '14	0	1	2	Greenish yellow, alkal.
17	St.	Cirrhosis hepatis, ascites		XI, 24, '14	25	0.5	2	Greenish yellow, alkal.
18	A. H. S	Cholecystitis chronica	HCl + Ac. 55	XI, 12, '12	2	0	0	
				23	2	7	0	Yellow, alkal.
19	H. D.	Cholecystitis, gastritis chronica		IV, 27, '14	15	1	2	
20	Miss B	Cholecystitis	HCl + Ac. 56	III, 4, '15	5	4	2	Greenish yellow, alkal. 10.
				15	4	2	3	Golden yellow, clear, alkal. 20.
21	He	Cholelithiasis.		XI, 27, '14	6	15	20	Turbid, milky yellow, alkal.
				I, 12, '15	8	2	1	Turbid, yellow green, alkal. = 10.
22	Hi	Cholelithiasis.	HCl + Ac. 50	XI, 28, '14	4	25	3	Golden yellow, clear, alkal. 40.
				XII, 7, '14	5	18	5	Golden yellow, clear, alkal. 40.
				10	4	1	0.5	Yellow, alkal. 15.
23	Mrs. Ho.	Cholelithiasis.		XI, 28, '14	5	4	25	Golden yellow, clear.
24	K	Cholelithiasis (from gall bladder secretion).		XI. 12, '14	0	0	0	Clear, coffee brown.
25	L	Cholelithiasis.		XI 12, '14	10	0	1	Turbid, watery, alkal. 55.
				14	4	0	1	Greenish yellow.
				16	10	4	1.5	Turbid, yellow, neutral.
26	Mrs. A	Diabetes mellitus		II, 7, '14	20	1	3	
27	L	Diabetes mellitus.	HCl + Ac. 56	III, 22, '13	3	2	1	
28	B	Diabetes mellitus.		I, 19, '15	6	2	2	Greenish, turbid, alkal. 36.
				28	10	3	2	Yellow green, mucus, alkal. 50.
29	K	Diabetes mellitus	HCl + Ac. 90	XII, 12, '14	2	15	0	Greenish yellow, turbid, alkal. 10.
				I, 29, '15	2	3	10	Dark yellow green, slightly turbid, alka 25, Rennet absent.
30	Br	Diabetes mellitus.	HCl + Ac. 76	III, 11, '15	15	4	5	Golden yellow, alkal.
31	W. W. B.	Diabetes mellitus	HCl + Ac. 80	XII, 21, '14	5	0	1	Yellowish, somewhat turbid, alkal.

tes mellitus, all conditions which deal intimately with the biliary and pancreatic functions.

There were six cases of achylia gastrica, among which one belonged to eupancreatism (16 per cent.) and five to dyspancreatism (84 per cent.). Among

Fig. 4. The agar tubes after having been subjected to the action of pancreatic juice. O, olive oil; H, hemoglobin; S, starch; the latter has been dipped into a weak solution of iodine.

six cases of chronic pancreatitis there was eupancreatism in two (33.5 per cent.), hyperpancreatism in one (16.5 per cent.), hypopancreatism in one (16.5 per cent.), and dyspancreatism in two (33.5 per cent.).

Seven cases of cirrhosis of the liver showed eupancreatism in three (43 per cent.), hyperpancreatism in one (14 per cent.), while in three there was dyspancreatism (43 per cent.).

In six cases of diabetes mellitus there was eupancreatism in four (66 per cent.), hyperpancreatism in one (17 per cent.), and dyspancreatism in one (17 per cent.). The table just reported fully corroborated the existence of the different pancreatic states described above.

As an instance of hyperpancreatism and pancreatic hyperchylia I would like to describe the following case:

Feb. 2, 1915. Sidney M., aged 29, salesman, complains mainly of looseness of the bowels and griping pains in the abdomen. He had diseases of childhood and slight gastrointestinal indigestion for the past few years. The acute condition began last June with intervals of improvement. At all times the stools have been more or less thin. Bowels move at least twice daily at all times, but may increase to 6-7 times. The pains were griping in character, about one minute. His appetite has always been good and taste normal. Has never complained of pyrosis, nausea, or vomiting. He never belches, or passes gas per rectum to any great extent. He has lost about seven pounds since last summer.

The physical examination revealed no abnormalities in the thoracic organs. The stomach was considerably dilated, the liver slightly enlarged. The gastric contents showed the presence of HCl and an acidity of 50.

The duodenal contents were examined on Feb. 8, 1915. Six c.c. were obtained in three minutes; golden yellow, clear, alkalinity = 25, rennet present, amylopsin 6 mm., steapsin 6 mm., trypsin 10 mm.

The duodenal contents were again examined on Feb. 22, 1915. Five c.c. were obtained in three minutes, golden yellow, mixed with mucus, alkalinity = 25, amylopsin 6 mm.; steapsin 5 mm.; trypsin 5 mm.

It is not improbable that the pancreatic hyperactivity in this case is the cause for the obstinate and persistent diarrhea.

Heteropancreatism is well illustrated by the following case:

Nov. 7, 1914. Miss Harriet P., 24 years old, was well until the age of 12, with the exception of diphtheria and measles, when she began to menstruate and suffer from dysmenorrhea. At 16 years she was curetted. She then began to be troubled with severe pains and burning sensations in the right iliac and kidney regions. This pain had been present even before the curettage, but not so intensely. Two months after the curettage the appendix was removed. The appendix contained pus and fecal concretions and the wound healed only with a great deal of suppuration. After the operation her symptoms of pain on the right side did not improve.

She had been constipated since her twelfth year, which continued, and she also now began to suffer from epigastric distress, which became always worse after eating and drinking. At times there was nausea. Appetite was always good, but she could not gain strength.

Finally in Oct. 1911, a gastroenterostomy was performed. At the operation narrowing of the pylorus was found, dilatation of the stomach and adhesion between gall bladder and site of removed appendix.

After this operation she felt better for a while, could eat better and picked up a little, but gradually the epigastric distress and nausea returned with sour eructation. Her legs became weak, so that she was unable to walk much in the last ten months. She is constipated and has mucus and at times bright blood in her stools.

Physical examination shows a [illegible] dilated stomach, and a right movable kidney (third degree).

Nov. 8, blood examination: hemoglobin 60 per cent. red blood cells 3,200,000; white blood cells 8,600. Gastric contents: HCl 20+; total acidity = 30; blood absent; microscopical examination negative. Stool: faintly positive to guaiac reaction.

Dec. 13, gastric contents: HCl = 0; total acidity = 40; no blood. The stomach washing in the morning always showed the presence of food particles, which stagnation was also confirmed by *x*-ray examination. The string test showed a blood stain localized in the stomach.

Nov. 12, the bead test revealed appearance of beads after 65 hours: fish bone, catgut, meat, a quarter fat, thymus, nuclei present.

The duodenal contents examined on Nov. 14 showed: amylopsin = 12 mm.; trypsin = 2 mm.; steapsin = one half mm. The duodenal contents: golden yellow, clear alkaline; amylopsin = 5 mm.; trypsin = 15 mm.; steapsin = 18 mm.

Dec. 30, the duodenal contents: yellow, neutral; amylopsin = 22 mm.; trypsin absent; steapsin = 3 mm.

Patient was kept for two weeks on duodenal feeding. This resulted in improving the motor functions of the stomach, the latter then emptying completely over night. The intestinal disturbance, flatulence and constipation, although likewise improved, by phenolphthalein agar and pancreon, still persisted.

The variable state of pancreatic function was here found in a neurotic lady, suffering from gastric ulcer with pylorospasm and slight ischochymia.

While in this instance the varied functional activity of the pancreas was produced by neurotic influences, it may occur by pathologic changes of the gland. The latter factor appears to have played a part in the following case, which I shall briefly sketch:

Feb. 20, 1915. T. L. R., aged 43, complains for the last ten months of distress in stomach and constipation. He vomits only after drinking a few glasses of beer. During the last 7—8 months he lost about 25 pounds. He never had syphilis.

The stomach is found to be dilated and the liver enlarged. In the stomach contents HCl is present with a total acidity of 45. The urine shows 2½ per cent. of glucose. The string test showed permeability of the pylorus and no blood on the string. Examination of the duodenal contents showed absence of steapsin and trypsin and presence of amylopsin (5mm).

A few days later, after rest and a proper diet, and after total abstinence of alcoholic beverages, the duodenal contents showed, alkalinity = 45, amylopsin = 15 mm., steapsin = 4 mm., trypsin = 3 mm. The urine was free from sugar and albumin. The liver was markedly less swollen and patient began to gain in weight.

It is fair to assume that the disturbed pancreatic function was caused by an inflammatory process of the entire gland, involving also the islands of Langerhans, as evidenced by the presence of sugar in the urine. The rational way of living produced a change for the better, so that the inflammation

subsided. The sugar then disappeared, and the pancreatic function returned to normal activity.

The insight into the workings of the pancreatic function appears to be of importance not only in disturbances of this gland and its neighboring organs, but in all diseased states of the entire organism.

The exact knowledge of the pancreatic activity will often assist in conjunction with other symptoms in making a diagnosis of a functional or organic disease of this gland. Moreover, it will always be helpful in constructing an appropriate diet for any given case, no matter of what affliction.

REFERENCES.

1. Max Einhorn: "A Practical Method of Obtaining the Duodenal Contents in Man." MEDICAL RECORD, Jan. 15, 1910.
2. —"Experiences with the Duodenal Contents." *Journal of the American Medical Asso.*, July 2, 1910.
3. —and Jacob Rosenbloom: "A Study of the Duodenal Contents in Man." *Archives of Internal Medicine*, Dec. 1, 1910.
4. —"Agar Tubes for the Estimation of the Pancreatic Ferments." MEDICAL RECORD, Oct. 12, 1912.

20 EAST SIXTY-THIRD STREET.

THE GIVING OF NAUHEIM BATHS IN THIS COUNTRY.*

BY SIMON BARUCH, M.D.,

NEW YORK.

THE value of water as a therapeutic agent in cardiac diseases consists in its great adaptability to cardiac capacity, as indicated by the pulse, respiration, and excretions; moreover, the action of water with or without chemical ingredients is so rapid that it can be equalled by only one drug, namely, anyl nitrite. While digitalis and other drugs have but one therapeutic function, water may be utilized for apparently opposite conditions, if applied upon a strict physiological rationale. For example, when the cardiac muscle is losing its power to overcome valvular defects it is dangerous to prescribe a bath of several minutes and of low temperature, because the peripheral resistance may overstrain the cardiac muscle. For this reason it requires more skill to apply water than drugs. On the other hand, water is superior in that its action may be withdrawn before serious damage is done, while a drug continues to act until eliminated. This advantage of hydriatric procedures is not sufficiently recognized. All hydriatric procedures depend for their therapeutic effect upon what is called reaction. In my work on hydrotherapy (published by Wm. Wood & Co.) this subject has been fully discussed. Suffice it to say here that I divide reaction into general and local reaction, not forgetting that both act simultaneously in most instances. I may say, en passant, however, that the Nauheim bath initiates a local reaction.

When we dash very cold water upon a fainting person, we get a purely reflex reaction; when we plunge a patient into water of the same temperature, we get first a reflex then a local and quickly a general reaction. In the customary Nauheim bath the water is not cold enough to arouse a decided reflex effect.

The long accepted Winternitz theory of reaction is based upon cold contracting the cutaneous vessels producing peripheral resistance and reddening of the skin, due to secondary dilatation of the vessels; this he calls *tonic reaction*. The reddening of the skin under warm applications he attributes to atonic reaction.

Tonic dilatation of a vessel is unphysiological; therefore the theory is fallacious. I have for many years taught a new theory of reaction based upon anatomical and physiological data, holding that the redness of the skin, during reaction following ordinary cold procedures is not due to contraction and subsequent dilatation of the cutaneous vessels. The capillaries which carry most of the cutaneous blood have no muscular coat, therefore cannot contract. Contraction of the cutaneous arterioles and arteries can only be produced by prolonged and intensely cold applications, which no intelligent hydrotherapeutist ever applies. In an article on "Fatality of Textbook Hydrotherapy" I pointed out the fatal fallacy of ice water baths. The Brand bath of fifteen minutes' duration at from 65° to 70° F. is the coldest bath administered by physicians. This would be fatal if friction did not stimulate reaction. Here is first a vasomotor action, which produces increased ventricular contraction—nerve or reflex reaction is aroused; at the same time the unstriped muscular fibers in the skin, together with the arrectores pilorum are contracted upon the abundant network of capillaries, which are packed into the pyramidal spaces, squeezing the blood out of them into the deeper vessels, so that the latter become more plethoric, instead, as Winternitz assumes, being contracted.

When the ventricle under vasomotor stimulation from cold drives the blood into the periphery, the previously depleted capillaries give way to the onrush and this effect is aided by what Bier calls the blood-sense, upon which, as you know, is based the Bier (suction) method in surgery. (See "Principles and Practice of Hydrotherapy" published by William Wood & Co., 3d Ed. p. 55.) After removal from the bath the skin presents a ruddy appearance, *because of the overfilling of the capillaries*, which are merely endothelial tubes, without muscular coats. I regard the smooth cutaneous muscular fibers as practically a muscular coat to the capillaries. I am sustained in this view by Tomsa, Sappey, Unna, and Haggquist. Quoting from my book p. 5: "Tomsa has clearly shown that when the arrectores pili contract they draw the skin from without inward, embracing in their action the terminal portion of the blood supply in the papillary body, and thus they empty the smallest blood-vessels in such manner as may best conduce to normal circulation. "There are many proofs, according to Unna, that the action of the arrectores muscles is not confined to the hair follicles, but that they are intimately involved in the movement of the blood and lymph." (This explains the vital import of the contractility of the skin when exerted upon the small blood-vessels contained in it.) "Inasmuch as the condition of the tension of the skin may thus be readily varied in the most direct manner by reason of the universal presence of the elastic fibers, and inasmuch as muscular coats are either absent in the vessels of the skin or are feebly developed, *these structures really perform the function of an inhibitory apparatus*, which distributes uniformly pressure and motion, and enables the oblique muscular fibers, which are embedded in the skin to regulate to a certain extent secretion and circulation, the movement of lymph, and consequently the nutrition."—(Unna.)

That this cutaneous muscular fiber is not under

*Discussion of Dr. John S. Thacher's paper in the Symposium of the Academy of Medicine, May 15, 1915.

vasomotor influence is not generally known, but it was proved in the Columbia University Physiological Laboratory, by Dr. Heinrich F. Wolf, under Prof. Opitz's direction.[1] Wolf placed his right arm in a plethysmograph, containing water at different

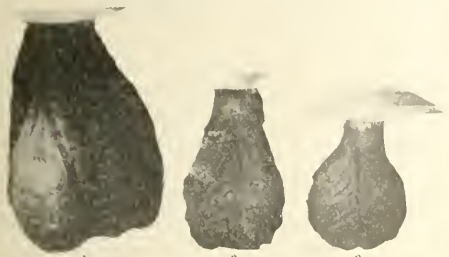


FIG. 1.

temperatures, and while the record was taken by Opitz inhaled nitrite of amyl. The inhalation enhanced the volume increase in his arm when the plethysmograph was filled with water at 35° C., but it failed to prevent the decided diminution of volume, resulting from exposure to water at 3° C. This experiment would indicate that while the arterial vessels are under vasomotor control, the capillary territory is probably under control of local nerves, which innervate the smooth muscular fibers of the skin. Indeed, Hasbrouck[2] had already affirmed the complete independence of the capillary circulation from the vasomotor system.

My theory of reaction after cold water is fully sustained also by Arthur Hirshfeld,[3] who at my suggestion in 1912 (as he mentions) subjected it to investigation in Prof. Brieger's Hydrotherapeutic Clinic, following my method of using the scrotum, in which the dartos presents the most sensitive smooth muscle fibers, open to attack by cold. I now show you his illustrations (Fig. 1):

1. Shows the scrotum after an electric-light bath, relaxed and enlarged.

2. After half an hour application of cold water, flowing through a coil, decidedly shrunk, with rugæ.

3. After a milder application of cold water, less rugous but contracted. (*Zeitschrift f. exp. Path. u. Therap.* 17 Band.)

Rationale of the Nauheim Bath.

The application of this anatomical and physiological reaction theory to the Nauheim bath removes much of the existing obscurity of its rationale. I claim that the temperature of the Nauheim bath, the lowest of which appears to be 28° C. (82° F), a rarely used minimum, and the highest, 36° C. (96° F.) or an average of 89° F., is insufficient to account for the reaction, because it is only removed 3° F. from the natural temperature of the skin, which is 92°. According to my hydrotherapeutic law, the greater the difference of temperature between water and skin, the more intense is the therapeutic effect. A water temperature of 89° F. would therefore be almost neutral, unless very much prolonged. In the early nineties[4] I showed that a tubbing at 80° F. restored a temporarily tobacco-weakened pulse from a dicrotic to a normal condition. This effect no Nauheim bath could ever surpass. My view that pure temperature effect may produce better results, or at least as good, as the Nauheim bath, was published many years before it was confirmed by Ottfried Müller, but as before mentioned, it would be dangerous to subject an organically failing heart to even a temperature of 80°. And right here is demonstrated the clinical acumen of Beneke and his successor, the elder Schott and their followers.

Our Nauheim colleagues habitually resort to temperatures decidedly above 80° F. with results that have made their resort famous. What then is the reason for improvement of the failing heart after CO_2 baths of almost indifferent temperatures? I have never been satisfied with their rationale, because it appeared occult. Actual observation at the bedside has convinced me that:

1. The CO_2 endows water of nearly neutral temperatures with an action similar to that of water at a lower temperature so far as its local effect goes; it, too, produces contraction of the smooth cutaneous muscular fibers, which presses the blood out of the capillary network into the larger vessels, inducing peripheral resistance without, however, the distinct vasomotor action of colder water. This action is evanescent.

2. CO_2 is absorbed by the skin, is carried to the respiratory center, with the result that the right heart is unloaded and stasis is removed, which is perhaps the most menacing element in failing of the heart. These are proven physiological facts.

3. The CO_2 circulating in the blood acts directly upon the heart muscle, stimulates the ventricle to vigorous contraction which is manifested in the pulse rate, tension, and amplitude. Those who may be incredulous upon this point need only to be reminded that in carbon-dioxide poisoning the heart stops in systole. Is it then not logical to assume a milder effect from a smaller dose of this poison, a method adopted in laboratory experiments on drug action? That CO_2 is absorbed actively from water, especially when containing sodium chloride, and passes through the skin has been fully demonstrated by H. Winternitz, whom I visited at von Mering's clinic, for the purpose of obtaining personal verification of this and other valuable findings, on the physiology of the baths. I found that they were obtained under every precaution against fallacy. The discovery by E. B. Meigs[5] (*Journal of Exper. Physiology*, 1912, p. 497) that contraction of smooth muscular fiber lasts longer than that of the striped explains the prolongation of the effect of a CO_2 bath upon the tone of the cutaneous fibers, which thus present at first a feeble barrier of resistance to the blood driven against it,

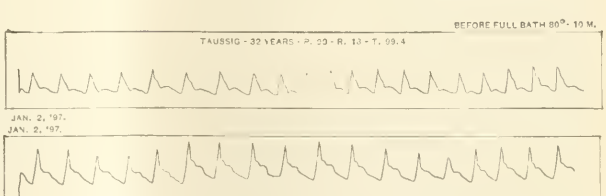


FIG. 2.

by the increased ventricular action. The capillary blood supply is enormously increased and the redness is maintained by the friction of the gas bubbles and the protection afforded by them against the colder water above. That the local effect of the CO_2

bath is the same as after a moderately intense cold application, like that shown in Fig. 3, was clearly demonstrated by photographs I had taken in the Nauheim bathhouse by courtesy of Geheimrat Eser, and with the assistance of Dr. Albert J. Wittson of New York. I showed these photographs to Professor Groedel who asked me to permit him to present them and my new rationale of the action of the CO_2 bath to the forthcoming Congress in Karlsbad. In the transactions of that Congress which Dr. Thacher was good enough to lend me, the presentation of my photographs is mentioned by Dr. Groedel, who drew attention to "the folding of the skin, which is clearly shown" as the result of the strong CO_2 bath. Dr. Groedel said that he did not quite agree with my new rationale, because "one may ask himself if this action upon the sensitive scrotum may be repeated upon the general cutaneous surface?" I do not claim this, but we may logically deduce analagous action modified by a less sensitive and abundant muscle fiber supply in the latter. Since hitherto all the experiments to develop the behavior of smooth muscular fiber under varying conditions have been made upon animals (Schultze on the bladder muscle of the cat cited in my book), I concluded to use the dartos of the human subject. Another doubt in Groedel's mind appears to be that " in a bath of 32° C. (89° F.) it may after all be a thermic stimulant only." This view is contradicted by the absolutely indifferent effect upon the scrotum of ordinary water in my Nauheim photograph which he was showing. The comparative merits of our respective rationales of the CO_2 bath is evident from the following résumé. Groedel writes "CO_2 exerts a *peculiar* action which irritates *peculiarly* the cutaneous nerves, exciting reflex action and, giving the heart increased energy, which is enhanced by the rapidly changing warmth and cold sensation which also produces *peculiar excitation*." I show you by actual demonstration and well known anatomical and physiological principles a logical rationale. Groedel rests upon a belief in the *peculiar* qualities of CO_2. The fact is that our Nauheim colleagues merit our utmost confidence in their clinical statements but their explanations of the action of CO_2 baths have never satisfied me, because of their obscurity.

Hydrotherapy of the failing heart is more flexible than drug therapy, though the latter is perhaps more rational than in any other disease, not depending on a specific germ. The water treatment may be graded and adapted in heart disease as it is in other maladies. If the case be urgent I would begin with the object of relieving cardiac action by a full bath of 95°, with four pounds of salt and one-half pound of chloride of calcium to forty gallons of water, for six to eight minutes. This saline ingredient counteracts by slight irritation of the cutaneous nerves any deleterious relaxation that may ensue from such a bath. Later cardiac exercise is produced by lowering the temperature of the water from time to time, the skin becomes inured and may be brought to bear a temperature of 90° or less with comfort. As the tone of the cutaneous structures rises and the heart becomes more capable of adapting itself to this slight peripheral resistance, CO_2 is added to the bath, in accordance with the change in the quality of the pulse.

In this way, guided by the principles which I have enunciated, the varying phases of cardiac insufficiency may be successfully met. While the artificial Nauheim bath is doubtless of great benefit, when judiciously executed upon these principles, there is no doubt that resorts like Saratoga Springs in this country, and Nauheim, Kissingen, or Marienbad, abroad, present definite advantages in addition to the natural CO_2 bath, by reason of the patient's removal from unfavorable environment to restful

Fig. 3.—Coesa Spring showing the column of the CO_2 gas.

surroundings, under the care of colleagues, who have accumulated large experience in these resorts.

Some years ago I wrote in Hare's "American System of Therapeutics": "It is more important for the doctor who sends a patient to a health resort to know the mental composition of his colleagues at the springs than the chemical composition of the water of those springs."

My advice to the Reservation Commission of the State, which owns the springs, to encourage the building of hotels away from traffic, will doubtless be adopted. It has been a patriotic labor of love to have been active in counseling the Saratoga Springs Reservation Commission in their successful conversion of this spa into a modern health resort. Their qualities are those of Kissingen and Marienbad, and as, in these resorts, by addition of the necessary proportion of chloride of sodium and calcium, the perfect Nauheim bath may be obtained, since the mineral ingredients of the latter play a minor rôle. They are now the peer of any spa furnishing CO_2 waters in the world.

That this is not an unwarranted statement and that an example for emulation by owners of other valuable springs in this country may be furnished, a brief history of the regeneration of Saratoga Springs may serve a good purpose. Several years after the ruinous commercial exploitation of the Springs had led to their condemnation and purchase by the State of New York, I was invited to address the Saratoga County Medical Society on "Hydrotherapy." I utilized the opportunity to point out the deplorable state of balneology in this country and presented suggestions for its removal. Taking Saratoga as an example, the need of constructing beautiful parks, building modern bathhouses, improving the neglected springs which was already progressing, providing hotels in quiet localities, etc., were urged. Without my knowledge the State Reservation Commission which had charge of the entire renovation, also other officials, had been invited. Two months later, while in attendance at the London Congress, I received a cable from the Commission confirming a request previously made by General Tracy, the city member, to inspect in behalf of the State of New York the most noted spas in Europe. Entering upon the task as a labor of love and patriotism, I studied Bath and Harrowgate, Vichy, Baden-Baden, Wiesbaden, Nauheim, Kissingen, Karlsbad, Marienbad, Franzensbad, most of which I had previously visited. Meeting at Kissingen the brilliant head of the Royal Laboratory, Dr. Paul Haertl, I engaged his services tentatively, not having authority to do so, to come to Saratoga. The Commission confirming my arrangement, Dr. Haertl came over and made a complete survey of the situation, pointing out many flagrant defects in the conduits of the waters, their delivery, etc., and expressing astonishment at the abundance and large percentage of CO_2 waters there. My own recommendations in an extensive report had included the leaving of all medical matters to the local Medical Society, the listing at each spring of all reputable physicians, the absence of a medical director in order that physicians may have free scope, the establishment of properly equipped bathhouses, of first and second class, as is done abroad, providing modern facilities for hydrotherapy, electrotherapy, and mechanotherapy, good hotel accommodation, etc. Later the Commission sent Prof. C. G. Anthony of Schenectady abroad to study the engineering problems involved at the large spas. He made a valuable and instructive report. Dr. Albert Warren Ferris, formerly State Commissioner of Lunacy, was appointed supervising director to carry these ideas into execution, to present the merits of this valuable State property to legislative committees, and to familiarize the medical profession with the therapeutic advantages of this only State-owned health resort, whose chemical analyses are made by the State chemist.

No resort in the world now excels Saratoga Springs in fulfilling the demands of Dr. Thacher's able paper.

Note—Since the above was written, the author has spent four days at Saratoga Springs for the purpose of repeating Nauheim photographic observations referred to above. Through the courtesy of Dr. Ferris, supervising director, and Herbert Ant, chief of the chemical laboratory, photographs were taken before and after simple water baths and baths in the waters of Hathorn No. 1 (138 per cent. saturation) and High Rock Spring (122 per cent.) The results were almost exactly the same as at the Nauheim bathhouse. Graphic pulse tracings were also taken in connection with the photographs and blood pressure observations were made for me by Dr. A. Sherman Downs of Saratoga Springs at the same time. All these are being prepared for publication. They demonstrate conclusively that the waters of these springs are similar to those of Nauheim, Marienbad and Kissingen in physiological action and therefore in therapeutic effects in cardiac and nervous diseases.

REFERENCES.

1. *Monatschrift f. d. phisikalisch-didactische Methoden*, 1 Jahrg. 3 Heft.
2. *Deutsches Archiv f. klin. Medizin*, Bd. LXXVIII.
3. *Zeitschrift f. Exp. Path. u. Therapie*, Bd. 17.
4. Clinical lecture delivered at the German Hospital, Philadelphia; *International Clinics*, Vol. II, seventh series.
5. *Journal of Experimental Zoology*, 1912.

51 West Seventieth Street.

DOCTORS MARCQUIS AND BOUDEWYNS OF ANTWERP

AND SOME OF THEIR INTERESTS DURING AND AFTER THE FORTY AND THIRTY YEARS' WARS.

By JOHN BETHUNE STEIN, M.D.,

NEW YORK.

In 1571, four years after the commencement of the forty years' war in the Netherlands, the Duke of Alva wrote his master, Philip II. of Spain, from Belgium, that the people of that country had still the same character which had been described by Julius Cæsar.[1] At the outbreak of this war Antwerp was the commercial capital of the world and one of the most beautiful cities in Europe, inclosing within its walls some of the most splendid edifices in Christendom.[1]

By an act of May 6, 1598, Philip II. had given the sovereignty of Belgium to the Archdukes Albert and Isabella. Belgium, still in the throes of war, had lost much of its ancient splendor. Antwerp and all the cities on the coast were then or had been blockaded by the Holland fleet and remained for a long time closed to commerce, many cities were depopulated, many industries had been destroyed or transported to England or Holland, and the country was covered with ruins. The Archdukes, in spite of the continuation of the forty years' war, did much to efface these disasters. In 1609 the war ended, and,

as Motley says, "there was a vast lull between two mighty storms. The forty years' war was in the past, the thirty years' war in the not far distant future."[1]

The genius of Belgium which had been dormant

Fig. 1. Lazarus Marcquis. The Friend and Physician of Peter Paul Rubens.

for forty years revived to a second renaissance of science, letters and art, and in 1613 was begun the construction of the canal from Ghent via Bruges to the sea.[2] This revival was due in part to the opening of commerce between Antwerp and foreign countries and to printing by the efforts of the Plantins and Moretuses at Antwerp, but principally to the fact that men prominent in every walk of life were attracted to Antwerp and resided there because it was the home of the great diplomat, statesman and Flemish painter, Peter Paul Rubens. It was to the house of Rubens that savants came to relate their discoveries and exchange opinions. These receptions which were held every evening at Rubens' house were the forerunners of and probably there was first considered the formation of the several learned societies which were later organized in Antwerp.[3]

At this time the laws governing the practice of medicine were observed but little. Any tyro could practise without being prosecuted. Pharmacists were not required to pass an examination to practise, their establishments were not inspected, and they dispensed drugs without a physician's prescription. The midwives were ignorant and surgeons went through only the form of an examination.[3] An early ordinance of Charles V.[4] reading as follows had apparently passed into oblivion:

"Charles, by the grace of God, Roman Emperor, Ever Promoter of the Empire, King of Germany, Castile, Leon, Aragon, Navarre, Naples, Sicily, Majorca, Sardinia, the Islands of India, and the vast lands beyond the seas; Archduke of Austria, Duke of Burgundy, Lorraine, Brabant, Limburg, Luxemburg, Gelderland; Count of Flanders, Artois, Burgundy, Hainaut, Holland, Zeeland, Namur, Zutphen; Count Palatine, Prince of Swabia, Marquis of the Holy Empire, Lord of Friesland, Salins, Malines, of the City, Cities, and Land of Utrecht, of Overyssel, Ruler of Asia and Africa.

To all those who shall see this letter: Greetings.

It has come to our knowledge that within this our city of Brussels many men and women, the greater number of whom cannot read or write Latin, German, or Walloon, are engaged in the practice of medicine, which is beyond their sense and knowledge, because of which much harm is done daily to the sick and the people of the said city; because the aforesaid masters and mistresses have no experience and cannot name the persons from whom or where they have obtained their knowledge and experience to practise medicine, and because they have written prescriptions for patients who were critically ill, and have often caused serious illness and even death by the administration of their remedies, and because the pharmacists had to correct their prescriptions.

Therefore we have foreseen and have taken precautions to protect the inhabitants of our cities from the dangers threatening their welfare as far as it lies within our knowledge and power.

For this reason is this letter written.

Henceforward no one, no matter whom, shall be permitted to take the title of doctor of medicine or doctress of medicine or give or cause to be given secretly or openly any laxative or emetic or theriacal, or any other medicines which are not compounded and prescribed according to medical rules with the approval of either a master or doctor of medicine; and no one shall give simple or compounded animal, vegetable, or mineral poisons to patients except after the latter have consulted with their own licensed doctors who either have graduated from an approved university or have been examined by the doctors of medicine at the University of Louvain or by those doctors of medicine practising in our city of Brussels. The aforesaid doctors must be paid an adequate fee for this examination, and if the applicant is found capable he is to be given a certificate to practise. Any one found acting contrary to this order shall be fined for each offence 20 guldens (Carolus), which shall be paid to our profit.

We also order, under the same penalty, that the pharmacists of our cities will not recognize or accept the prescriptions from so-called doctors or doctresses of medicine who have not been approved or examined as ordered, and that the pharmacists shall not sell them any medicines, not even laxatives or emetics or other simple or compound medicines to be given away or sold again.

And it is further ordered that two or three doctors practising in our city, appointed by us The Law, shall act as a committee and visit together three times yearly at four months' intervals, all the pharmacists of the aforesaid city with one or two pharmacists, for which The Law shall pay them a reasonable salary. Together under oath they shall make their visits virtuously and

Fig. 2. Michel Boudewyns.

reverently, and if they find that the dry, liquid, or other simple or compound medicines are not good, have spoiled, or are ineffective, the pharmacist shall be obliged to throw them into the street in the presence of the aforesaid doctors, and they shall use only those which are good and effective as judged by these doctors.

The officials of the law in the aforesaid city shall compel the pharmacists to accept this visit of the committee of doctors and any corrections which may be made by them.

The pharmacists shall be compelled to make their compounded medicines from simple drugs which they shall have obtained from a pharmacist who sells non-compounded drugs and whose establishment is also subject to visitation by the doctors.

No one shall establish a pharmacy other than the pharmacist who has learned his trade from a reputable pharmacist.

No pharmacist of this city shall be allowed to make Theriacam Andromachi, Magnam Theriacam Galeni, and Mithridatium except those who weigh carefully all the ingredients in order in the presence of the committee of doctors, so that no mistake may be made.

All weights and measures of all the pharmacists shall be of the same standard.

All pharmacists must have the drugs necessary to conduct properly their business and shall be compelled to show their books relating to their pharmaceutical supplies.

And further the act of medicine and surgery shall be practised according to the instructions we shall make.

Therefore we invite and recommend our cherished and loyal Chancellor, the people of our Council of Brabant, the Magistrate, the Mayor, the Sheriff, the Court of our aforesaid city of Brussels, and all other interested officials whom it may concern, that they observe and cause to be observed this our command and execute the same and prosecute the violators of this law and inflict the aforesaid penalty.

We recommend that the Magistrate of Brussels and the Governor constantly cry out and announce this law to the aforesaid officers of the law in the place where publications and outcryings are made, with the object that no one shall pretend to be ignorant of the same.

To this we have fixed our seal, given in our aforesaid City of Brussels the eighth day of October in the year of Our Lord 1540, and of our Empire the twenty-first, and of our Kingdom of Castile and other Kingdoms the twenty-fifth.

Signed by the Emperor in his council and undersigned by L. de Soete.

Drawn from The Book of Privileges of the City of Brussels named the "Carolyne," in which the aforesaid statute stands registered.

Foliis. 1. CXIXV. fo. 1. CXX, fo. V, which is found to be correct and undersigned by me the Clerk of the Court of the City of Brussels.

I. DE CONDÉ."

But in the early part of the seventeenth century this ordinance was not enforced, and in order to raise the standard of medicine in Antwerp the better element of the medical profession met and selected Lazarus Marcquis and Godfrey Vereycken to consult with the magistrate regarding the establishment of a medical college.[1]

Lazarus Marcquis, the friend and physician of Rubens, was born in 1571. Of his early life nothing is known, but his writings show he possessed considerable knowledge of history and philosophy, and of the Flemish, French, Spanish, Latin, and Greek languages, and it was in 1599 that he received the M.D. degree and began the practise of his profession.[1]

There was some opposition to the establishing of a medical college at Antwerp, but Marcquis and Vereycken convinced the magistrate of the importance of such an institution, their efforts being aided by the timely bequest of a Dr. Jean Ferreulx of his valuable medical library to the future college. Finally on April 28, 1620, the establishment of the Collegium Medicum of Antwerp was decreed. The first so-called "protector" of the college was Henry van Etter, who was succeeded in turn by Paul van Liere, Henry van Etter, Jr., and Jacques Roelants. The institution did not prosper under these "protectors," and the magistrate, after repeated requests of the physicians of the city, was compelled to reestablish it by a decree of September 12, 1624, placing at its head the mayor of Antwerp, Gregory Martens, an astute and enterprising man, under whose management the institution began to grow.

The directorate of the college consisting of seven physicians elected by their colleagues was given extensive power. They visced the diplomas of recent graduates; inspected the establishments of pharmacists; presided at the examination of surgeons, pharmacists, and midwives; designated one of their number to give a course in anatomy and surgery at the School of Surgery; saw that the poor of the city were given free medical treatment; and exercised judiciary powers which enabled them to act as a disciplinary board, and punish those who were practising illegally.[2]

Marcquis was interested not only in the medico-social uplift of Antwerp but also in the study of epidemic diseases especially the plague.

In 1605 the great epidemic of the plague was raging in Antwerp and here many physicians came to study this disease, among others a young Belgian who, after having received his M.D. degree at Louvain in 1599, had spent five years studying in Switzerland, Italy, France, and England, and was now on the way to his home in Brussels. This man, who was to become a pioneer in medical science, was Jean Baptiste van Helmont, in whose future work is found the beginning of chemical physiology.[3]

The almost uninterrupted warfare in Belgium, the ignorance or non-observance of hygienic laws, the commercial intercourse with foreign lands, made the country and practically Antwerp an easy prey to the plague. Epidemics were so frequent in the latter part of the sixteenth and first half of the seventeenth century, that the civic authorities at Antwerp issued almost yearly official instructions for avoiding this disease.[3]

Marcquis was selected by his colleagues at Antwerp to write a work upon the plague. This book, published in 1624,[6] was the following year translated into French and published at Lille. Eight years later an enlarged edition was published at Antwerp consisting of sixty-two pages, entitled "Brief Instructions by the Doctors of Antwerp for Avoiding the Plague, Enlarged and More Accurate, Explaining the Causes of the Disease, the Markings on the Dead Bodies, the Diagnosis, Prognosis, and Cure, and Containing also the Instructions of the Magistrate for Combating the Plague; Which Advises also How the Houses, Furniture, and Clothes Should Be Cleansed and How Confessors and Doctors Who Visit Infected Patients Should Protect Themselves."[7] In 1634, and again in 1636, editions of his "Complete Treatise on the Plague, etc.," consisting of 218 pages, appeared at Antwerp.[5]

Marcquis defines the plague as a "contagious, loathsome, speedy illness, killing many people, which sprouts out of mysterious poisons and rotten causes," and he describes the causes "as abstractions of the wrath of heaven in the air, soil, water, and human body," each cause producing in a particular place in the body a characteristic form of the disease. He says that "without a knowledge of the causes of the disease there can be no treatment," and of the symptoms "they vary with the nature of the epidemic." * * * "We have observed that death occurs without fever. This is caused by the infection of the air, which is inhaled, then absorbed by the heart, whereupon the spiritus vitalis is quickly destroyed before any buboes appear."

Marcquis did not approve of the burning of sub-

stances emitting offensive odors, such as leather, feathers, etc., to protect oneself from the plague; he declares that "a bad odor makes the spiritus vitalis ill, and a good odor makes the same strong." He blames the civic authorities for "not discerning what a harmful and deadly mistake it is to hire with the intent of saving money unlearned idiots (sic) and surgeons to treat this disease, because it requires those who have the keenest minds—the cleverest doctors and best surgeons."

According to Marcquis, the means of avoiding the plague are spiritual, political, and medical. The spiritual consists in reconciling oneself with God. The political is the control of the public hygiene by the regularly constituted authorities whose duties are to see that the streets and houses are clean, that no animals, such as pigs, pigeons, etc., are raised in the city, that frequent gatherings of the people and kermesses do not occur, that the sale of unripe fruit is prevented, that large fires are kindled and cannon fired several times, morning and evening, to cleanse the infected air, that those who die of the plague are buried deeply, that those who have contracted the disease are quarantined and treated by competent physicians, and that all foreigners and all parts of the country where the plague has appeared are carefully watched. The medical means of preventing the plague, are avoiding all kinds of excesses, keeping sober and clean; having good ventilation, taking from time to time a light laxative, keeping oneself in good health, and consulting at once one's medical advisor if an epidemic of the plague does occur.

He disagreed with many of his time who thought that powdered frogs, spiders, etc., were preventatives, but he did acknowledge the value of the lapis bezoardicus and precious stones, such as the hyacinth and the emerald.

He was opposed to bleeding the patient and to the administration of purgatives because "the disease is of a malignant nature," and advised great care in the treatment of each symptom, recommending to physicians the advice of Hippocrates, "quo natura vergit eo dirigenda curatio."

The work treats also of other diseases which occurred epidemically in Antwerp, such as miliary fever, ophthalmia, erysipelas of the face, and angina. Among other remedies he used sulphuric acid in treating the angina, and when it resisted all treatment he advised tracheotomy, an operation he did not consider dangerous.

Marcquis died December 20, 1647, the year preceding the peace of Westphalia, which terminated the thirty years war, and he was buried in the Church of the Dominicans at Antwerp.

Michel Boudewyns, Ph.D. (Louvain) M.D. (?), a native of Antwerp, and brother-in-law of Lazarus Marcquis, after studying philosophy and theology at the University of Louvain, with the intention of entering the church, decided to study medicine. He attended the courses in medicine at Louvain for three years, and then visited some of the other universities of Europe, probably receiving his M.D. degree at Paris in 1642.[9]

The marquisate of the Holy Roman Empire did not possess a pharmacopœia.[9] The dispensatory of Valerius Cordus,[10] which appeared in 1535, was the classic work for pharmacists throughout Europe. This work in Latin had been revised by Pierre Coudenberg of Antwerp, a pharmacist and friend of Christopher Plantin, and printed by Plantin at Antwerp in 1567. Coudenberg's French translation of it appeared at Lyons in 1575, and a Dutch translation of it appeared at Amsterdam in 1662. Two other Latin editions of this Cordus-Coudenberg work, with additions by other writers appeared at Leyden in 1627 and 1652 respectively.[11, 12] The revised dispensatory of Valerius Cordus by Coudenberg was still in use, but not up to date.

Under the auspices of the Medical College of Antwerp, Boudewyns edited the "Pharmacia Galeno-Chymica, etc.," [13] which the magistrate of Antwerp declared by an ordinance of September 27, 1660, to be the official "Codex" or pharmacopœia of this city. This ordinance annulled a decision of June 6, 1659, directing the pharmacists to follow the revised dispensatory of Valerius Cordus by Coudenberg for the preparation of their drugs.[9]

Of the practice of pharmacy in Antwerp at this period Boudewyns says in his "Practical and Satisfactory Treatise for the Sick":[14] "Here in the city of Antwerp learned and unlearned are permitted to start, hold, and keep an apothecary shop without any proof of being fitted for it. There is not a trade so mean, not even the carpenter's, glazier's or cobbler's, but that it must be overseen by the heads of the trade, and must serve well the people who pay money to those engaged in it. Those engaged in these trades must be examined by those over them and give satisfaction to the deans of the trade. The apprentices must serve a certain number of years learning their trade and must prove themselves competent to carry it out. It is but a stupid thing to ruin an old shoe; whereas, in the art of pharmacy, which is a matter of life and death for the people, there are many who, believing and judging themselves qualified to act as pharmacists in spite of their inability to write their own names, are permitted to hire a young man to read prescriptions to them."

Boudewyns in his work,[15] published in 1668, asks and answers seventy-five moral and theological questions, among which are the following:

Is medicine a useful art? [The author's proofs and affirmative answer fill six printed pages.]

May the physician wish and pray God that he may have many patients? Yes, but not to the disadvantage of others.

Can he have recourse to superstitions and witchcraft? No.

Can he make use of astrology? He may study the influence of the stars upon man.

Can he heal by magic a disease which is produced by magic? No.

Can one use human blood, flesh, fat, and bones in treating disease? Yes.

Can one prescribe amulets, collyria, etc.? Yes, but without superstitious practises.

Can one have recourse to charms, the pronouncing of sentences and words? No.

Can one treat the energumen and possessed? Their bodily infirmities only.

Is it lawful to use philters and drafts to excite love or hate? No.

Can the physician for his prognosis make use of chiromancy, metoposcopy, physiognomy, aeromancy, and dreams? One can have recourse lawfully to these insomuch as these sciences are related to medicine.

May chemistry be used in medicine? Without doubt; but alchemy cannot be used lawfully by the Christian physician.

Can one advise the use of preventives for drunkenness and venereal diseases? This practise is permitted in many cases without accusing the physician of favoring the debauch.

Can the physician order the patient to drink wine and get drunk? If it is necessary for a cure it is permitted.

Can he prescribe aphrodisiacs? One can use them, but not abuse them.

Is it lawful to prevent the generation of the seed or

destroy the seed already formed? Each one can debilitate the prolific ability by work or abstinence, never by drugs, and the seed once formed must not be in any manner corrupted.

Can the physician advise pollution in order to heal a disease? [The author proves by the unanimous testimony of physicians and theologians that this is unlawful.]

Can a physician look at and touch the genitals? Without doubt, if the nature of the disease requires.

Can he cut the hymen for the sake of health? Yes.

Can he advise marriage for the sake of health? Certainly.

Can he prevent conception? Not at all.

Is he allowed to perform the operation of castration? In some cases only.

Can the physician order one of a married couple to refuse the conjugal duty to the other? He is obliged to do so in some cases.

Is it at times lawful to cause an abortion? The physician can never do it directly. However in case of disease it is allowable to employ any means to save the pregnant woman.

May the physician take charge of desperate and incurable diseases? There exists no disease so desperate that the physician cannot lend his ministration to it.

Can he prolong indefinitely a disease and use only doubtful remedies? Unless an affection more grave is imminent it is neither lawful to prolong the disease nor to use doubtful remedies when there are sure ones.

Can one cure a disease by producing another? The duty of the practitioner obliges him to produce often a light affection in order to extirpate a graver one.

Can he omit to employ the necessary remedies under pretext that in case of their not succeeding his reputation would suffer? Those who act thus are culpable and unworthy the medical profession.

Can he use venoms, and how? Yes; as a remedy.

Is it lawful to use emetics and purgatives, to bleed, mutilate, burn, and cut the body. Yes. [These questions are answered from a theological point of view.]

Is it lawful to accelerate death in order to deliver from suffering a patient who is despaired of? All Christian physicians will abstain from it.

Does the physician owe the same care to all his patients? Yes.

Is it lawful to dissect the human body? It is not only lawful but is even necessary at times to open cadavers.

Is the physician obliged to give his services to heretics and persons afflicted with contagious diseases? He is not obliged to do so in every case. [Boudewyns argues that it is the duty of the Catholic physician to devote himself chiefly to those of his own religion, but he can assist heretics; and the physician who treats those suffering from a contagious disease not only exposes himself but his other patients as well to this disease. The author asserts the necessity of having special physicians hired by the city to treat the plague.]

Is it the duty of the physician to see that the dying are given the help of religion? It is the duty of the Catholic physician.

Can he suppress or deny the virtues of remedies when they are demanded of him? Sometimes he is obliged to do so in the interests of the patient.

Is he compelled, when demanded, to state that death is imminent? He must do it with discretion.

When the physician is questioned regarding the gravity of a wound or disease, is he compelled to speak the truth? The physician, on being required to do so by the judge, is obliged to tell the whole truth.

Is it lawful for the physician to reveal diseases of a secret nature when he is asked? The physician can make them known only under grave and extremely rare circumstances.

Can the physician receive honoraria for his cures? Yes.

Must he give gratuitous treatment to the poor? Without doubt.

Can he before undertaking to cure a disease stipulate his fee? The physician can demand a reasonable fee.

Can a physician exact a higher fee for a remedy composed or invented by himself from the rich than from the poor? Without any doubt.

Is it permissible for a physician to supplant his colleague in a case? [The proof that it is unlawful occupies four pages of Boudewyns' book.]

Is a prince or magistrate compelled to admit the art of healing into his domain? It is a duty in the interest of the citizens.

Is medicine according to one's conscience a lawful science? Certainly.

Can any one practise medicine conscientiously? Only those who have given some guarantee of their capacity can practise this art.

Is it the duty of the magistrate to see that there are good physicians, pharmacists, surgeons, and obstetricians? Yes.

Is it lawful to invoke the saints regarding diseases? Yes.

Must the patient permit the inspection of all parts of his body? Without doubt.

Can those who are impotent be married? No. [The author cites at length the different kinds of impotence.]

Is fasting obligatory for pregnant women and those who are nursing children? They are not obliged to fast.

Are those having atresia of the vulva compelled to submit to an operation? Without doubt, if marriage is to be valid.

When it is impossible to deliver a woman in a natural way, can she or must she submit to cesarean section in order that the child be baptized? If there is some hope of success the mother can permit the operation; she is not obliged to do so in all cases.

Is it obligatory to baptize all monsters and abortions? No.

The author then takes up the subject of teratology, discussing the existence of satyrs, pygmies, centaurs, hermaphrodites, succubæ, incubi, and sirens, and after asking if they should be baptized, proves that most of them are fabulous beings.

He discusses the hygiene of marriage, and whether or not the use of chocolate, wine, milk, and tobacco break a fast, and whether or not a certain order of monks must refrain from eating meat.

As indicating the intolerant religious spirit of this time he declares that the magistrate cannot admit Jewish physicians to practise medicine, and after stating that a mother must nurse her infant when her health permits it, he terminates the work by discussing the obligations of patients to pay their physicians.

Boudewyns served as secretary, president, and professor of anatomy and surgery at the Medical College of Antwerp, and was also city physician and physician to the Hospital of St. Elizabeth. He died October 29, 1681, and was buried in the Abbey Church of St. Michel at Antwerp.

REFERENCES.

1. Motley, John Lothrop: "The Rise of the Dutch Republic."

2. de Gamond, I. Gatti: "Histoire abrégée de la Belgique," Bruxelles, Henri Manceaux, 1867.

3. Broeckx, C.: "Notice sur le Docteur Lazare Marcquis, Médecin et Ami de P. P. Rubens. Lue à la Séance Solennelle de la Société de Médecine d'Anvers du 15 Décembre, 1851. Extrait des Annales de la Société de Médecine d'Anvers.

4. Placard of Charles V: (October 8, 1540) translated from the Flemish in "Notice sur Martin van Hille," par C. Broeckx. Lue à la Séance Solennelle de la Société de Médecine d'Anvers, le 17 Décembre, 1850.

5. Foster, M.: "Lectures on the History of Physiology." At the University Press, Cambridge, 1901.

6. Marcquis, Lazarus: "Cort advys der doctoren van Antwerpen teghen de peste." Antwerpen, G. Verdussen, 1624; Malines, 1625.

7. Marcquis, Lazarus: "Cort advys der doctoren van Antwerpen teghen de peste, vermeerdert ende distinctelyker de oorsake, teeckenen oock der doode lichaemen, prognostike, onderscheyden, ende curatie gheexpliceert. Daer by ghevoecht de ordonnancie der Magistrate om peste te weyen, ende hoe men de huysen, meubelen en cleeren, suyveren sal, met beter maniere als oydt te voren ghedaen is. Ende hoe de Biechtvaders ende Medicynen de gheinfecteerde persoonen visiterende hen preserveren sullen" T'Antwerpen, by G. Verdussen, 1633, de 62 pag.

8. Marcquis, Lazarus: "Volcomen tractaet van de peste in hetwelck distinctelycker d'oorsaken, de teecken der levende ende doode lichaemen de prognostiquen, d'onderscheyden, de preservatie ende de curatie der

peste gheexplicieert zyn; Oock d'ordonnantie der Magistraten, om de peste te weyren, ende eene betere maniere als te voren ghedruckt is gheweest, om de gheinfecteerde huysen, meubelen ende cleederen te suyveren; ende hoe de biechvaderas ende medecyns de inghefecteerde persoonen visiterende, sich van de contagie preserveren sullen." Antwerpen, by Caesar Joachim Trognesius. 210 pag., 1634; *ibid.*, 1636.

9. Broeckx, C.: "Éloge de Michel Boudewyns," Anvers. J. E. Buschmann, 1845.

10. Cordus, Valerius: "Dispensatorium pharmacorum omnium quæ in usu potissimum sunt," Nuremberg, 1535.

11. Broeckx, C.: "Note sur Le Liggere des Apothicaires d'Anvers," Anvers. J. E. Buschmann, 1861.

12. Broeckx, C.: "Notice sur Pierre Coudenberg." Extrait du Journal de Pharmacie, publié par la Société de Pharmacie d'Anvers. Anvers, L. J. de Cort, 1845.

13. Boudewyns, Michel: "Pharmacia Antverpiensis Galeno-chymica, a medicis, juratis et collegii medici officialibus, nebiliss. ac ampliss. magistratus jussu edita. Praeter pharmaceutica magis necessaria, chymica usitatiora, et brevem facilemque conficiendi modum, multa reservata, secreta, et curiosa complectens ante hac nunquam evulgata, uti ex pagella proxime, et indice in fine libri sequentibus, videre est. Atque histam ad pharmacopœorum quietem, quam civium omnium commoditatem, singulorem medicamentorum pretia ex mandata ejusdem magistratus apposita." Antv., Georgens Willemsens, 1661, pp. 285.

14. Boudewyns, Michel: "Dienstich ende ghenuchelyk tytverdryf voor siecken, om ghesont te worden, en voor ghesonde om niet sieck te zyn; handelende van alle die menschen dewelcke in een sieck-huys van noode syn, namentlycke, de sieck-maerten, ofte die hun dienen en bystaen. Tot troost en onderwys van den krancken beschreven in vloeyende redenen, en tot lichter outhouden, en vermaeck van de selve met veel fraeye kortbondighe spreucken, geschiedenissen en dichtjens doorvlochten." Antwerpen, by Francois Fickaert, 1654, de 467 pp.

15. Boudewyns, Michel: "Ventilabrum medico-theologicum quo omnes casus, tum medicos, cum ægros, aliosque concernentes eventilantur, et quod SS. PP. conformius, scholasticis probabilius, et in conscientia tutius est, secernitur, opus cum theologis et confessariis, tum maxime medicis perquam necessarium." Antv., Cornelius Woons, 1666, de 454 pp. avec un index de 43 pp.

205 East Twenty-third Street.

A NEW GAS-OXYGEN-ETHER APPARATUS; DESCRIPTION AND USE OF THE INSTRUMENT.

By H. CLIFTON LUKE, M.D.,

NEW YORK.

ANESTHETIST TO ST. LUKE'S HOSPITAL

For the safe, intelligent, and satisfactory administration of nitrous oxide in general surgery an efficient and practical apparatus of comparative simple design is of first importance, and the writer believes that the following requirements should be met in such an instrument:

1. Provision for the even and continuous delivery of nitrous oxide and oxygen by the use of reducing valves.

2. An unchangeable and sufficiently accurate device from a clinical standpoint for separately measuring these gases.

3. Independent valve controls for each gas.

4. A system of rebreathing and ventilation which without waste or excessive accumulation of carbon dioxide will insure a fairly even mixture of the gases in the rebreathing bag at all times.

5. A reliable ether device which has independent valve control.

6. Four yokes to accommodate two gas and two oxygen cylinders, the extra one of each serving as a reserve supply.

7. The instrument should be obtainable in portable form; substantially built with as little glass and other fragile parts as possible. With these ideas as a guide, the writer has planned and completed the apparatus here described.

Description of Apparatus (See Fig. 1).—A graduated ether reservoir of about one ounce capacity is seen above and in the center. This is controlled by a pin valve (1) which allows the ether to pass drop by drop through the sight feed (2), whence it falls into the vaporizing chamber (3), through which a stream of all the used gases are made to pass. A small opening closed with a screw cap (4) is used for filling the ether cup, while a pet-cock (5) in the dependent part is used to empty it. At the lower part of the instrument are four yokes; two on the right (6) to accommodate two 100-gal. nitrous oxide cylinders, and two on the left (6A) for two 40-gal. oxygen cylinders. These yokes are strongly connected to a solid brass segment (7), which is tunneled on each side so that

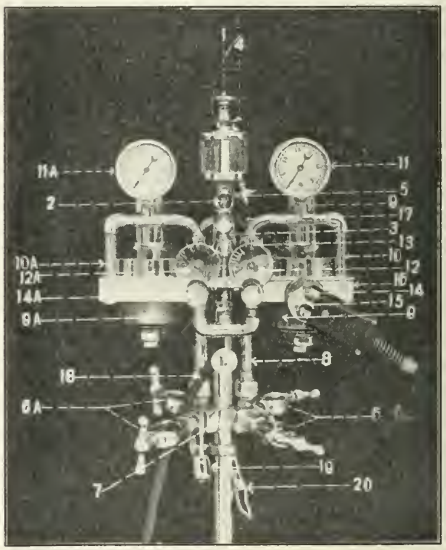


Fig. 1.

the gas from both cylinders may pass through it and upward through the high-pressure pipe (8), the oxygen taking a similar course on the left, thence entering the reducing valve (9), the oxygen passing through the opposite valve (9A). From these valves the gases pass through the low-pressure tubing (10, 10A) to the final control cocks. A low-pressure gauge of 30 pounds capacity is attached on each side (11, 11A), distal to the regulators, to indicate the pressure against these control cocks. The circular plates (12, 12A) are immovably attached to the stem of these cocks. A calibration appears on the upper part, which is read from a fixed indicator point (13) in the center at the top of each, in terms of liters per minute of the gas delivered to the rebreathing bag. On the lower side of this circular plate is a gearing which engages a pinion whose shaft is continuous with the two thumbscrew controls (14 and 14A). An electrical heating attachment (15) is built into the nitrous oxide con-

troller. This line is also tapped to provide a connection (17) for the ether heating device. The main portion of the apparatus, consisting of the center segment (7) supporting the yokes and all above this, is one connected unit, and may be raised or lowered by use of the spring catch (20) placed at the upper part of the supporting stand. If it is desired to use only one tank of oxygen and one of nitrous oxide on the machine, the two unused yokes are closed off by inserting into the same the two adjustable dummies or blanks (19). The one on the right, not numbered, is seen in position. The portable stand (Fig. 2) is light, strong, and can be easily taken apart and packed into a small compartment in the carrying case. The rubber outlet tubing (18) conducts the gases to the face mask.

A cut of the apparatus as recently made up for hospital use is shown in Fig. 4. A number of minor improvements have been made on this new model, but it chiefly differs from the original portable one by having a strongly constructed, non-collapsible stand which can be raised or lowered if desired. A larger ether reservoir has also been used here, and control cocks have been placed on each yoke, thus obviating the little inconvenience of momentarily turning off the supply of gas or oxygen to the rebreathing bag while a full tank is being inserted on either side in place of an empty one.

Calibration of the Instrument.—The volume of a gas delivered at a fixed and standard pressure (ten pounds in this case) through a graduated metal cock is very constant, and should remain so under such conditions for an indefinite period. In this apparatus a large cock has been constructed of hard composition-metal with an extra long tapered stem, accurately ground and fitted, having an offset to prevent leakage in the arrangement of the inlet and outlet channels. A pair of small, tapering V-shaped grooves in the stem in connection with the channels regulates the escape of the gases. For purposes of calibration a circular metal plate was attached immovably to the stem of the cock and a fixed indicator point arranged at the top of this plate. A reliable and proved dry gas meter of the three-light type was attached distally to the valve which was furnished with a gas supply at an even pressure of ten pounds. The cock was then opened to a point, for instance, where the gas meter indicated that the delivery rate was 2 liters per minute, then to a point where 4 liters per minute was delivered, and so on until on the nitrous oxide side a calibration was made for 2, 4, 6, 8, 10 and 12 liters per minute, while on the oxygen side the reading in liters was ½, 1, 1½, 2, 2½ and 3 per minute. Finer changes could be had by opening the valve to points between those placed on the scale. A manometer was attached distally to the meter and a resistance from 3 to 5 mm. of mercury was carried during the calibration, which would compensate for the slight positive pressure usually present in the breathing bag and mask. However, the effect on the amount of gases delivered is so slight that this is unnecessary.

Necessity of a Heating Device.—In a portable apparatus of this kind the small cylinders containing 40 gallons of oxygen and 100 gallons of nitrous oxide are mostly used. In the case of oxygen, where the tank pressure is about 1,200 to 1,500 pounds, it can be reduced and maintained at an even pressure of 10 pounds without difficulty, since it is used so slowly that a relatively small amount of cold is generated (average 1 liter or less per minute); but with nitrous oxide the rate is 4 to 6 liters per minute, and the ordinary controllers tend to alternately freeze and thaw after the first fifteen and twenty minutes, causing a continuous fluctuation of the low pressure. This must be overcome, since the accuracy of any measuring device for gases is dependent quite as much on the constancy of the pressure as on the amount of it. By the use here of a regulator having incorporated in its body a good electric heater it has been found possible to secure and maintain a 10-pound pressure continuously for long periods.

The Ether Device.—When ether is needed, it is, by the use of a direct thumb control at the top of the ether chamber, caused to be sent through the sight feed drop by drop into the electrically heated tunnel, through which all the gases are made to pass in a sweeping uphill direction, the ether tending to run downward against the oncoming stream of gases. This mechanical arrangement assists substantially in the vaporizing of the ether. The tunnel has, in general, the course which the letter U would indicate when the latter is placed on its side, thus ⊔; the space between the two limbs of the letter representing a receptacle for a tubular electric light which affords ample heat to prevent any freezing tendency of the ether even when being vaporized at the rate of 60 to 120 or more drops per minute. This heater can be disconnected independently, and need only be used when rather large amounts of ether are called for.

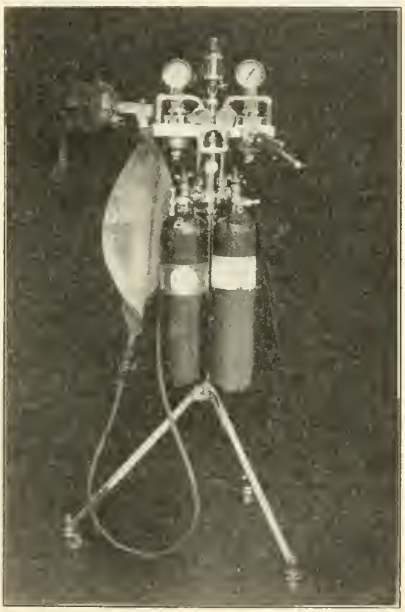


Fig. 2.—Portable apparatus; weight 22 lbs. without cylinders.

The Face Mask and Other Parts.—In an effort to simplify the portable apparatus and lessen its weight, turn-off valves have not been provided in connection with the yokes, but instead two light adjustable dummies or blanks, one on each side, are available to lock in the unused yokes in case only one tank is inserted on each side. The conducting tube from the instrument to the rebreathing bag

should have about one-quarter inch inside diameter, and be relatively short, that is, about 4 feet. The reasons for this are, first, to avoid possible accumulation of expired gases in the tube, and, secondly, to allow the quick delivery of fresh gases into

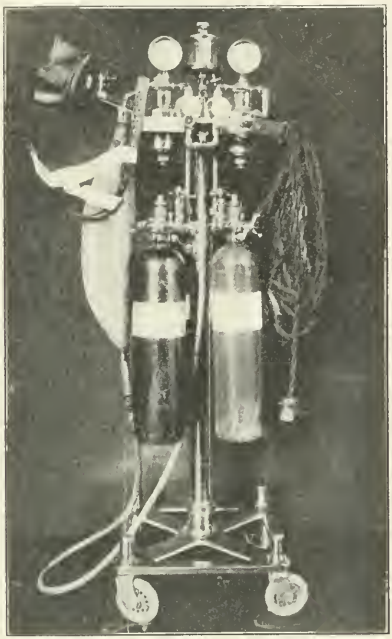


Fig. 4.—Hospital apparatus.

the rebreathing bag. The rebreathing bag is placed next to the face piece, thus facilitating the ease of respiratory interchange which would not be obtained were a long, rigid tube to intervene between the mask and working supply.

The Boothby-Cotton rubber face piece, an improvement on the one originally devised by Gatch, has been modified here by providing extensions at the chin and nasal ends, and attaching the retaining straps at a more acute angle with a double adjustable loop to fit over the crown of the head, thus leaving the back of the neck, so often the site of abscesses and carbuncles, free as a field for operation. A celluloid hood is used, and the metal parts of the mask are of light weight so that the rubber face piece, with its adjustable strap, makes the mask practically self-retaining. The exhalation valve has been specially designed, and regulates the ventilation very evenly. It consists of a valve seat, above which is a flat, circular aluminum float, which rides freely up and down on a small triangular-shaped vertical standard running through its center. The float is kept seated by a very delicate adjustable coil spring. The valve is all metal, and can be easily taken apart and boiled. The rubber face piece can be briefly boiled many times without serious damage; but the celluloid hood* should be sterilized in bichloride or oxycyanide of mercury solutions.

General Technique and Use of the Instrument.—In advance of the actual administration it is very important to give some alkaloidal adjuvant, since gas-oxygen as compared with ether or chloroform is just a veneer form of anesthesia. In the average case we have found that morphine sulphate, 1/6 grain with hyoscine hydrobromate, 1 200 grain, given together, hypodermically, one hour before operation is very safe and satisfactory. Where a definite contraindication to the use of hyoscine exists, atropine sulphate, 1 100 grain may be substituted. In the old and the young we usually omit the preliminary medication. The morphine, aside from its general sedative effect, is an efficient aid in blocking shock, while hyoscine gives substantial help through its powerful cerebral sedative action. It should also be remembered that at the start a word of explanation and encouragement to the patient but seldom fails to do real good, and frequently helps materially to accomplish a quiet, smooth induction.

The ether reservoir should always be filled, and the cock on the pipe running downward at the rear opened. This pipe serves to equalize the air pressure in the reservoir and vaporizing chamber, thus allowing the ether to escape freely from the former. One should also be certain beforehand that an ample supply of gas and oxygen is on hand. Our experience with this particular instrument indicates that in the average case a 40-gallon tank of oxygen will suffice for about two hours (average rate of 1 liter per minute), and a 100-gallon tank of nitrous oxide is usually sufficient for about 1 hour and 10 minutes (equal to 4.84 liters or 1.28 gallons per minute). Amounts of oxygen in excess of the average, up to 2 liters per minute, are occasionally required, because, as Connell has mentioned, a diminished tidal volume, a decreased oxygen carrying capacity of the blood or rate of blood flow must be compensated for by increased oxygen supply. Practical examples of this are seen in the case of young children, old people, individuals with marked anemia, septic cases, those with diminished pulmonary capacity, as in advanced tuberculous conditions, pneumonia, empyema, etc., uncompensating cardiac cases, and conditions of inanition, exhaustion, and shock from various causes.

Where excessive amounts of oxygen are demanded in cases not exhibiting such deficiencies it is usually

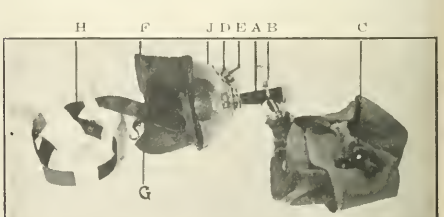


Fig. 3.—The face mask. The body (A) is of light weight and can be rotated in any desired direction. The thumb control (B) when pushed to the right to limit of slot opens an air vent on the opposite side of the body; in its present position the air vent is closed and free interchange of gas is allowed between the rebreathing bag (C) and mask. The exhalation valve (D) has a thumb screw (E) to regulate the tension of its spring. The nasal end (F) of the rubber hood shows the rubber flap beneath which cotton is packed on each side, while G indicates the chin extension. H is the head strap and J the celluloid face piece.

due to partially obstructed breathing. A free airway, indicated by a quiet, regular respiratory rhythm, is of paramount importance. To obtain this some mechanical aid is frequently necessary, and we have found that the simplest, least expensive

*An aluminum hood will be tried in the near future.

and most practical device consists of a pair of fairly soft rubber tubes of about ⅜ inch bore, the ends to be passed into the mouth over the base of the tongue being beveled and seared in a flame to make them smooth, while the opposite ends which protrude beyond the lips are pierced by a strong safety pin, which is locked and has attached to it a loop of tape 6 inches long, which will extend from beneath the mask to the outside. They are simple to make, can be used several times, and are readily sterilized by boiling. If sterterous breathing with cyanosis persists one should expose the mouth by raising just the lower end of the face piece, and with firm downward pressure of the chin by the left hand, if necessary to overcome the set jaw, quickly pass with the other hand the tubes, previously smeared with a little K-Y lubricant, between the teeth and over the tongue until the pinned ends extend just beyond the lips. By this device a troublesome and often dangerous anesthesia is quickly converted into one which is smooth-going and satisfactory, and it should always take the place of constant jaw pressure, which is irksome, inefficient and harmful. During the past four years this device has been used in about five thousand cases of general anesthesia at St. Luke's Hospital with the utmost satisfaction.

Before adjusting the mask the air vent on the body of same should be closed; this locks in the bag any gas turned into it. One should next fill the bag about three-fourths full of pure gas, avoiding delay by opening the gas valve to the limit. This done, the gas is turned off completely until the rubber face piece, a modification of the Boothby hood, is arranged. It has at one end an extension which hooks over the chin and lifts it somewhat, thus encouraging the forward position of the lower jaw when the retaining strap which goes over the crown of the head is pulled fairly tight and fastened. The nasal end fits snugly over the bridge of the nose, but does not bind. Beneath the rubber flap on each side of the nose should be tucked a moderate-sized wad of non-absorbent cotton. This gives a snug fit along the side of the nose. The air vent is now closed, allowing free flow of gases into the face mask while the gas valve is opened to the point indicating 6 liters per minute, and the oxygen valve set at the ½-liter mark. When the slightest bluish tinge appears in the ear (the most practical place to observe color) the oxygen is turned up to the 1-liter mark. Later, consistent with the behavior of the patient, it may be and often is possible to decrease the gas delivery to 4 liters per minute, while the oxygen indicator may usually be held at or a little behind the 1-liter mark. However, in intractable patients, such as alcoholics, large muscular men, highly nervous individuals, etc., as much as 8 liters of gas per minute may be required throughout. This is also the case where the tidal volume is much increased, due to very rapid and deep breathing. With the gases delivered at the average rate, as mentioned above, the tension of the spring in the exhalation valve should be so adjusted that the rebreathing bag at the end of expiration is completely filled without being tense. Positive pressure is unnecessary and is advised against.

It should be remembered that it requires from seven to ten minutes to establish a good gas-oxygen anesthesia, which does not mean the mere state of unconsciousness usually obtained in from fifteen to forty seconds, but a balance of gases between the alveolar air and blood which will maintain a sufficient saturation of the nerve centers to obtain the most complete anesthetic state without the presence of anything more than a very slight degree of cyanosis.

Ether as an Adjuvant to Nitrous Oxide.—It is during the induction period when a relatively light anesthetic state exists that the moving and placing of the patient in special positions, followed by the powerful reflex stimulation of the skin incision (where no local anesthetic is used), and this in turn perhaps by intraabdominal manipulations, that offers some of the greatest difficulties to overcome with this anesthetic. Ether is a powerful synergist to nitrous oxide, and it is due to this fact that a pronounced quieting effect is frequently observed during the induction period when very small amounts (2 or 3 drachms) are added at the rate of 40 to 60 drops per minute over a period of three or four minutes. After this in a majority of cases no more ether will be required, but a certain percentage of these will necessitate a small amount again at the time of closing the wound, especially when it is in the upper section of the abdomen.

In certain intractable cases it may be necessary to continuously add a little ether (20 or 40 drops per minute) throughout the operation, and at the same time it is usually best, though not absolutely necessary, to increase the oxygen percentage sufficiently to obtain a pronounced pinkish color. The use of local anesthesia in the line of incision, if surgeons could be induced to use it routinely, would conduce to a much more quiet anesthesia, far better muscular relaxation and minimize the necessity for the use of ether as an adjuvant.

At the commencement of this article certain requirements were set forth as representing the writer's idea of a clinically efficient and practical gas-oxygen apparatus. It is believed that all of these have been attained in the instrument here described, and the final test, its practical utility, has been satisfactorily established during the past three months in St. Luke's and other hospitals here.

204 West 110th Street.

THE INFECTED COLON AND ITS SURGERY.*†

By J. M. LYNCH, M.D.,

AND

J. W. DRAPER, M.D.,

NEW YORK.

(*Introductory Note.*—This paper is not a plea for either so-called surgical or medical therapeusis, but a simple chronicle of certain facts which the authors have obtained through experimentation on animals, through laboratory studies on human material, and from clinical results.)

Bouchard, after Claude Bernard, gave added impetus to the study of autointoxication. Roger, Metchnikoff, and Combe, working along somewhat divergent lines, have made our knowledge of this interesting symptom-complex more complete. Adami, after reviewing this earlier work in collaboration with his own extensive studies, concluded

*Read at the meeting of the Medical Society of the State of New York, April 27-29, 1915.

† Studies from the Surgical Clinic of Colonic and Rectal Diseases, New York Polyclinic School and Hospital and from the Laboratory of Surgical Research, New York University.

that the process should be properly considered a subinfection of bacterial origin. Combe believed that the origin of the toxemia was to be found in the bacterial hydrolysis of the proteins. Metchnikoff was also inclined to this view and most of the present day therapeusis is based upon this conception. His idea is that the protolytic anerobic bacteria are the toxic agents—these thrive best in the alkaline secretion of the cecum and cecocolon. That the reaction of the ileum is acid is taken to explain the fact that these bacteria are seldom found there save under pathological conditions. Under this hypothesis originated the sour milk, lactic, and succinic acid treatments.

From a surgical standpoint it is necessary to include not alone the lesions caused by substances formed through the vital processes of the organism, which is Combe's conception, but also those arising from destructive infection of the bowel wall, which in a sense is not true autointoxication, but which is essentially a surgical disease. Surgeons can at present do no better than find a means to prevent the absorption of the toxins from a given part of the bowel, however these poisons may have been created. Thus, we limit ourselves here to a consideration of partial obstructions by whatsoever cause, and of colonic infections which are destructive or inhibitory of the normal functions of this part, particularly those functions which protect the body from infection. This amounts to nothing more than a conservative extension of surgical therapeusis to the colon. Does it not seem logical to apply the same surgical principles to the colon as to other organs? Most acute and chronic purulent colonic infections are surgical from the start, and the future functional efficiency of the organ and of the individual depends upon early recognition and proper treatment.

The colon is pouched at either end, and its entrance and exit are guarded by valves. It is widest at the cecum and narrowest at the rectum. Four angulations give to this organ potent pathological possibilities. Three gross features distinguish it from the small gut: (1) The teniæ, (2) the appendices, (3) the haustra. Not being a highly specialized organ, the colon is subject by the laws of heredity to great variations both of size and of position—specialization results in a rigid adherence to a fixed form. The greatest variations are seen, as would be expected, in the cecum and sigmoid. Microscopically, except at the apex of the cecum, the most important surgical consideration is the relative scarcity of lymphatics and the absence of villi. This suggests what has lately been proven: that the digestive function of this organ is nil. Auerbach's plexus has recently come to be of great surgical importance because of our increasing surgical interpretation of the function of the autonomic system. The terminal ileum, the appendix, the cecum, and colon have a common origin. This has an important bearing upon surgical physiology. Obviously, the entire alimentary canal, particularly its caudal portion, is ill-adapted to the gravity strain incident to the upright position, even when the support and the torsal development have been most favorable.* A consideration, therefore, of the biological forces constantly at work is of great interest to the diagnostician and to the operating surgeon. Hereditary tendencies resident in the germinal material itself, lasting throughout life, and those imposed by the peculiar conditions of man's environment, combine to yield a high percentage of ill-adapted cecocolons. Bryant has shown that an herbivorous and a carnivorous classification of human disease is possible, and it is evident that in no part of the body is this more true than in the cecocolon. Man's cecum is normally carnivorous in type.

There are three deviations from the normal course of enteric development which are of great surgical interest. Rotation may fail; fixation may fail; the cecum may conform to the ancient herbivorous type. Any or all of these variants may, under pressure of gravity, produce areas of dilatation and atonicity which result in a slowing of the intestinal current, frequently ending in infection. Is it not easy to see that, given a cecum of this ill-adapted, pseudo-herbivorous type, it may undergo changes in the following sequence; stagnation, gas formation, dilatation, attenuation, infection, destruction of Auerbach's plexus? Barber has shown in recent animal experiments the important difference in the character and location of the dilatation following partial and complete obstruction. In brief, partial obstruction of the colon caused dilatation of the duodenum only, while complete obstruction caused contraction of that organ and colonic dilatation just orad to the obstruction. An analogy may be drawn between this process and that which destroys so many gallbladders and appendices. The difference is that we have come to a recognition of the one, but not, as yet, of the other.

Bloodgood has observed a vast difference in the postoperative behavior of his colonic cancer cases and those in which the colon has been resected for other causes. There was a rapid restoration of function in the cancer cases, but when the colon was resected for other causes the return of function was slow and often incomplete. These observations accord with our own, and we consider the following to be a possible explanation.

The earliest sign of cancer is constipation. This occurs irrespective of the size of the growth or of its encroachment upon the gut lumen. It is equally true of laterally implanted growths, as of the annular types. It is next to impossible, either by catharsis or enemata, to empty the bowel of the fecal mass which accumulates in the dilated pouch just orad to the growth. We have confirmed these observations repeatedly, especially in the case of minute recurrences which could not possibly in themselves offer any excuse for mechanical obstruction, the bowels having been regular since the primary resection and up to a short period before the recurrence. This inhibition is perhaps associated with Nature's effort to cause a recession of the growth. It is common practice to associate diarrhea with a new growth, but, of course, diarrhea is no evidence of the absence of constipation, for paradoxical as it may seem, the diarrheas most persistent are those associated with constipation. This frequent and imperative desire to defecate is not properly a diarrhea, but a mere subjective reflex without objective basis. So often is a diarrhea of this kind mistaken clinically, and so closely may it appear to be allied to the inflammatory conditions of the colon that one cannot consider them true inflammations without mentioning malignancy. We think it would be well to confirm or disprove our findings, that often the earliest clinical sign of cancer is a relatively sudden constipation.

*Shaler considers that the upright position more than any other single factor has fixed the short limits of man's life.

In our studies we have noted that colonic infection appears to bear a measurable ratio to the degree of morphological variation from the normal occurring in the organ or in its mesentery. Furthermore, of the fifteen ceca removed and studied microscopically and found diseased as per the following reports, all showed inflammatory change. Of all the other cases in which developmental reconstruction was not done, but rather a simple colostomy or ileostomy, not one organ conformed to what is considered anatomically normal.

Infections of the colon vary from a mild catarrhal inflammation to the most severe involvement of the entire wall and the seroperitoneal fat. While as yet we can offer no conclusive evidence upon which to base a rigid classification of colonic infections, it is evident, clinically, that there is wide variation in the course pursued by the infection, in its position, its virulence, and its outcome. Some infections, and these are frequently seen in the infantile or fetal type of cecum, are confined more or less closely to the cecum and cecocolon. This may be because of the direct continuance here of the cecal and appendicular walls. Of this interesting relationship there is no direct proof, but a further series of observations might prove the hypothesis, namely, that the cecocolonic infection was primarily of appendicular origin. In discussing the origin of colonic infection our laboratory colleague, Dr. McFarland, suggested that here as elsewhere the hematogenous pathology of infection was deserving of careful consideration. The virulence is to be measured in terms of physical and mental systemic disturbance rather than in the amount of blood and mucous in the stools. Here, as elsewhere, the streptococcic infections are most serious, although in a woman who was completely disabled mentally and physically we have isolated a pure culture of colon bacillus from a gland found in the cecal mesentery.

The outcome of colonic infection is most interesting because of an apparent paradox. The virulence of the infection is no index of the degree of subsequent strictural deformity. The infections which usually result in stricture are comparatively mild. We have seen very severe streptococcic infections leave no deformity whatever.

Case 259.—A railroad engineer. Clinically mild infection; passing blood and mucous, but able throughout to run his engine. Proctoscope showed a colon inflamed in spots, which bled easily on the slightest touch, covered with mucoserum. No ulcers whatever. Sick for six years. Gradual narrowing of descending colon to complete obstruction under medical and incomplete surgical treatment. Cured by exclusion of entire descending colon which is permanently destroyed.

Case 254.—A young society woman. Severe constitutional symptoms. Proctoscopy showed a seropurulent exudate and some ulceration. Microscopic examination of colon revealed an acute hemorrhagic inflammation of all coats, including peritoneum and adjacent fat precisely like that of carbolic or arsenical poisoning. The *Streptococcus viridans* was recovered from the discharges. Nevertheless, after appropriate surgical treatment, although she had been medically treated for a year and a half previously without improvement, she has gained thirty-five pounds and, clinically, the bowel is functionally perfect.

These represent the end results of two extremes of colonic infection, and many cases approaching the mean, serve equally to support the hypothesis stated above.

The general indications for surgical intervention are to be sought and found only after a most exhaustive study of each individual patient. First to be considered are the grossly evident colonic lesions. Rare, but prominent among these in point of importance, is hemorrhagic colitis. This embraces the following conditions: Acute streptococcic embolic septic colitis; chronic torpid ulcerous, slowly progressive colitis; acute diphtheroid hemorrhagic colitis. These forms of colitis yield only to surgical therapeusis. It is evident that no good purpose can be served by partial removal, because the colon is, as a rule, diseased from the ileocecal valve to the anus, and no one would here think of extirpation. It is a curious fact and well worthy of note, that the infections terminate abruptly at the ileocecal valve. This occurs in spite of the fact that since the terminal ileum and the cecocolon have a common embryological origin one would naturally expect them to be susceptible to like infections. For it is undoubtedly true of the ileocecal valve, as has been proven true of the ureterovesical, that its power of preventing so-called ascending infection is almost nil, the physiological function of the ureter being paramount. Our clinical observations on the Bauhinian valve all tend to show that this is equally true of the gut, for ileac involvement is extremely rare except the gut functions be impaired by bands or adhesions, and quite irrespective of the valvular patency. This view is at variance with that of those surgeons who operate for the sake of restoring the valve. Further research here is evidently necessary. Thus, it appears to the essayists to be as yet an open question whether the immunity enjoyed by the terminal ileum, though it be the embryological analogue of the cecocolon, is due to the change in chemical reaction, or, as with the ureter, to a protection afforded by its unimpaired physiological function.

Whatever the cause of so-called hemorrhagic colitis, one thing is certain: though the clinical pictures may be almost identical, the histological findings are absolutely different. Undoubtedly, the infections must be as varied as the microscopic pictures. Bacteriologists are helpless to aid the clinician in reaching a specific basis for classification, and until they find it possible to interpret the clinical findings in a scientific manner we cannot hope to reach a satsfactory classification, nor can we hope to treat these cases in any way other than by operation.

The histological findings in support of our premise are as follows:

The first case shows acute inflammation from the mucosa to the peritoneum. No desquamation of epithelium or destruction of glands. Submucosa shows both acute and chronic inflammation. The muscularis in some places is normal and in others chronically inflamed, with entire absence of nerve tissue. The discharges in this case are foul smelling and dark brown. The peritoneal gut is much thickened and appears in the form of a dense fibrocellular membrane which is only loosely attached to the muscle. The appendix is the seat of acute purulent inflammation. The mucosa shows leucocytic exudate with blood and pus.

In the second case the mucosa differs in that it is very deeply congested and has the appearance of the mucosa of carbolic acid or arsenic poisoning. In all sections in this case the entire mucosa is covered by exudate and presents a picture of intense inflammation. The blood vessels are greatly distended, but there is no evidence of degeneration of epithelium. The submucosa exhibits both acute and chronic inflammation here, also blood-vessels

are dilated and engorged with blood. The musculature shows some process of acute inflammation and the blood-vessels are engorged with leucocytes. There is exudate scattered through the submucosa. Tubercles can be demonstrated, but are not of tuberculous origin. There are several giant cells. A careful study of the nerve tissue fails to give any evidence of participation in the inflammatory process. The musculature shows evidence of acute inflammation and the peritoneum forms a dense fibrocellular membrane which is adherent to the muscle.

The third case presents exudate throughout, but most marked in the mucous peritoneal coats. The crypts of Lieberkühn have been entirely replaced by a round-celled exudate. Blood-vessels are abundant and engorged with blood. They are very numerous on the free surface of the mucosa. Apparently there is total absence of submucosa, in consequence of which the exudate layer replacing the mucosa rests directly on the inner muscular coat. There is round-celled infiltration of the muscular coat. There is no change in the peritoneum in this case.

Having considered the hemorrhagic form in a special manner, because of its severity, rarity, high mortality, and exceptional import to surgery, we turn to the more frequent infections, local and general. There are all grades of infection varying from very severe to mild. Some are merely catarrhal manifestations of direct extensions. Note the colitis from adventitious bands, from recurrent injury by floating kidney, and from contiguous pus tubes and gall-bladders.

Case 487.—A woman of 49. Abdominal tumor removed nine years ago. General complaint, pain, loss of strength during the last five years. Secondary complaint, constipation, alternating with diarrhea. Medical treatment futile. Operation, mesoventrad incision showed omentum thickened, twisted upon itself, and rotated from right to left so as to produce a partial hour-glass stomach and a triple kinked and twisted mid-transverse colon. It is well shown in the color photograph. Cessation of symptoms since operation, one year ago.

It is surprising how slight the physical basis may be in order to cause a disability out of all proportion to it. The following case is illustrative.

Case 362.—Constant diarrhea, blood mucus, and tenesmus. Nausea and gastric symptoms so marked as to have deceived a very prominent stomach specialist who considered the lesion to be gastric ulcer, and who treated it as such for several years. Cured by the simple removal of a polypus from the sigmoid.

Time will not permit us to consider tuberculosis, syphilis, diverticulitis, and many other constitutional and congenital conditions. Suffice to say, that all require surgical treatment, the technique and details of which are well known.

We wish to emphasize here particularly the surgical therapeusis of certain special forms of colitis which have given brilliant results in our hands and which we believe are not in general use. This therapy depends upon the following simple axioms. *A stoma situated anywhere but orad to all the inflammation is worse than useless. Colonic resection, to succeed, must be based upon surgical physiology.* Thus, the therapy under discussion consists in providing for one class of cases, rest; for the other, resection. A differential diagnosis to determine in what class a given case will fall may be established as follows:

What are the indications for ileostomy; what for colostomy, and what for resection? Acute purulent hemorrhagic and the acute purulent inflammations of the colon differ in this respect. The first is usually a general infection of the entire colon and rectum, ending in death under ordinary treatment. Prostration is profound, temperature high and irregular, and the anemia is severe and progressive. The discharges have a particularly foul odor, and the pain is cramp-like. There is no condition in the whole range of surgery more certain to yield a brilliant result if ileostomy is done in time. Appendicostomy and cecostomy will not cure; they are inadequate and are contraindicated because unphysiological. Their use in this type of case is unwarranted, and gives a striking example of meddlesome surgery.

Another rare condition previously treated by irrigations and medication and occasionally by colostomy, is multiple polyposis. Ileostomy is the proper therapy. This lesion we believe to be secondary to an infection and the histological findings tend to support this view.

Case 180.—Diarrhea alternating with constipation. Abdominal pain and tenderness. Frequent mucus and blood in stools. Illness began in summer of 1900 and from that time up to May, 1912, the patient had acute exacerbations with intervals of freedom. Bowel was studded with growths varying in size from small pimples to those three-quarters of an inch in length and one-half inch in diameter. They were so thick that it would be almost impossible to put the finger on the bowel without touching one. Mucous membrane granular in appearance and inflamed and covered with pus. Operation in May, 1912, ileostomy. Following this appetite improved and patient was able to eat anything without discomfort. Gradual gain in weight from 137 pounds at time of operation to 152 pounds one year later. At present (1915) weighs about 160 pounds. When last seen the bowel was normal and there was no presence of any of the growths, mucus, or blood.

Case 254.—Chief complaint, epigastric pain, heart burn, diarrhea, foul smelling, dark brown discharge. Ileostomy and subsequent gain of 35 pounds. Patient danced all one winter with ileostomy opening and none of her friends suspected its existence. A year and a half after operation, cured. About six months have elapsed since opening was closed. Since then several examinations have been made for occult blood and the report has been negative on each occasion.

The causative relationship of infection to polyposis is further supported by the fact that after ileostomy the inflammation subsided and the tumors disappeared.

The third colonic lesion to which we have given special attention is a local infection of the cecocolon, a typhocolitis not extending far beyond the hepatic flexure, and giving systemic symptoms of profound auto-intoxication. These cover a wide field of human ailments and are familiar to all.

The indications for laparotomy in cases not yielding to colonic vaccines and other suitable forms of medical therapeusis as described by Satterlee, are chronic intractable constipation or diarrhea plus the characteristic mental lesions, together with *x*-ray findings and often with snow crepitation over the cecum.

Resection is indicated if a non-fused, inflamed, thickened, dilated, infected cecum often with a mesentery studed with enlarged lymphatic glands is found. As yet we have not been able to decide positively upon resection until after laparotomy. As resection is a vague term, not indicative of any particular technique, we have suggested the term developmental reconstruction in a previous paper. This embodies the resection en masse of the terminal ileum, appendix, and cecocolon to the region of the middle colic artery. When completed, it

places the ileocolic juncture in the position occupied before birth, which is the adult position in the dog and may, therefore, be termed "developmental." This operation carries a mortality which is far from negligible and has been practised by us only on individuals who have had years of unremitting, unavailing medical treatment and who were in every way unfit. Of a series of thirteen, 23.1 per cent. died, 46.2 per cent. were cured, 23.1 per cent. improved, and 7.7 per cent. not improved.

We have made several observations during the post-operative history following reconstruction, which have been of value to us and may be worthy of record. The first is, that reaction is apt to be severe in proportion to the amount of handling in the neighborhood of the second portion of the duodenum. We have, therefore, recently taken great pains to avoid this, considering that it may have something to do with the sympathetic ganglion and plexus known to exist there. Another observation is that reaction, if present, is apt to be delayed until after the fiftieth hour. Still another is that at least one among our cured cases was unquestionably saved through the administration of autogenous vaccine by Dr. Satterlee.

We never use saline solution in the rectum, first, because it is contrary to the laws of osmosis; second, because the salt increases the patient's thirst, and third, because there may be a considerable toxic element in so large an amount of sodium chloride. We give forty to sixty drops per minute of tap water by rectum after the patient is returned to bed and continue as toleration may permit throughout the first week. We are convinced by experience that the rate of absorption of tap water is so rapid that no possible danger can exist from its use, and this is further supported by the experimental fact that the colonic wound is normally sealed within two hours after its closure.

The postoperative care following ileostomy or colostomy is exceedingly important. It means comfort or discomfort to the patient. In the first place, if possible, the bowel loop should not be opened until the fourth or fifth day after operation. The efficiency of a colostomy is to a great extent dependent on primary union of the wound; if this fails the patient may have a hernia superimposed on the colostomy, and this means discomfort and inefficiency. On account of cramplike pains and accumulation of gas, the patient is often so uncomfortable that it is imperative to open the bowel by some method in order to afford relief. On more than one occasion we have accomplished this by passing a small trocar and cannula and allowing the gas to pass out in this way. We have occasionally used a small number ten or eleven French catheter, and closed the bowel with a purse-string suture. This at times is very satisfactory. There is one important feature connected with ileostomy which we have learned, and that is to anchor the ileum to the abdominal wall about ten centimeters orad to the proposed stoma. This prevents prolapse and inconvenience; also prevents its buckling against the other side of the bowel and permits it to pass into the cecum. The proper care of the skin and provision for enteric drainage are points not to be overlooked. An ointment of zinc oxide, having for its base lanolin, should be applied to the skin for a radius of about five centimeters from the stoma all around; over this some fine starch powder should be dusted. A collar of two or three thicknesses of gauze will serve further to protect the parts. A bag with the rubber container at right angles to the collar, such as is made by Tiemann and modified by Dr. Treby Lyon, one of our associates, serves as an emergency receptacle in case of leakage. This, however, is not to be expected, at any rate, not after the new function has been established. The use of a receptacle is not always necessary following a colostomy, but it is imperative following an ileostomy.

Although the readjustment of physiological balance after ileostomy, particularly in relation to the absorption of water, may take place slowly, it has come in due season in all of our cases. The stoma is not so efficient as after colostomy, but this is largely compensated for by the sticklike character of the movements and by the relative absence of gas of fecal odor. We wish to emphasize what we have already published, that the fear of post-operative discomfort both from colostomy and ileostomy is grossly exaggerated.

In conclusion, we wish to emphasize the most careful differentiation of all colonic inflammations, not alone as to character, so far as that be possible, but particularly as to distribution. Some infections are general, others segmental; the therapeusis rests largely upon this, an ileostomy being indicated for the one, a colostomy or a developmental reconstruction for the other. Many segmental infections, unless surgically treated, even though relieved and apparently cured by medical treatment, invariably relapse. Cessation of symptoms for a time does not mean cure. Such infections almost invariably end in stricture, so its preventive treatment is the early recognition and surgical treatment of the cause. Whatever the nature of the primary infection, it always becomes mixed after a short time. This principle underlies the therapy of the colon just as thoroughly as it does that of the lungs.

Heredity and the upright position play important parts in colonic pathology, and sympathetic recognition of man's place in Nature is an important step in directing colonic therapy.

BIBLIOGRAPHY.

Bloodgood: "Discussion of Developmental Reconstruction of the Colon: Further Study," *N. Y. Med. Jour.*, in press.

Barber: "Uretero-Enteric Anastomosis," *Annals of Surg.*, March, 1915. "Chronic Dilatation of the Stomach," MEDICAL RECORD, May 1, 1915.

Stewart-Barber: "Hydronephrosis; an Experimental Study," *Annals of Surgery*, Dec., 1914.

Satterlee-LeWald: "One Hundred Cases of Water-Trap Stomach," *Jour. A. M. A.*, Oct. 11, 1913.

Satterlee: "Diagnosis and Treatment of Intestinal Stasis," *N. Y. Med. Jour.*, in press.

Lynch-Draper: "Developmental Reconstruction of the Colon Based on Surgical Physiology," *Annals of Surg.*, Feb., 1915. "Anastalsis and the Surgical Therapy of the Colon," *Am. Jour. Med. Sciences*, Dec., 1914. "Developmental Reconstruction of the Colon: A Further Study," *N. Y. Med. Jour.*, in press. "Surgical Physiology of the Colon," *Am. Jour. Gastro-Enterology.*

Ophthalmology in War.—M. A. Darier calls attention to the great frequency with which wounds of the eyes occur during war and insists upon the importance of the special service of ophthalmologists among the medical personnel of the army. The first aid should be prompt, and should consist in the observance of strict asepsis and the use of a mild and efficient eye-wash. Morphine should be administered in cases in which the pain is very severe. The use of antitetanic serum may be resorted to with advantage.—*Presse Médicale.*

A RATIONAL AND SUCCESSFUL TREATMENT FOR PULMONARY TUBERCULOSIS.

By A. H. HENDERSON, M.D.,

AMERICAN BAPTIST MISSION TAUNGGYI S. SHAN STS.

In outlining the treatment below I hope that I shall not only be helping fellow practioners in the fight we are all waging, but also adding to the life and comfort of the victim of this dread disease. The reasons for the choice of the first adjective in my heading are the following:

1. While in college, Prof. W. H. Thomson, our professor of Materia Medica, called our attention to the fact that it was the combination of the tubercle bacillus with the pus bacillus that made it so deadly; if we could get it single, the human body could fight with winning chances, and people would recover from pulmonary tuberculosis.

2. Within the past few years, experience has taught me more and more that we have an agent that will control pus formation. I refer to calcium sulphide, which has from time to time been mentioned in the Medical Record, particularly by my confrère in missionary work residing in Turkey, as a treatment which will prevent the formation of pustules in smallpox. Putting these two facts together I reasoned that in calcium sulphide we ought to have the foundation stone for a successful attack on our stubborn foe.

The employment of the second adjective is of course premature, but seeing that treatment along these lines has, in the limited number of cases in which I have been able to use it, borne out the reasoning, we can claim success at least until it is disproved. Let me urge, however, that fresh preparations of calcium sulphide are needed.

Case I.—K., started in over two years ago with hemorrhage, cough, fever, much expectoration, and well marked, rather diffuse, signs of tuberculosis mostly in the left lung. Treatment with calcium sulphide was begun, six grains a day in three doses. All expectoration and fever soon disappeared. He has never had any more hemorrhage; the tuberculous process is still active, as is evidenced by indurated spots and some pain in the chest, but the process is absolutely dry, no moist râles being heard. He has resumed his work which was laid aside, is holding his weight, and says that he feels as well as he ever did. He has continued steadily with the calcium sulphide in doses of from 6 to 8 grains a day without any digestive or other trouble from it. Cod liver oil and creosote were used with the other treatment and with these he held his own.

Case II.—K. B., started in in much the same way, about the same time, only that his case was complicated with malarial fever. Same treatment and same results except that as he has been less faithful in the use of the pills he has some cough still, but no expectoration. The last examination of sputum some eighteen months ago showed the bacilli clubbed.

Case III.—S., carried in to me from a village about three miles out. Unable to walk, septic temperature, abundant blood-stained purulent expectoration and seemingly in the last stages of consumption. I gave him about a month to live, but gave him the chance of trying the treatment at home. Calcium sulphide, creosote three grains a day, and cod liver oil. He reported that his cough was disappearing, sputum no longer bloodstained, fever subsiding, and he was beginning to walk about. Some three months later he walked into the dispensary so well and healthy looking that I did not know him. Unfortunately he has now discontinued the treatment and his symptoms are coming back.

Case IV.—Pulmonary abscess. A fellow practitioner in Rangoon to whom I had spoken of these cases used the calcium sulphide in a case of pulmonary abscess and reported to me a simply astonishing cure. For the septic fevers it is the drug par excellence. We do not have scarlet fever out here, but if ever I had another case to treat I should certainly try the calcium sulphide and expect largely to modify its course.

It will be seen above that the treatment is on two lines: (1) Attack with the calcium sulphide, and (2) Defence with all the well known remedies, but the former drug is the axe at the root of the tree. I shall be greatly interested if others will try and report on this line of treatment, for the circumstances and isolation of my position here preclude any extended personal observations.

The large doses were given because I could not closely watch the cases. I could only see them at intervals and wanted to give enough to secure results. There has been absolutely no bad effect.

Finding that others had written along this same line I did not forward my article when it was written (June 29, 1914), but do so now (Feb. 9, 1915) for two reasons:

1. I notice several are favoring calcium for tuberculosis, and this may explain some of the action of the sulphide.

2. Since writing, Case 1, after feeling exceedingly well, had an attack of influenza with bloody expectoration. His temperature ranged from 101 to 102 in the afternoons and slight hemorrhages occurred at intervals for three or four days. Between whiles his expectoration was free but, as he described it, "like the white of an egg," in other words, free from pus. He is now at work again.

Medicolegal Notes.

Action for Medical Services—Evidence.—In an action for medical services rendered to a third person at the request of the defendant it was held that a statement filed with an insurance company by the third person, in which after setting out the facts of the accident he stated that he thought he was entitled to his lost wages and doctors bills and that the doctor's bills amounted to $150, was inadmissible against the plaintiff in the absence of any evidence that such statement was brought to his attention.—Hertel vs. Cuba (Mo.), 171 S. W. 565.

Expert Testimony as to Character of Wound.—In a case of homicide caused, in a physical struggle, by strangulation, according to expert and uncontradicted evidence, it was held to be competent for a physician who performed or assisted in performing an autopsy upon the body of the deceased to state an opinion as to the nature, character, and cause of a bruise or scratch on the defendant's face, which he examined or observed on that occasion, and to say it was a fresh break of the skin, that it had in it fresh blood, and that in his opinion the break in the skin was caused by a fingernail. Other witnesses observed the same marks and expressed the same opinion without objection. The injured part could not for obvious reason be produced upon the trial in the condition in which it at first appeared. Without such evidence the jury could not form any definite conclusion as to its nature, cause, or character.—State vs. Gunnoe, West Virginia Supreme Court, 83 S. E. 64.

Cross-Examination of Medical Experts as to Medical Authorities.—In an action for wrongful death claimed to have been caused by the defendant's act in compelling the deceased to remove from the cottage which she was occupying while she had typhoid fever it was held that testimony by medical experts that the removal was the cause of her death was not an invasion of the province of the jury, but was legitimate opinion evidence, being predicated upon the symptoms of the patient and attendant facts assumed to have been found by the jury. A medical expert who had treated the deceased testified for the defendant in effect that the removal, in his opinion, "had not unfavorably affected the patient in this instance, and that on the facts of the case, would likely increase her chances of recovery." It was held proper for the plaintiff to cross-examine him as to whether all medical authorities did not teach that typhoid patients must not be moved, if possible, the question being put to test the value of the expert's opinion and not to put in evidence extracts from medical books.—Lynch vs. Rosemary Mfg. Co., North Carolina Supreme Court, 83 S. E. 6.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 12, 1915.

GASTRIC AND DUODENAL ULCER IN INFANCY AND CHILDHOOD.

As it is in comparatively recent years that the frequency and importance of gastric and especially of duodenal ulcers in the adult have been appreciated, it is hardly to be wondered at that these lesions in children have received scant consideration, particularly since they are comparatively rare in early life. Recently a number of valuable articles on these subjects have appeared, among which may be mentioned one on "Ulcer of the Stomach in Children Before Puberty," by C. D. Lockwood (*Surgery, Gynecology and Obstetrics*, October, 1914); another on "Duodenal Ulcers in Infancy," by Holt (*Am. Journal of Diseases of Children*, December, 1913), and a third with the same title by Veeder (*Am. Journal of the Medical Sciences*, November, 1914).

From the literature Lockwood collected 110 cases of gastric ulcer, and from correspondence, together with one case of his own, he added 15 hitherto unpublished cases. His studies show round ulcer of the stomach and duodenum to be relatively rare in children, but he believes it more common than most surgeons realize; and he also believes that many obscure abdominal symptoms which have been ascribed to appendicitis, gastroenteritis, etc., are due to ulcers. Welch found one case in a ten-year-old child in a series of 607 cases of gastric ulcer; and Wallenstein found five cases of gastric ulcer in 390 autopsies at the Babies' Hospital in New York. Lockwood also states that the pathology of peptic ulcer in children does not differ markedly from that in adults. The ulcers may be single or multiple. In very young children they are more often superficial erosions and the deep funnel-shaped ulcer so characteristic in adults is rare. In older children more typical ulcers are found and perforation is common. Ulcers in children are relatively less frequent in the pyloric region, occurring most often on the posterior wall, near the cardia, and along the greater curvature. Perforation occurs through the posterior wall into the bursa omentalis or through the lesser curvature into the pancreas. Many of the reported cases have been associated with tuberculosis and it is often difficult to distinguish simple ulcer from tuberculous lesions. Regarding diagnosis, Lockwood says: "Pain in the epigastrium, hematemesis, and bloody stools are conclusive signs. The two latter are usually absent and pain is often indefinite and not well localized. Pain, worse at night, loss of weight, and chronic indigestion are usually present. These symptoms should suggest ulcer; and physical examination, aided by microscopic examination of the stomach contents and stools for concealed blood, will render the diagnosis conclusive." Appendicitis seems to be the condition most often confused with gastric ulcer.

Holt collected from the literature 91 cases of ulcer of the duodenum in the first year of life and reported four cases from a total of 1,800 autopsies at the Babies' Hospital in New York. Veeder brings the number of reported cases up to 100 by adding 5 seen during a period of two years at the St. Louis Children's Hospital. In four of these a clinical diagnosis was made, confirmed later in three instances by autopsy, while the fourth infant recovered. The fifth case was found at autopsy, the lesion having been unsuspected during life.

The symptoms in Veeder's series of five cases were in part as follows: All of the infants were under six months of age and marasmic. All had vomiting. In a few cases the vomiting closely resembled the type occurring in pyloric obstruction and he believes that in all probability the mechanism is to a large extent the same—the ulcer situated just beyond the pylorus acting as an irritant, producing spasm of the pylorus. As Veeder says, there is nothing very unusual in the association of vomiting and food decomposition; but when massive hemorrhage from the bowel is added (in the absence of acute ulcerative lesions of the large intestine and other conditions, such as polyp, which cause hemorrhage) he considers the symptoms strikingly suggestive, if not pathognomonic, of duodenal ulcer. Holt found that bloody stools were observed in 28 of 64 cases in which the clinical histories were recorded, and they were present in 2 of Holt's 4 cases. Veeder points out that severe collapse has occurred in many cases accompanying and as a result of hemorrhage, and in some cases has apparently been the cause of death, and that the absence of subjective symptoms, which are of so much value in the diagnosis of duodenal ulcer in the adult, make the diagnosis dependent upon the association of the few objective symptoms described above. The presence of gross hemorrhage is the only definite symptom pointing to a duodenal ulcer and hence when this symptom is absent the diagnosis cannot be made. "Whether or not a diagnosis can be made by the use of occult blood tests when no gross evidences of hemorrhage have been observed is a question to be determined. That such tests should be made in all cases where vomiting is associated with atrophy in young infants is indicated, as it is only in this way that the value of such tests for the early diagnosis of duodenal ulcer can be determined."

Very little can be done in the way of treatment of a condition about which so little is known. In Veeder's opinion about the only indication is to place the infant under the best nutritional conditions, which means breast milk, and it is to this alone that he attributes the improvement in one of his cases. Operation was not deemed advisable in

any of his cases owing to the severe general nutritional disorder of the infants at the time the diagnosis was made. Yet the mortality was 80 per cent. and he admits that if methods are found by which an ulcer can be recognized early surgical treatment offers at least a theoretical possibility. This admission is encouraging, for it took years of educational effort on the part of the surgeon and a high ultimate mortality under medical treatment to convince the internist that gastric and duodenal ulcers in the adult are essentially surgical conditions.

THE BIOLOGICAL ACTION OF THORIUM-X.

THE growing importance of radioactive substances as therapeutic agents imparts considerable interest to recent investigations of their physiological action. Most of the observations along this line have been concerned with the effect of radiant energy upon the skin, and little precise information has been gleaned with respect to the action of this occult agent upon the inner organs. In most of the animal experiments in which the deeper effects of radioactive substances have been studied, doses much larger than the ordinary therapeutic ones have been employed. A. da Silva Mello (*Zeitschrift für klinische Medizin*, Vol. 81, Nos. 3 and 4) has made an experimental study of the biological effect of therapeutic doses of thorium-X, particularly with reference to the blood. The substance was diluted with physiological salt solution and injected under the skin in rabbits.

Among the chief results of this study it was found that thorium-X is capable of producing not only a sudden fatal intoxication, but also a slow one ending fatally after a number of months. The symptoms of the chronic type of intoxication include a progressive and prolonged loss of weight, and a persistent anemia and leucopenia. These symptoms may arise alone or in various combinations. They may also be entirely absent and yet the animal may succumb after a second injection. Neither in the acute nor in the chronic type of poisoning can one attribute the fatal outcome to changes in the hematopoietic organs. Thus, in the acute type of poisoning the elements of the bone-marrow and the lymphatic follicles of the spleen remain largely intact, and there are evidences of regeneration of the cells that have been destroyed. The blood-forming organs may also be subjected to the action of doses exceeding the fatal ones and to the destructive action of the *x*-rays without causing the death of the animal. In the chronic type of thorium poisoning the hematopoietic organs are not responsible for the fatal outcome, as may be shown by the fact that in this type there is a hyperplastic condition of the bone-marrow.

The leucopenia of thorium-X poisoning which has hitherto suggested lesions of the hematopoietic organs is regarded by the author as a concomitant or an accessory symptom. The leucopenia may be most pronounced even when the bone-marrow is markedly hyperplastic. The subordinate significance of this symptom is perceived in the fact that during its presence enormous suppurations may occur or a pneumonia may go on to resolution. The leucopenia may even be absent in severe cases of thorium-X poisoning. Approximately the same facts are true with respect to the erythroblastic system. The hemoglobin may increase and the erythrocytes may regenerate to a degree above the normal in cases of thorium-X poisoning in which there is a pronounced reduction in the body weight and leucocyte count.

With respect to the blood-forming organs there is pointed out a direct contrast between the action of the *x*-rays on the one hand and that of thorium-X on the other. The latter exerts only a slight influence on the lymphoid tissues. The myeloid tissues, on the other hand, are damaged earlier and more intensively. These facts serve partly to explain the variability in the therapeutic effects of thorium-X in one and the same disease.

A NEW PROGNOSTIC SIGN IN PULMONARY TUBERCULOSIS.

THIS sign consists in the degree of reaction of the skin to the application of croton oil, the more intense the reaction the greater being the defensive forces of the body and hence the more favorable the prognosis. A. Campani (*Rivista Critica di Clinica Medica*, November 14, 1914) studied this phenomenon in the course of his experiments to determine the value of fixation abscesses produced by croton oil in the treatment of pulmonary tuberculosis. Fouchier had obtained some degree of success in the treatment of puerperal infection by means of fixation abscesses evoked by the subcutaneous injection of oil of turpentine. Campani attempted to imitate this method in the treatment of pulmonary tuberculosis, using for this purpose local applications of croton oil. Although the results were negative from a therapeutic viewpoint, important observations were made regarding the degree of cutaneous reaction as a prognostic index.

It was found that in normal individuals the inunction of the skin of the arm with a 10 per cent. ointment of croton oil with petrolatum as a base produces a well-marked erythema with the formation of papules and pustules of various sizes and accompanied by itching and sometimes by pain. With the subsidence of the local reaction there are left copper-colored spots that persist for several months. In tuberculous patients there are different degrees of reaction. This is termed negative if there are only a momentary redness and a slight itching. The reaction is slightly positive (+) if there is a pronounced erythema with a few pustules. The reaction is positive (++) if there are many pustules which reappear with each subsequent application of the salve. A highly positive reaction (+++) occurs with a marked swelling of and pain in the arm which, however, do not last longer than a day.

According to Campani if the croton-oil reaction is intense and diffuse, one may anticipate a favorable outcome in any given case of tuberculosis. If, on the other hand, the reaction is negative a rapid evolution of the disease and a fatal termination may be predicted. The significance of the intermediate reactions is difficult to interpret. These suggest

an unfavorable rather than a favorable outcome. The cutaneous reaction apparently serves as an index of the strength of the patient's natural defences.

A Practical Plan for a Holiday.

A somewhat novel idea is being tried out in Bury, England, whereby the busy practitioner can squeeze in a summer vacation of several weeks without loss of money or patients. The scheme is briefly this: A number of medical men residing in the same community have drawn up an agreement whereby each takes his vacation in turn, the other doctors in the agreement caring for his practice in his absence. In order to avoid possible personal antipathies on the part of patients, each doctor selects more than one substitute and before going away gives to his patients a card having on one side: "Dr. ——— requests one of the following (naming the physicians, to attend Mr. ——— until such a date." On the other side of the card are ruled spaces, to record calls. Should the patient have occasion to call in the substituting doctor, he gives him this card, and the doctor notes that and subsequent visits, mailing the original doctor the card upon his return. No pay is received by the substituting doctor, nor does he accept fees, except for obstetrical cases, when he receives one-half. As the arrangement is a mutual or cooperative one, this works out equitably for all concerned. The advantages of this plan are obvious. It provides the practising physician with an assured vacation every year and that, too, without loss. It would seem feasible to try out this plan, with whatever modifications may be necessary, in a number of cities in the United States, and a report on its pragmatic value would no doubt be interesting.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—The treasurer, Dr. F. F. Simpson, 7048 Jenkins Arcade Bldg., Pittsburgh, Pa., reports the receipt of the following contributions for the week ending June 5, 1915:

Dr. Arthur G. Larkin, New York, N. Y.	$10.00
Dr. John A. Hawkins, Pittsburgh, Pa.	10.00
Medical Society of the Co. of Greene, Catskill, N. Y.	15.00
Wilson County Medical Society, Fredonia, Kansas	15.00
Dr. Robert C. Davis, Johnstown, Pa.	5.00
Dr. Emery Marvel, Atlantic City, N. J.	25.00
Dr. C. J. Hagens, Chicago, Ill.	15.00
Medical Society of the County of Westchester (second contribution) White Plains, N. Y.	2.50
Rockland County Medical Soc., Nyack, N. Y.	28.00
San Luis Valley Medical Soc., Alamosa, Colo.	25.00
Receipts for the week ending June 5th	$150.50
Previously reported receipts	7,008.50
Total receipts	$7,159.00
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20	$3,575.00
1,274 Standard boxes of food at $2.30	2,930.00
213 Standard boxes of food at $2.28	485.64
Total disbursements	6,990.84
Balance	$168.16

Physician Wanted for Relief Work in Montenegro.—The Montenegrin Relief Committee announces that excellent opportunities are open for a physician who would wish to enlist in the relief work in Montenegro. Among the inducements are a material reduction in the expense of transportation and a letter of introduction to the King of Montenegro. Further information may be obtained by addressing Captain A. V. Seferovitch, care of the Montenegrin Relief Committee, 527 Fifth avenue, New York. The secretary of the Committee is Mr. Arnold Wood. The next relief ship sails on June 16.

A New State Medical Law for New Jersey.—This law which goes into effect immediately requires that after July 1, 1919, no person shall be admitted to examination for license unless he has had an academic education consisting of a four years' course of study and a course of one year in a college, during which year he or she has studied either French or German, and also chemistry, physics, and biology. After 1920 a suitable course of two years in a college with the study of either French or German will be required. After July 1, 1916, in addition to the above the applicant for a license must prove that he has served as an interne for at least one year in a hospital approved by the licensing board.

Liberal Construction of Workmen's Compensation Laws.—The Massachusetts Workmen's Compensation Law provides for compensation for "personal injuries arising out of and in the course of" the workman's employment. In a recent issue of *Public Health Reports* there appears an account of an opinion written by Chief Justice Rugg of the Supreme Court of Massachusetts, construing the law in the broadest possible manner, as providing for compensation for workmen acquiring acute or chronic disease as a result of occupation, or in the course of employment, as well as for workmen injured by industrial accidents.

Constitutionality of Law Requiring Tuberculin Testing of all Dairy Cattle.—The Supreme Court of Mississippi has upheld the constitutionality of the ordinance adopted by the Mississippi State Board of Health requiring that "each person, firm, or corporation owning or conducting a dairy in the State of Mississippi, or engaged in the sale of milk and its products" shall have " all cows used in and about the business examined for tuberculosis and other contagious and infectious diseases by some competent veterinarian" to be designated by the local health officer. The ordinance further provides for the condemnation of infected cows, and prohibits the owners of such cows from selling or offering for sale "any milk obtained from any cow, the use of which has been condemned or prohibited, or any cow known to be infected or the milk of which is impure and injurious to the public health."

Death Rate in New York City.—The Health Department reports for the week ending May 29, 1,449 deaths and a rate of 13.02, as against 1,547 deaths and a rate of 14.46 during the corresponding week in 1914, a decrease of 98 in the absolute figures and a rate of 1.44 points, which is equivalent to a decrease in the relative figures of 160 deaths. Scarlet fever, typhoid fever, diphtheria, and croup, diarrheal diseases, organic heart diseases, acute bronchitis, lobar pneumonia, pulmonary tuberculosis, diseases of the nervous system, and deaths from violence all showed considerably decreased mortalities.

The New Columbia Medical School.—The plans of the new buildings of the College of Physicians and Surgeons and of the Affiliated Presbyterian Hospital call for an expenditure of $7,500,000. These plans include the immediate erection of a building for administration; a building to house the medical sciences, the Crocker Cancer Research laboratories, and a school of sanitary science and public health; a building to house the hospital; a building for the Vanderbilt Clinic, to serve also as the out-patient department of the hospital; dormitories for 400 medical students, with dining hall for students and instructors; and a building to house a training school for nurses and to serve as the

nurses' home. The plan also provides space for a possible building for the Sloane Hospital. A considerable part of the area is to be left for future institutes or foundations which may affiliate themselves with the hospital and the university. The plans of the Presbyterian Hospital provide for a building designed to contain 650 beds. It will include the regular services of every general hospital, and in addition eight separate ward services for special genitourinary surgery, for orthopedic surgery, for diseases of the eye, ear, nose, and throat, for diseases of children, for diseases of the nervous system, and for diseases of the skin, and a ward service for every department represented in the Vanderbilt Clinic, as well as seventy-five private rooms. The plans further provide a prearranged scheme for largely increasing the plant.

A Royal Patient.—King Constantine of Greece is reported to have been operated upon for empyema, June 5, by Eiselsberg of Vienna.

To Minimize Auto Accidents at Grade Crossings.—The Long Island Railroad is inaugurating a campaign for this purpose by means of large warning signs and educational advertisements in the newspapers.

James Mackenzie of London, the well-known authority on heart disease, has recently been knighted by the King of England.

Transfer of Boston Quarantine Station.—On June 1 this station was transferred to the Public Health Service of the United States with Dr. Samuel B. Grubbs in charge.

Florida Board of Medical Examiners.—A bill providing for a single board of medical examiners, in place of the three separate boards, has passed the Florida legislature.

The Federal Antinarcotic Law.—Physicians are reminded of the fact that the present license taken out under this law expires on July 1 next and that the tax of one dollar for the renewal of this license for one year should be sent before that date to the local Collector of Internal Revenue. According to a recent ruling from Washington, the words "synthetic substitutes," as used in this law, are held to apply to any artificial substance or preparation which is or may be substituted for cocaine, alpha or beta eucaine, or any of their salts as ordinarily prescribed or used, and not necessarily to a purely synthetic substitute which, chemically, is identically the same as the drug for which it may be so substituted. Further, both the title and Sec. 1 of this law include "opium or coca-leaves or any compound, manufacture, salt, derivative, or preparation thereof," and, under a liberal interpretation of the word "derivative," from a chemical point of view, the several cocaine substitutes would also be clearly included.

Gift for Medical School.—Mrs. Mary Emery has made a gift of $250,000 to go toward a medical school to be operated in connection with the new Cincinnati Hospital. The hospital commission has announced that a similar amount would be raised by the commission to go toward the same purpose. The school will be located near the new hospital and will be under the supervision of the Ohio-Miami Medical College.

Hospital for University of Georgia.—A new hospital erected by the city of Augusta, Ga., at a cost of $500,000, will be turned over to the medical faculty of the University of Georgia. It is erected on the grounds of the medical college.

Dog Muzzling Law Sustained.—The Appellate Division of the Supreme Court on March 29, 1915, unanimously sustained the validity of Section 80-a of the Sanitary Code which prohibits any unmuzzled dog on any public highway or in any public park or place in the city of New York.

The New York Geriatric Society was organized on June 2, 1915, with the following officers: *President*, Dr. Robert Abrahams; *Vice-President*, Dr. Edward P. Swift; *Secretary*, Dr. I. L. Nascher, 103 W. Eigthy-eighth street. This is the first society ever organized for the scientific study of senile conditions; for the study of the causes of ageing and the diseases of advanced life; and for the home and institutional care of the aged. Papers, reports, and other matter dealing with this subject are solicited. There will be monthly meetings, the time and place to be announced in the medical journals.

Society for the Study of Infectious Diseases.—This society has recently been organized in New York City. The active membership is composed of the assistant visiting physicians of the Willard Parker, Riverside, and Kingston Avenue Hospitals, and those who have previously held such positions. The honorary membership is made up of the members of the Medical Board and such others as may be invited by the Society. The first meeting, which was held at the Willard Parker Hospital on May 4, was devoted to the subject of arthritis complicating scarlet fever.

The New Willard Parker Staff House.—A contract for the erection of a Medical Staff House and Nurses' Home for the Willard Parker Hospital has been awarded and the work has been started. This building, covering an area of 100 by 83 feet, will be located on the south side of 16th Street, just west of Avenue D. It will be of concrete fireproof construction, seven stories high above the basement, and will furnish quarters for thirty-five doctors and one hundred and fifteen nurses, each group having separate entrance, halls, stairs, dining room, etc., complete. The basement will contain a swimming pool, 15 feet by 37 feet 6 inches, lined with glazed tile, nine individual dressing rooms, showers, douche, and toilet. A gymnasium for nurses occupies the south end of the seventh floor, west wing.

Charitable Bequest.—By the will of the late Martha Moore of Philadelphia the sum of $1000 is bequeathed to the Methodist Hospital.

Medical Society Elections.—The Fulton County (Ky.) Medical Association at its annual meeting held in Fulton May 23 elected the following officers: *President*, Dr. John Naylor of Cayce; *Vice-President*, Dr. J. B. Paschall of Fulton; *Secretary and Treasurer*, Dr. Seldon Cohn of Fulton; *Delegate to the State Society*, Dr. H. E. Prather of Hickman; *Alternate*, Dr. George Crafton of Fulton.

The Frisco System Medical Association at its annual meeting held in Springfield, Mo., May 23 and 24, elected the following officers: *President*, Dr. W. Y. Yates of Fayetteville, Ark.; *Vice-Presidents*, Dr. W. B. Burns of Memphis, Tenn., Dr. O. S. Harrison of Kenett, Mo.; *Secretary and Treasurer*, R. A. Woolsey of St. Louis; *Member of Executive Committee*, Dr. Elmer E. Liggett of Oswego, Kan. Memphis was chosen for next year's convention.

The Essex North District (Mass.) Medical Society, at its annual meeting in Lawrence, May 5, elected the following officers: *President*, Dr. Victor A. Reed of Lawrence; *Vice-President*, Dr. F. B. Pierce of Haverhill; *Secretary and Treasurer*, Dr. J. F. Burnham of Lawrence; *Auditor*, Dr. F. H. Coffins of Haverhill; *Corresponding Secretary*, Dr.

T. M. Stone of Haverhill. *Censors*, Drs. T. R. Healy and A. N. Little of Newburyport; J. J. Sullvan, F. D. McAllister, G. E. Kurth of Lawrence; H. L. Conner, F. B. Pierce, J. E. Bryant and H. Donohue of Haverhill; E. H. Noyes and F. W. Snow of Newburyport; H. P. Robinson of Amesbury, and R. V. Baketel of Methuen. *Councillor on Trials*, Dr. J. F. Croston of Haverhill; *Nominating Councillor*, F. W. Snow of Newburyport; *All Nominating Councillor*, R. V. Baketel of Methuen.

The Wisconsin Surgical Association in its annual meeting held in Milwaukee, May 5, elected the following officers: *President*, Dr. F. G. Connell of Oshkosh; *Vice-Presidents*, Dr. C. H. Levings of Milwaukee; Dr. J. M. Dodd of Ashland; Dr. Carl Doege of Marshfield; Dr. D. J. Hayes of Milwaukee; *Secretary-Treasurer*, Dr. Daniel Hopkinson of Milwaukee; *Regents*, Dr. W. C. F. Witte and Dr. C. H. Levings of Milwaukee.

The Central Illinois Medical Society at its annual meeting in Taylorsville, Feb. 16 to 18, elected the following officers: *President*, Dr. H. K. Fink of Hillsboro; *Vice-President*, Dr. G. G. Garrison of Heyworth; *Secretary*, Dr. L. T. Lundy of Edinburg; *Treasurer*, Dr. H. B. Singer of Nokomis; *Librarian*, Dr. W. H. Scherer of Raymond. The next annual meeting will be in Hillsboro.

The Southwest Missouri Medical Society at its annual meeting in Springfield, April 30, elected the following officers: *President*, Dr. J. W. Love of Springfield; *Vice-Presidents*, Dr. J. H. Elliott of West Plains, and Dr. M. C. Stone of Springfield; *Treasurer*, Dr. Lee Cox of Springfield; *Secretary*, Dr. H. S. Hill of Springfield.

The Norfolk District (Mass.) Medical Society at its annual meeting in Boston, May 11, elected the following officers: *President*, Dr. V. M. Pierce of Milton; *Vice-President*, Dr. T. F. Greene of Roxbury; *Secretary*, Dr. Brandford Kent of Dorchester; *Treasurer*, Dr. G. W. Kaan of Brookline; *Commissioner of Trials*, Dr. A. P. Perry of Jamaica Plain.

The Kansas State Medical Society at its annual meeting in Kansas City, May 6, elected the following officers: *President*, Dr. O. D. Walker of Salina; *Vice-Presidents*, Drs. C. W. Jones of Olathe; B. F. Chilcott of Osborne, and J. R. Scott of Newton; *Secretary*, Dr. C. S. Huffman of Columbus; *Treasurer*, Dr. L. H. Munn of Topeka; *Delegates* to the A. M. A. meeting, Drs. W. F. Sawhill of Concordia, and M. F. Jarrell of Fort Scott. The meeting next year will be held in Topeka.

Obituary Notes.—Dr. Samuel Baldwin Ward, for many years dean and professor of medicine of the Albany Medical College, died at his home in Albany, N. Y., on June 3, after a long illness, aged 73 years. Dr. Ward was graduated from Columbia College in 1861, and from the Georgetown University School of Medicine, Washington, in 1864, having served as a medical cadet in the Union Army during the Civil War. He was for several years professor of anatomy and surgery in the Women's Medical College of the New York Infirmary, going to Albany in 1876. He had served as attending physician to the Albany Hospital and consulting physician to the South End Dispensary, and was a member of the Medical Society of the State of New York, the Albany County Medical Society, the Association of American Physicians, and the American Medical Association.

Dr. Louis F. Bischof of New York, a graduate of the New York University Medical College, New York, in 1885, and a member of the New York State and County Medical Societies, died at his home on May 23, aged 52 years.

Dr. John N. Frank of St. Louis, Mo., a graduate of the Washington University Medical School, St. Louis, in 1869, and for twelve years coroner of St. Louis, died at his home, after a long illness, on May 4, aged 66 years.

Dr. Frank Eugene Baker of Woodford, Vt., a graduate of the Long Island College Hospital, Brooklyn, in 1891, died in North Adams, Mass., on May 8, aged 45 years.

Dr. Bernard G. Maercklein of Milwaukee, Wis., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1887, formerly professor of oral surgery in the Milwaukee Medical College, of which he was one of the founders, and later professor of the same subject in the Marquette University School of Medicine, and a member of the State Medical Society of Wisconsin and the Milwaukee County Medical Society, died after a long illness, on April 30, aged 67 years.

Dr. Frederick S. Coolidge, formerly of Chicago and of Pittsfield, Mass., a graduate of the Harvard University Medical School, Boston, in 1891, a member of the American Medical Association and of the American Orthopedic Association, one of the founders of the Anti-Tuberculosis Association of Pittsfield and of the orthopedic clinic of the House of Mercy, and well known as an orthopedic surgeon, died at his home in New York, after a long illness, from tuberculosis, on May 15, aged 49 years.

Dr. John A. Lee of Framingham, Mass., a graduate of the Tufts College Medical School, Boston, in 1911, died at the Framingham Hospital, on May 5, aged 28 years.

Dr. Horace Morgan Fritz died at Quincy, Pa., on May 12, at the age of 60 years. He was graduated from Jefferson Medical College in the class of 1879.

Dr. William J. Armstrong died at Kane, Pa., on May 13, at the age of 62 years. He was graduated from Bellevue Hospital Medical College in the class of 1883.

Dr. Albert Joseph Roberts of Bridgeport, Conn., a graduate of the Harvard University Medical School, Boston, in 1902, and a member of the Connecticut State and Fairfield County Medical Societies, died at his home, after a short illness, on May 12, aged 41 years.

Dr. Henry B. Roberts of Cordele, Ga., a graduate of the Atlanta Medical College in 1882, and a member of the Medical Association of Georgia and the South Georgia Medical Society, died at his home from Bright's disease on May 8, aged 63 years.

Dr. William F. Goldin of Draketown, Ga., a graduate of the Atlanta Medical College in 1877, and formerly State Senator, died at his home on May 8, aged 65 years.

Dr. George Gustave Lempe of Albany, N. Y., a graduate of the Albany Medical College in 1888, attending surgeon to the Albany Hospital, and a member of the American Medical Association, the American Association of Anatomists, the Association of Military Surgeons of the United States, and the New York State and Albany County Medical Societies, died at his home on May 17, aged 49 years.

Dr. Amos Walker Barber of Cheyenne, Wyo., formerly governor of Wyoming and president of the Wyoming State Medical Society, a graduate of the University of Pennsylvania, Medical Department, in 1883, and a member of the State and Laramie Coun-

ty Medical Societies, died at Rochester, Minn., on May 18, aged 55 years.

Dr. Henry W. Muller of New York, a graduate of the New York University Medical College in 1898, and a member of the American Medical Association and the New York State and County Medical Societies, died at his home on May 21, aged 44 years.

Dr. Alfred C. Clark died at Sunbury, Pa., on May 17 at the age of 70 years. He was graduated from Jefferson Medical College in the class of 1869.

Dr. Gilbert L. Parker died at Philadelphia on May 19 at the age of 83 years. During the Civil War he organized a company and he served in the Twenty-eighth Pennsylvania Volunteers. He was breveted lieutenant-colonel for distinguished services on the battlefield. He was graduated from Jefferson Medical College in the class of 1874.

Dr. Fayette H. Peck of Utica, N. Y., a graduate of the New York University Medical College, New York, in 1881, visiting surgeon to St. Luke's Hospital, Utica, and a member of the American Medical Association and the New York State and Oneida County Medical Societies, died at his home on May 24, aged 59 years.

Dr. Hewlett Whitty Oakley of Portersville, Cal., a graduate of the University and Bellevue Hospital Medical College, New York, in 1904, and a member of the American Medical Association, the Medical Society of the State of California, and the Tulare County Medical Society, died at his home on May 23, aged 35 years.

Dr. Henry Bak of Atlanta, Ga., a graduate of the University of Vienna in 1872, professor of medicine and pediatrics in the Southern College of Medicine and Surgery, Atlanta, and formerly a surgeon in the Austrian army, died at a hospital in Chicago, on May 25, aged 68 years.

Dr. Thomas H. Maxedon of Vincennes, Ind., a graduate of the Hospital College of Medicine, Louisville, Ky., in 1897, and a member of the American Medical Association, the Indiana State Medical Association, and the Knox County Medical Society, died suddenly from cerebral hemorrhage at his home on May 19, aged 53 years.

Dr. Lewis C. S. Turner of Colfax, Ia., a graduate of the College of Physicians and Surgeons of Keokuk, Ia., in 1882, and a member of the Iowa State and Jasper County Medical Societies, died at his home, after a long illness, on May 18, aged 61 years.

Dr. Michael F. Gavin of Boston, Mass., a graduate of the Harvard University Medical School in 1868, formerly visiting surgeon to the Carney Hospital and to the Boston City Hospital, consulting surgeon to St. Elizabeth's Hospital, and professor of clinical surgery at the Boston Polyclinic, and a member of the American Medical Association, the Massachusetts and Suffolk District Medical Societies, the British Medical Association, the Royal College of Surgeons, and the Boston Society for Medical Improvement, died at his home after a long illness on May 20, aged 72 years.

Dr. Guilford D. Yokom of St. Joseph, Mo., a graduate of the Chicago Homeopathic Medical College in 1879, and a member of the Missouri State Medical Association, and the St. Joseph-Buchanan-Andrew Counties Medical Societies, died on May 19, aged 67 years.

Dr. Isaac T. Rand of New Iberia, La., a graduate of the Tulane University of Louisiana, School of Medicine, New Orleans, in 1886, and a member of the Louisiana State Medical Society, died at his home on May 14, aged 49 years.

Dr. Stephen Townsend of Columbus, O., a graduate of the Cleveland College of Physicians and Surgeons, Cleveland, O., in 1891, died, after a brief illness, from apoplexy, on May 15, aged 68 years.

Dr. John Franklin Marshall of Brooklyn, N. Y., a graduate of the New York University Medical College, New York, in 1890, died at his home, from pneumonia, on May 31, aged 50 years.

Dr. William Monroe Carling of Battle Creek, Mich., a graduate of the Medico-Chirurgical College of Philadelphia in 1897, and a member of the Michigan State and Calhoun County Medical Societies, and the Southwestern Michigan Triological Society, died suddenly, while golfing, on May 30, aged 42 years.

Dr. John Rice Eldridge of Berkeley, Cal., a graduate of the Cooper Medical College, San Francisco, in 1894, died recently at his home, aged 51 years.

Dr. William Marion Forman of Louisville, Ky., a graduate of the University of Louisville, Medical Department, in 1877, died at his home, from heart disease, on May 24, aged 65 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

IN PARLIAMENT, ARMY SURGEONS REINFORCED—LEUCEMIA, DISCUSSION—ROYAL SOCIETY OF MEDICINE, DEFORMITIES OF TIBIÆ—SELT-MUTILATION.

London, May 21, 1915.

In the House of Commons it has been stated officially that 7,027 doctors are at present serving in the army, including army medical service and R. A. M. C. 1,008, retired re-employed R. A. M. C. officers, 174; Special Reserve R. A. M. C. officers, 623; temporarily commissioned, 3,100; Territorial Force R. A. M. C., 2,122. More than 5,000 medical men had offered their services and 3,100 had been appointed. There was no scarcity at the front or at home so far, but further numbers would be called for. As consultants the following surgeons are employed at the front: Sir G. H. Makins, Sir A. A. Bowlby, Mr. F. F. Burghard, Mr. W. T. Lister, Mr. H. M. W. Gray. Also the following physicians: Sir W. P. Herringham, Sir A. E. Wright, Sir J. R. Bradford, and Sir B. Dawson. These officers received pay as colonels of the army medical service, and the Government had found no difficulty in obtaining eminent men for the work at home or abroad.

An agreement had been made with Germany for women or children and certain professionals to be allowed to go home, but the Foreign Secretary stated that in some cases Germany had retained some without the slightest justification, and negotiations are proceeding for the release of military medical officers.

After the war leucemia has of late been the topic most ready to intrude into every conversation—between medical men, of course, understood—and some of the unexpected remarks are curious. Take an example or two: Dr. Senior—you give a new name to anemia, but you do not thereby tell us anything about the condition. Dr. Junior—on the contrary, I do not consider the two names synonymous. Virchow proposed leukhæmia and Hughes Bennett, to be more exact, suggested leucocythemia, thus limiting the whiteness to cells, and so you mark progress; and leukhemia now is defined properly as a

blood disease associated primarily with changes in the spleen and bone-marrow or in the lymphatic glands. Dr. Senior—well, then, when the spleen is at fault, as it mostly is, you might be content with splenic leucocythemia, which would be reasonably descriptive, both clinically and etymologically. At the same time observe you will meet with cases that seem to originate in or be associated with other tissues, *e. g.* the bowels when you get what you may call intestinal leucemia—ask our listener who has not said a word. Dr. Silent—I prefer to hear others, but I agree with the last speaker and have noticed or heard of other varieties, such as hepatic, aplastic, myelocytic, pseudo, and mixed leucemia. In fact I have sometimes doubted whether we are entitled to call it a blood disease if so great a variety of tissues may set it up. The etymology does not concern one much, for we doctors are not particularly strong in classics and the few who are Greek scholars are tolerant of those who are not. However, I may say that both names are faulty—the *an* of the one is a private and the *leuc* of the other white. Strictly, neither can apply to the blood.

The foregoing notes of a casual chat—a specimen of many—may be followed by a report of a more formal discussion on the subject at the Royal Society of Medicine. This was opened on the 27th inst. by Dr. A. J. Hall with notes of a case of acute lymphatic leucemia ending in recovery. A man of 26 consulted his attendant in March, 1911, for swelling on right side of neck, painless but increasing. No cause was detected, nothing abnormal except slight albuminuria. Six days later seen by Dr. Hall, who felt a large glandular mass on the right side. There were also solitary enlarged glands on both sides of the neck, in both axillæ and in both groins. The spleen was felt about three-quarters of an inch below costal margin. He did not look anemic, had no sore throat and no hemorrhages, his teeth were good. Blood examination showed: hemoglobin, 96 per cent.; red corpuscles, 5,400,000; leucocytes, 32,000; lymphocytes, 96 per cent.; polymorphonuclears, 4 per cent. No eosinophiles and no evident changes in red cells. Evening temperature, 101° F. Provisional diagnosis, "acute lymphatic leucemia," was treated with liq.-arsenicalis. Two days later patient felt some pain in right side of throat, vomiting soon followed, but the glands were smaller. A differential count gave large lymphocytes 85.2 and small 4.4 per cent., polymorphonuclears 10.4 per cent. No eosinophiles in counting 300 cells. The right tonsil became more painful and covered with an exudate. The spleen extended lower. Improvement then occurred and continued steadily until he was well and able to go shooting in August. Dr. Hall thought the provisional diagnosis was incorrect and the case belonged to the category of lymphocytosis associated with cervical and general adenitis, to which attention has lately been drawn and such cases rendered prognosis doubtful. Dr. Hall related further the following cases:

1. Chronic myelemia treated by *x*-rays with complete recovery after a severe exacerbation in a man of 34 who did his full work as a colliery electrician for nearly three years, after which another severe exacerbation lasted three months with enlarged liver and ascites, some hemorrhages, and impaired vision. Under *x*-rays recovery again, and he did full work for five months, when a third attack came on which proved fatal in five months. 2. Chronic myelemia treated by *x*-rays restored to full health for about six months. He died later from a pneumonic attack. 3. Chronic myelemia in a woman in whom a greatly enlarged spleen had become dislocated, forming a tumor, which led to an exploratory operation.

Dr. Parkes Weber read a full report of a case of long duration though, looking back on it, he doubted if the symptoms which from time to time drove the patient (a woman) to seek advice depended chiefly on the blood condition. A real improvement in 1909 might have been associated with reductions of the spleen under radium and atoxyl. In so great enlargement as in this case lymphatic leucemia was unusual and perhaps absence of anemia showed the red bone marrow was able to retain its activity. He believed that in all cases of splenomegaly, apart from leucemia, the tendency was towards a leucopenic blood count rather than excess of white cells. Chronic leucemia (more or less quiescent) was often indicative of splenomegaly with excess of white cells. Sir William Osler did not remember a case with a lymphocyte count above 90 per cent. Dr. Galloway had seen many cases treated by *x*-rays. In one the patient was extremely ill, but lived five years. Dr. Ironside Bruce also had good effects from *x*-rays, improvement being great, but at present only temporary. Dr. Weber thought no case of leucemia had ever been cured, and Dr. Hall's case was probably lymphocytosis.

At the Royal Society of Medicine last week Mr. Kellock showed in the clinical section a lad of 13 who was ten years previously operated on for deformity of both tibiæ, which were very much bowed outwards and forwards; there was a separation of 3 inches of the inner condyles of the femora when the malleoli were touching. Open osteotomy of the tibiæ was performed, the patient being then as seen from above history, 3 years of age; the fibulæ were fractured and the legs put up in plaster of Paris splints. At the meeting the legs were seen to be quite straight, and in the skiagram there was practically no indication of the sites of the osteotomies, the lines of the bones being normal. Later the boy was again in hospital for abdominal trouble, thought to be probably tuberculous peritonitis.

Mr. Kellock also read a short paper on a form of self-mutilation of young boys in which he mentioned a case of a boy of 8, from whom he removed a metal which surrounded the glans and had ulcerated through the floor of the urethra. In another case cotton had been twisted round the base of the glans and in three others hair around the penis just behind the glans. One, æt. 5, was typical of the three; the glans was almost completely separated, being attacked by an isthmus only one-eighth of an inch thick and it was much discolored, and just behind the corona was a sulcus covered by epithelium. Using a crochet needle, under an anesthetic, Mr. Kellock found a hair twisted three times around the narrow isthmus. The two other cases were practically the same. Plastic operation, after removing the hair, was done with difficulty. In two he had been able to reconstruct the urethra, but the other was followed by sloughing off of the glans.

The Ferments of the Blood.—G. Satta finds after the separation of the globulin and albumin fractions of the blood serum that the ferments tributerinase, amylase, and glycyl l. tyrosinase reside solely in the albumin fraction.—*Archivio per le Scienze Mediche.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

May 27, 1915.

1. How the Practising Physician May Aid the Department of Health. A. J. McLaughlin.
2. Hospital Efficiency from the Standpoint of the Efficiency Expert. F. B. Gilbreth.
3. Hospital Efficiency from the Standpoint of a Hospital Surgeon. R. L. Dickinson.
4. Hospital Efficiency from the Standpoint of Hospital Trustees. W. Wesselhoeft.
5. The Responsibility of the General Practitioner for the Care and Supervision of the Discharged Sanatorium Patient. J. B. Hawes, 2d.
6. Tuberculosis of the Throat. A. C. Getchell.

2. Hospital Efficiency and the Efficiency Expert.—F. B. Gilbreth points out that the hospital is subject to all the laws and processes of obtaining efficiency in the manufacturing establishment. A fundamental requirement is the accurate measurement of aims and methods. The survey principle should be applied; there should be a record of *what* is being done, and *how* and *why* it is being done. The first step in all improvement is an accurate record of present practice.

3. Hospital Efficiency and the Hospital Surgeon.—R. L. Dickinson states that the following are capable of standardization: the training and qualifications of the workmen and heads of departments and even the trustees; the tools and equipment; the organization of the workshops; and the procedure. There are five inefficiencies in professional work: (1) Lack of time given by the staff. The remedy includes a requirement of fixed hours and quality of work for salary; selection and promotion for merit; a continuous service; assistants with some salary and in sufficient numbers; a senior resident on salary. (2) Lack of organization. The remedy comprises single headed departments; small committees held to strict accountability; an understudy for every position; the associate in full charge two months of each year; long time team-work in operating room; short time internes to do only minor surgery. (3) Lack of instruction. There should be definite methods and times of teaching and drilling younger men. (4) Lack of inspection. There is no check on the quality of work or end results. (5) Lack of publicity. There are no bulletined errors and no available comparisons. The author suggests a special form of report on the efficiency of each member of the professional staff. This report details the quantity and the quality of work; personality, progressiveness and executive ability; teaching; and inspections. The following committees are necessary: an efficiency committee; professional staff committees on house staff, operating room, ward, histories, and dispensary; and planning committees on order of work instruction, and discipline. There should be a Central Board on Standards, whose function it should be to collect information and sift it, to allot the parts of the great problems for investigation, to furnish means for some part of the necessary research, to publish the results, and in general to serve as a board of control. Experiment stations should be established in a variety of locations and institutions. There should be a central library with branches and the utmost facility for loaning books. A museum of standards should be established.

5. The Discharged Sanatorium Patient.—J. B. Hawes, 2d, concludes that every tuberculous patient at some time or other needs sanatorium treatment. The doctor's responsibility for his patient does not end as soon as he has safely conducted him within the doors of a sanatorium or other institution. The important period in the treatment of the average case of pulmonary tuberculosis is after the patient has left the sanatorium. The medical profession, either by means of dispensaries or other similar agencies, or in their private practice, must seek out their discharged sanatorium patients and see that they are under proper supervision and control. Every physician should play a part in a broad educational campaign to impress upon the public the need of such supervision and control.

New York Medical Journal.

May 29, 1915.

1. Blindness of the Newborn. H. P. De Forest.
2. The New Species in the Human Family. D. D. Ashley.
3. Gastrointestinal Radiography in the Trendelenburg Position. S. Tousey.
4. Red Cross Problems in Time of War. C. S. Ford.
5. Ectopic Gestation. H. C. Taylor.
6. Surgical Treatment of Hyperthyroidism. J. B. Haeberlin.
7. Visual Perception, Retention and Reproduction. A. Brav.
8. Syphilis of the Nervous System. F. J. Conzelmann.
9. The Management of Septic Conditions in the Abdominal Cavity. A. M. Willis.

2. The New Human Species.—D. D. Ashley applies this term to the digitigrade individual or toe-walker, the product of fashion and of the shoemaker. Persistent digitigrade progression means weight bearing on the distal extremities of the metatarsal bones, with the phalanges projected upward at a sharp angle instead of extending forward. By continued stretching of the capsular ligaments, the sensitive synovial ends of the bones are uncovered and exposed to pressure. In many cases the joint becomes permanently, partially, or totally luxated or dislocated, resulting in hammer toes or flexed toes of mild or severe degree, with corns on the toes and callosities in the anterior metatarsal arch (metatarsalgia, Morton's disease) due to the crushing and thinning of the tissues and the giving way of the anterior arch, resulting in a broadening and thickening of the anterior part of the foot, with mild or severe hallux valgus, bunions, overriding toes, clubbed toes, hallux rigidus or stiff great toe. The *x*-ray shows a thinned bone cortex, increased cancellous tissue, a dumbbell atrophy of the proximal phalanx, distorted joint surfaces and bent bones. The great mass of muscles on the plantar surface—five layers of plantar flexors built into the arch—are almost functionless. Withered by disuse, crushed by braces and high, unyielding arches built in the shoes, we have seemingly lost track of these muscles in our mad scramble to brace, prop, and support the foot while walking on our toes. There is always a loss of the muscular control which is necessary to an elastic progression, ability to maintain an upright position and a good carriage, and strength to succeed in this strenuous life. The entire anatomy of the part is affected. Weak ankles, loss of balance, fallen longitudinal arch, weak foot, strained foot, sprained foot, sensitive, painful foot, flat foot, rigid foot, elongated foot, pronated foot, abducted foot, and valgus foot are some of the terms designating the ills one bears and the price one pays for unphysiological walking and standing. These conditions are accompanied by swollen, puffy ankles, with referred pains in calf, knee, thigh, and back. Frequently there are severe intermittent cramps, preceded by numbness of the toes and a burning sensation referred to the anterior foot.

9. Septic Conditions in the Abdomen.—A. M. Willis employs a modified Ochsner treatment for practically all infections of the abdominal cavity, and the results obtained by it are uniformly good. Peristalsis and unnecessary handling, two important factors in disseminating pus, are minimized. General peritonitis does not develop when the delay method is properly conducted. A liver abscess or a general septicemia may appear during the treatment, but this is just as likely to happen when an operation is performed in the face of a spreading peritonitis. The limitation of peristalsis is the keynote of the Ochsner treatment, and is accomplished by body and bowel rest and by heroic doses of mor-

phine. In giving morphine we should remember that nausea, gas, and vomiting, three troublesome symptoms of acute abdominal conditions, are also symptoms of morphinism; we should, therefore, regulate our doses of morphine as accurately as possible; cessation of pain and contraction of the pupils are perhaps the best indicators of morphine effect. In order to bring about suitable drainage, three factors have to be considered, viz.: (1) Gravity, (2) capillary action, and (3) siphon action. The best way to empty an abscess is to throw the pus in direct contact with the line of incision—and not away from it, as is done when the patient is placed in a sitting position. In an appendicular abscess the patient should not be elevated, especially if the pus barriers have been broken down at operation and one can never say with any degree of certainty when such an occurrence has taken place—because it is useless and harmful to throw the pus in the pelvis by putting the patient in the sitting posture. The same statement applies to abscesses situated about the gall bladder or liver, for in Fowler's position the pus is liable to gravitate and spread the infection. In abscesses not situated in the pelvis, the patient should not be elevated, but should be turned toward the affected side, and, once or twice a day, should be turned over on the face so as to throw the pus against the line of incision. In abscesses in the pelvis, the Fowler position should be employed, for here one strives to limit the infection by this posture. In general peritonitis the object of the Fowler position is not so much to avoid the diaphragm as to collect the pus in the pelvis. A well placed drain, along with turning the patient on his face, and elevating the foot of the bed for ten minute periods twice daily, will aid in clearing the pelvis of the accumulated pus. There is one point in drainage that deserves special emphasis, and that is, the drain should occupy the most dependent part of the abscess.

Journal of the American Medical Association.

May 29, 1915.

1. History and Epidemiology of Typhus Fever. V. C. Vaughan.
2. Hypertonic Salt and Alkali Solution in Salvarsan Anuria. R. T. Woodyatt.
3. The Effect of Altitude on Blood Pressure, with Minor Miscellaneous Observations. F. C. Smith.
4. Infections with Hemoglobinophilic Bacteria. D. J. Davis.
5. The Young Graduate and the Proprietary Medical Question. C. Eggleston.
6. The Onset of Hunger in Infants After Feeding. A Contribution to the Physiology of the Stomach. H. Ginsburg, I. Tumpowsky, and A. J. Carlson.
7. Ovarian Transplantation. C. C. Guthrie and M. E. Lee.
8. Hypertrophies of Mucous Endometrium. W. S. Gardner.
9. Syphilis of the Stomach. A Report of Eight Cases with Roentgenological Findings. W. A. Downes and L. T. Le Wald.
10. The Open Treatment of Infected Wounds. A Preliminary Report. F. G. Dyas.
11. Pseudomucinous Cyst of the Appendix. Its Relation to Pseudomyxoma Peritonei. D. B. Phemister.
12. The Extermination of the Mosquito. A. H. Doty.
13. Fullers' Earth; Its Absorptive Power, and Its Antidotal Value for Alkaloids. B. Fantus.
14. Chronic Appendicitis, Pylorospasm and Duodenal Ulcer. A Preliminary Note. C. D. Aaron.

2. Hypertonic Solution in Salvarsan Anuria.—R. T. Woodyatt reports the case of a man, aged forty-five, who had an aneurysm of the thoracic aorta and who received one gram of salvarsan within a week. Symptoms first appeared after a characteristic delay and then included fever, albuminuria and urinary suppression, nausea, vomiting, headache, delirium, and an erythematous rash. This case is recorded as one of a salvarsan reaction sufficiently serious to occasion grave concern, in which a sharp turn for the better followed by ultimate recovery took place within a few hours after the administration by bowel of an alkaline hypertonic solution (Fischer's solution) with no other therapy. An isolated experience of this sort is considered as suggestive that a suitable application of the same general therapeutic principles might prove of value in intoxications of the type described.

3. Altitude and Blood Pressure.—F. C. Smith states that the effect of altitude on blood pressure does not appear to be great. The lowering effect of tuberculosis on blood pressure in uncomplicated active tuberculosis is well known, and a tabulated statement of the result as regards hemoptysis of various degrees on forty-three patients is given, but nothing is found to support the contention that hemoptysis depends on high systolic pressure. It seems extremely doubtful whether moderate altitude has any pronounced effect on tuberculosis, except possibly in patients whose circulatory apparatus is unable to accommodate itself to the increased strain put on it.

4. Infections with Hemoglobinophilic Bacteria.—D. J. Davis notes that the hemoglobinophilic bacteria may be divided into two general groups: (1) those of the Pfeiffer-bacillus type, all of which reveal the phenomenon of symbiosis and are very commonly found in infectious diseases; (2) a far more heterogeneous group which includes the organism described by Friedberger, the bacillus found by myself and by Koch in urinary and uterus infections, the bacillus found in the pus of the shoulder abscess previously referred to, and also such organisms as have been described by Moon and some others. The first group is a very definite one, the members of which are closely related; indeed, usually practically identical. The second group comprises bacteria very different in character and remotely related to each other, having in common little more perhaps than the hemoglobinophilic property. Compared with the bacilli of the first group they are rare. The hemophilic bacilli of Pfeiffer's type are of primary importance as secondary invaders in many infectious diseases, especially those involving the respiratory tract. As such, they are not harmless parasites, as has been shown by animal experimentation. In this respect they are about as common and often, perhaps, as important as such organisms as streptococci and pneumococci. That they may be highly virulent at times and the cause of serious primary infections, is clearly shown in the not uncommon cases of purulent meningitis caused by these organisms. Whether or not Pfeiffer's bacillus was the cause of the pandemic of influenza of 1889-1890, or is ever the cause of epidemics of influenza, is still a doubtful question. Epidemics of clinical influenza occurring in recent years have been caused by a variety of organisms, including streptococci, pneumococci, *Micrococcus catarrhalis* and possibly other varieties.

6. Hunger in Infants.—H. Ginsberg, I. Tumpowsky, and A. J. Carlson find that the infant stomach shows feeble tonus contractions of the fundal end one hour after nursing, and as it discharges its contents these gradually increase in frequency and intensity until from the end of two and one-half to three hours they become transformed into vigorous hunger contractions. The minimum was two hours and the maximum three hours. The hunger contractions of the empty stomach are modified tonus waves of the fundus, as shown by Rogers and Hart. In the normal case their presence is probably evidence that the stomach is in proper condition to receive food, and the normal interval between feedings is two and one-half to three hours.

10. Open Treatment of Infected Wounds.—F. G. Dyas concludes that the advance made in the treatment of old suppurative wounds has not been in keeping with the advances made in other departments of surgery. The treatment of suppurating areas by voluminous dressings, either sterile or antiseptic, macerates and devitalizes the tissues, fosters the development of the pathogenic flora, and does not assist in the repair of the

tissue. It is always of advantage, when possible, to convert a moist into a dry type of gangrene. Therefore, the desiccating influence on the wound of the atmospheric air, in the absence of moist coverings of any sort, tends to attenuate infecting organisms. The method is safe, economical, and is in keeping with nature's own processes as observed in the lower animals. The patient's period of convalescence is shortened and he absolutely suffers no pain. In the author's experience, both in the treatment of wounds and of burns, the danger of contamination from the atmospheric air is negligible. The addition of plenty of sunshine would be a valuable asset, but is not readily obtainable.

13. Fullers' Earth and Its Antidotal Value for Alkaloids.—B. Fantus states that alkaloidal fullers' earth compounds do not act on the stomach, but are gradually dissociated in the intestine, producing a delayed and milder general action. Fullers' earth has antidotal value in morphine, cocaine, nicotine, and ipecac poisoning. It has less value in strychnine and in aconitine poisoning, though even in these conditions it is capable of saving life when combined with sodium dihydrogen phosphate. In colchicine poisoning it is of little value. The power of adsorbing alkaloids is strongly developed in some fullers' earths and very feebly in others. The adsorptive value of commercial fullers' earths should be stated by the dealers, and pharmacists should demand specimens of high activity. Lloyd's reagent possesses this power to the highest degree. Fullers' earth is not synonymous with kaolin, as the United States Dispensatory and the National Dispensatory would lead one to infer. It is a substance with markedly different properties.

The Lancet.

May 22, 1915.

1. The Hunterian Lecture on Some Infections of the Tonsils. F. C. Pybus.
2. A Note on the Treatment of Septic Wounds. A. M. Sheild.
3. Heart Perfusion with Excretory Toxins. D. T. Barry.
4. The Influence of Injections of Contratoxin No. 4 (Mehnarto) on the Content of Opsonins in the Blood Serum of Tuberculous Patients. R. Tanner Hewlett.
5. Progress in the Treatment of Cataract in India. H. Smith.
6. Two Extraordinary Cases of Liver Abscess. C. Burgoyne Pasley.
7. Cerebrospinal Fever and the Sphenoidal Sinus. D. Embleton and E. A. Peters.

1. Tonsillar Infections.—F. C. Pybus, in this the second installment of the Hunterian Lecture, after showing the rôle of the streptococcus in rheumatism, chorea, etc., and the importance of tonsillar infection with the pneumococcus, diphtheria bacillus, and other microorganisms, discusses the treatment of tonsillar infection. If the symptoms are mainly or entirely mechanical, and fail to subside in three months after removal of any source of infection, partial removal may suffice. Tonsillotomy, however, has this disadvantage —the basal portion of the tonsil may enlarge and again cause symptoms. In addition to this many hypertrophied tonsils, so far as can be ascertained on inspection, do not appear to be grossly infected. In those cases which are grossly infected the basal portion, often the most diseased, is left behind and may commence to give trouble, especially if some of the lacunæ become partially or entirely sealed up in the process of healing. When infective symptoms predominate in the tonsil itself, such as acute tonsillitis or chronic lacunæ infection, or when the tonsils are in addition enlarged, any source of infection must be removed, especially carious teeth. Nasal breathing must be re-established, and the case watched to see the effect of the treatment. Where the tonsil is too severely affected to be capable of recovery, as judged by the recurrence of symptoms and the failure of the above measures, then total removal is indicated. Enucleation of the tonsil must necessarily prevent tonsillitis, and while it does not entirely prevent pharyngitis such attacks are usually materially lessened in frequency. When repeated quinsies have occurred further attacks may be prevented by removing the source of the infection, the tonsil. For lymphatic gland infections, where tuberculosis is suspected tonsillectomy is indicated; the course of the glandular enlargement determines whether this also may require operation. In pyogenic infections of the glands the tonsil must be dealt with when the acute lymphadenitis has subsided or been operated on if suppuration has supervened. Chronic glandular enlargement of the mild or moderate degree is so frequently met with in hypertrophied tonsils that when the tonsil recovers its normal character the glands subside also. It should be a rule that no tonsil should be removed when acutely inflamed. For more distant infections, when the tonsil is suspected of being the focus, removal is indicated when the general condition is satisfactory. In all these cases total removal is the operation of choice. It presents no greater danger than incomplete removal and can be readily accomplished by the guillotine alone. While these methods directed to the individual are of great importance there is no doubt that prevention of tonsil infection should be one chief aim. This is to be obtained by the advance of hygiene, personal, in the home and school. The maintenance of nasal respiration, the prevention of dental caries, and the proper supply of food in sufficient quality and quantity will greatly diminish the prevalence of this condition. The provision of a cleaner air supply and the prevention of infection by milk are measures needing attention. When that delicate balance between health and infection is upset and the tonsil, a useful organ, becomes diseased and incapable of recovery, a timely removal of this focus may prevent more grave illness and disability. The question of infection of the tonsil and from the tonsil is not to be summed up in some form of operative procedure, but by the attention to the numerous measures I have tried to indicate.

7. Cerebrospinal Fever and the Sphenoidal Sinus.—D. Embleton and E. H. Peters believe that sphenoidal empyema is associated with cerebrospinal fever in a causal manner. Cerebrospinal fever is a meningitis due to organisms entering the meninges from the sphenoidal sinus by way of the lymphatics. Adults are less susceptible owing to a diminished tendency to sphenoidal empyema, as they are not prone to excessive swelling of the mucous membrane and so to closure of the ostia, as is seen in adolescents. It may be advisable to open the sphenoidal sinus in all cases of cerebrospinal meningitis; it is certainly advisable to treat the nasopharynx on the lines used for the acute carrier. The authors make a plea for nasal hygiene in the case of recruits.

British Medical Journal.

May 22, 1915.

1. The Treatment of the Toxemia of Later Pregnancy. Sir John Byers.
2. A Dressing Station in France. G. R. Ward.
3. Some Infections of the Tonsils. F. C. Pybus.
4. The Sterilization of the Skin with Tincture of Iodine. J. L. Stretton.
5. Typhus Fever in Palestine, 1913-14. C. H. Corbett.
6. The Admission of Men with Glasses into the Army. A. A. Bradburne.

1. The Toxemia of Later Pregnancy.—Sir John Byers points out that the eliminative treatment of eclampsia aims (1) at the prevention of the formation of any more toxins; (2) at the elimination of the toxins which are already circulating in the system; (3) at the facilitating of labor at the proper time, if it should come on naturally, no induction of labor being allowed; and (4) at the careful treatment of special conditions, such as

heart failure, obstruction of the larynx, etc. This plan of treatment has been called "the Rotunda" method, because it was begun, slowly evolved—step by step—and brought to its present state in that institution. Stroganoff's method—which differs from that of Zweifel and Lichenstein in that no free bleeding is used—is based largely on the same lines as that employed at the Rotunda clinic, with the following additions and alterations: He tries to avoid all external irritation; hence, the patient is kept in a quiet darkened room; no one is admitted except the doctor and the nurse; everything is done silently, and without fuss or noise. If any examination has to be made—external or internal (only if necessary)—if the catheter has to be used, or a hypodermic of morphine has to be given, the patient is allowed to inhale twenty to thirty drops of chloroform. The fits are controlled by a combination of morphine and chloral (giving the latter by the mouth or by the rectum). Labor is assisted but not forced. The vital processes are to be watched carefully and to be stimulated when necessary. For the respiration, pure warm air is to be used with oxygen after the fits; and the patient is to be kept on her side and careful cleansing of the throat and nose is to be done. For the heart, digitalis and stimulants are to be employed if it gets weakened and milk and saline infusion may be given by the mouth or rectum. For the kidney and skin the best remedies, according to Stroganoff, are warmth and saline infusion. The last statistics show 900 cases reported by Stroganoff with a 7 per cent. mortality.

6. **Recruits and Visual Errors.**—A. A. Bradburne states that the question of the admission of recruits with an optical visual error would be dependent upon two factors only: (1) The nature of the defect; (2) the type of recruit. The nature of the defect would need consideration under the following heads: (1) The defect is of such a nature that without glasses the recruit is practically helpless. Under this heading the great majority would be considered as unfit for military service, although some exception might be made in case of men recruited for home service entirely, where their training in civil life would warrant their employment as clerks in central head offices. (2) When the same condition exists, but affects one eye only, the other possessing fairly good uncorrected vision. The chief point to consider in such cases would be the error in the better eye, and as the man would necessarily be almost entirely dependent on it, the error should, to admit him, be but a slight one. (3) When the defect is such that the glasses make fairly good sight in both eyes into absolutely normal vision with one or both. Here the loss or breakage would form only a slight hindrance to his employment in any branch of the service behind the advanced lines, and might with the glasses enable him to use a rifle with deadly effect. If, moreover, he conforms to the requirements under the heading "Type of Recruit," there seems little objection to his employment, bar the question of replacement in case of breakage. Under the heading "Type of Recruit" comes consideration of: (1) Previous experience in the use of glasses. This factor necessarily must have a great influence in deciding the suitability or otherwise of a recruit. A man who has been accustomed from his youth up to wear glasses has not only obtained better visual acuity than one who takes to them later in life, but has learned to treasure and take proper care of them, and is therefore less likely to break or lose them. (2) The particular branch of the service in which the recruit wishes to serve. It is obviously useless to enlist a man with no knowledge of clerkship in the pay departments, or a "faint heart" into the Army Medical Corps, yet if of engineering taste a place might be found for him in base workshops or even in the Army Service Corps. (3) The general physique and intelligence of the recruit. This factor would frequently turn the scale in his favor or otherwise.

Berliner klinische Wochenschrift.

April 26, 1915.

Essays in the Direction of "Mouth Writing" for the Armless.—Grünberg, a Berlin dentist, relates that the late Professor Joachimsthal had referred to him a man with bilateral arm paralysis in the hope that something might be devised whereby the patient could be enabled to write. Any ordinary prosthesis was out of the question because of the degree of muscular atrophy of shoulder and arm muscles. While "foot writers" are not so rare the author could find no aid from an exhaustive investigation of literature in any other direction. Could a person learn to write with a pen held in his teeth, provided a satisfactory mechanical device could be secured? The teeth were even and strong. Models of upper and lower jaws were so articulated that a space of 2 mm. was left between them. A splint-like formation of wax was introduced so as to extend half way down the crowns of the lower teeth. The upper teeth bit against the lingual aspect of the latter, leaving the labial aspect as well as the angles free. This device, which remains fixed upon the lower teeth when the mouth is shut, was followed by the construction of a special penholder which would necessarily need to be very elastic and flexible in order to spare the neck and head muscles. Such a holder was devised containing three jointed portions. The central one was long, like an ordinary holder. The other two were adjustable, the upper one being held in the teeth, while the lower served to receive the pen. With this device the subject learned to write as well as he had formerly written with his hand. A letter written in a calligraphic hand is shown. Not long afterward a man with an amputated arm was referred to him, and after three months' effort he was enabled to pass the examination of a technical high school, which required a written dissertation. The author admits the existence of several "mouth painters," but can find no information as to how their results are obtained.

Theory of Thyroid Functions and Thyreogenic Disease.—Oswald states that iodine-thyreoglobin is characterized as a substance of quite individual physiological action, not observed in thyreoglobulin, which has no iodine content. Iodine alone does not show this activity. Attempts to iodize various proteins also fail to bring out the latter. Various substances with iodine content, such as corals and sponges, are likewise inert. The substances known collectively as iodothyreoglobulins, which represent a peculiar organic combination, alone represent the dynamic principle of the thyroid. Iodine is no more in evidence in the latter than is chlorine in chloroform. The peculiar action of iodothyreoglobin is this, that it increases nerve tonus to an exquisite degree, not only in the animal but in the vegetative system. It effects this in part by enhancing the adrenalin action upon the vasoconstrictors. It also heightens the activities of the central nervous system and at the same time promotes the catabolism of protein and fat. To understand this in full we have only to study the deficiency symptoms which follow withdrawal of the thyroid functions. In this connection we note the slow metabolism, tardy response of the nervous system, slow heart action, dry skin, mental sluggishness, slow ideation and chilliness. Overaction of iodothyreoglobulin

is seen in the opposite train of symptoms—increased metabolism, heightened response of all the nervous organs, tachycardia, palpitation, sweating, motor unrest, feeling of heat, excitability.

Münchener medizinische Wochenschrift.

April 20, 1915.

Symposium on Shot Wounds of Chest.—Four articles appear in succession in the Military Supplement of this number of the *Wochenschrift* on gunshot and bayonet wounds involving the lungs. These articles are on different aspects of the same subject and represent different clinics—hence they do not represent a symposium in the narrower sense, but are only an example of editorial grouping. Ehret writes a long paper on the treatment of gunshot wounds with special reference to aritficial pneumothorax. The author's material consisted of 100 miscellaneous cases, and of this number not one was lost. He discusses in order the various complications and sequelæ—hemorrhage, pleurisy, empyema, retraction, pneumothorax, pain, pneumonia and bronchitis and emphysema cotis. The treatment was expectant, and surgical intervention was required only in a few cases of empyema. But while there was no mortality, there were many bad functional results—pulmonary collapses with extensive induration being by no means rare, while adhesions and some retraction were the rule. These bad results were due to allowing the exudate to remain in the pleura according to modern teaching. The author recalls the old Trousseau principle of evacuating all extensive exudates by puncture. There are serious objections to this procedure, and the author looked upon the expedient of fractional tapping as too burdensome for the patient. As a way out of the dilemma he therefore resorted to the procedure of Wenckebach which combines puncture with artificial pneumothorax, in which air is made to replace the punctate. Of his 100 cases 13 were treated in this manner. He concludes from his results that this resource promises well for the relief of pressure conditions due to large exudates. Krez reports 28 cases of bullet wounds of the lung and discusses the problems of convalescence. To accelerate recovery, especially in slow progress he would employ fresh air, pneumatic chambers, hydrotherapy and any other available resources. Despite all, however, a shot lung remains for a long time an inferior lung for breathing purposes. Not infrequently an obstinate bronchial catarrh develops in the wounded lung. Unverricht reports a case of lung wound without symptoms. A patient presented himself at Jessen's sanatorium at Davos for mild tuberculosis. The radiogram showed the presence of a bullet in the left side of the thorax. Patient recalled that early in the war he was struck on the forearm by a bullet. He fell at once and the wound bled profusely. There were no symptoms of pulmonary injury. The surgeon was somewhat amazed that a man should drop flat from a flesh wound of the arm. The left lung was free from tuberculosis, old foci of which were seen in the right apex. The sear of the bullet wound in the arm showed no foramen of exit. The tract of the bullet was close beneath the head of the humerus. The point of the bullet in the lung was toward the axilla, showing that it had made a turn. The velocity of the projectile had evidently been mostly spent, and the obstruction of the soft parts was sufficient to turn it about. For the same reason the lung had not been torn.

Treatment of Bayonet Wounds of the Lungs.—Herrenschneider reports a single case of this form of traumatism. A soldier who was bayonetted in a trench fight was able to withdraw the weapon. Hemorrhage was marked, and there was vertigo but no syncope. For several days there was increasing dyspnea and pain in the right side of the chest. Hemoptysis was absent. Patient felt fairly well at the end of this period, and walked by stages to a reserve hospital. He arrived very tired, and his general health was poor (anemia, reduced nutrition). The chest had been penetrated beside the strenum. There were evidences of an old hemorrhage in the pleura. Evening temperature was high. Patient was relatively comfortable in bed for four weeks and nothing was done until at the end of this period when a second punctate was obtained and cultures made with negative results. He was still kept at rest until temperature was nearly normal, and anemia was showing improvement. Sent home, his improvement was rapid, but for full recovery it was necessary for him to take a resort cure.

Deutsche medizinische Wochenschrift.

April 8, 1915.

Ekehorn's Operation for Rectal Prolapse in Children.—Tölken states that we have never had an ideal treatment for this condition, doubtless because each surgeon lays stress on some one particular causal element. At present, however, all are united in the belief that the most important causes are insufficiency of the muscular floor of the pelvis, abnormal depth of the Douglas fold and relaxation of the suspensory bands of the pelvic rectum. One must add to these the physiological steepness of the coccyx in the young child, which gives no firm support to the rectum, the abdominal pressure making itself felt directly by the muscular floor of the pelvis. Active influences are diarrhea, cough, and bearing down. However, within a comparatively short time these anatomical conditions are quite outgrown, and prolapse may also be compated successfully by minor measures. Naturally in the adult conditions are quite different. The Thiersch wire ring is very popular in Germany, although failures and occasionally accidents occur under its use. In 1909 Ekehorn, a Swede, devised the following technique. He first reduced the prolapse under narcosis. The left index finger is allowed to remain in the rectum. Then close to the sacrum, lower segment, a needle is passed into the rectum, against the surgeon's finger and brought out by the anus. A strong silk thread is threaded into this needle which is then withdrawn through the needle opening. The process is now repeated on the opposite side with the same thread. There are now two loops of thread in the rectum, the ends of which are knotted over the sacrum. The threads are removed in two weeks. Practically there is no postoperative treatment. The operation is, therefore, only a rectopexy, the bowel being fixed against the sacrum. The author has varied this procedure by using a wire suture, fastened behind by means of a lead plate or bullet. While Ekehorn used a needle with a handle, Tölken finds the ordinary needle to give as good service. Properly carried out, the patient is radically cured as soon as the operation is finished; and with proper precautions there should not be any disturbance in regard to healing. None of the operations are to be performed until the usual conservative measures have all been tested. The only fear is of infection; but thus far there has been no case of the latter. Yet the material of the operation is still very small. By reason of the very large number of resources in use for rectal prolapse—which incidentally includes tamponades, celluloid corsets, paraffin injections, in addition to numerous operations—the Ekehorn procedure seems to be the simplest, most conservative and safest yet attempted.

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN" BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 957.)

The medical directors of this company knew well how to meet the tuberculosis hazard in which heredity and early disease afforded a handle for selection, but they failed completely in regard to the habitus phthisicus or, as Kraus more correctly terms it, the habitus asthenicus, because they did not give the necessary attention to emaciation. For only thus can it be explained that in a series of cases in which the inferior constitution alone could warn, there occurred 61 actual deaths with an expectancy of but 8.7, or in other words, a supermortality of 600 per cent. In another series in which the same heredity factor was concerned the supermortality had indeed sunk to 89 per cent., but only in those cases in which suspicious earlier diseases pointed more distinctly to the hazard, did it sink to 14 per cent.; while in all other groups in which the constitution factor was good (with the exception of a slight supermortality in 2) a more or less marked degree of submortality was attained.

But why seek for further proofs where the results speak for themselves? While the tuberculosis mortality of the Gotha Life Insurance Company for the first five insurance years (total expected mortality = 100) in the years subjoined was as follows:

1829-1851	156.6%
1852-1866	109.3%
1867-1880	107.0%
1881-1895	86.0%

In the period 1904-1909, when the selection was based strongly on the constitutional factor, it had sunk to 28 per cent.

What then will the assertion of Cornet signify that the habitus paralyticus is not only no forerunner and still less the cause of tuberculosis, but a consequence of it and not a common one at that. It is very probably one of the conditions for the occurrence of the disease, indeed so powerful a one that I am willing to assert that in life insurance the acceptance of applicants with the tuberculosis hazard depends not on the hereditary taint but upon the constitution alone. The better this is the less the danger of death from the hereditary evil.

It is self-evident that we will not therefore define the disposition. We seek only to determine the definite anatomical condition of the organism at a time when there is as yet no talk of a disease demonstrable through clinical investigation, to recognize that in such an organism the probability of death from tuberculosis is far greater than in another individual who is differently constituted.

From the first we leave the *Bacillus tuberculosis* quite out of count, for with the many sided opportunities for possible infection it must be reckoned as ubiquitous with us. At the same time we do not underestimate its importance and above all we are thankful to bacteriology because through its study so much has been contributed to our understanding of the soil, which latter we have now learned correctly to estimate. But practically its study avails us nothing. We have to exercise selection and we cannot progress a step by simply learning that the frequency of infection increases with the opportunities. We would learn to know the factors which so bring it about that certain individuals have a greater mortality from tuberculosis than others who have had the same exposure.

We would discover the recognizable qualities of the individual which announce the want of resistance to infection. For only then do we know how to go about to exercise a correct selection.

Leanness, the habitus asthenicus, is one of the conditions which cooperates in the occurrence of tuberculosis, and before all the one which is most accessible to investigation. All that is required are the tape and scales to bring it, grossly but numerically, to observation. Moreover, we do not need here anything else, for it is now possible to establish the probability with which *ceteris paribus* the dreaded event supervenes. Therewith we can calculate the probability that a thin applicant will or will not die of tuberculosis.

And to proceed otherwise we have no choice, as long as medicine does not place at our disposal methods of investigation which will teach us to know directly the danger of tuberculosis.

There are, indeed, prospective methods but all these biological and chemical reactions are merely diagnostic and not prognostic aids. They are all difficult of application by the medical examiner, especially the most trustworthy of them, tuberculin injection. We get no further with it than we might expect to get with the so frequently dubious finds at the right apex—which clinically have nothing to do with tuberculosis—and in general practice also no harm is done, for simple observation suffices to fix the correct diagnosis. In insurance examination, however, this find becomes a real stumbling block because slight dullness over the clavicle, prolonged expiration, sharpened inspiration must always excite the suspicion of tuberculosis, and the period necessary for observation as a diagnostic accessory would only mean a rejection. A readily applicable, trustworthy reaction would be of very great importance for life insurance.

I will take up briefly one more point in the diagnosis of tuberculosis because it is frequently brought into the field by the medical examiner in respect to the refusal of an applicant regarded as hazardous because of his habitus. This is, that the applicant examined has a large chest expansion and that this speaks against the danger of phthisis either outright or at least as a factor which should be thrown into the scale in favor of the applicant.

(*To be continued.*)

Health Insurance—Nature of Disease.—Action was brought upon a health policy which contained the provision that "benefits shall not be allowed for disease not common to both sexes." The plaintiff was afflicted with a cystic tumor on one of her ovaries. The only question was whether such tumor was a sickness or disease not common to both sexes. Three medical witnesses testified that it was common to both sexes. The medical director of the defendant testified that it was not common to both sexes, but admitted that the male sex did have cystic tumors. The jury found, as it was held they were authorized to do from the evidence, that the disease was one common to both sexes.—Russell v. Fraternities Health and Accident Association, Maine Supreme Court, 92 Atl. 820.

Book Reviews.

THE CLINICS OF JOHN B. MURPHY, M.D. Vol. III, No. 5. Octavo of 190 pages with 61 illustrations. Published bi-monthly. Price per year, paper, $8.00; cloth, $12.00. Philadelphia and London: W. B. Saunders Company, 1914.

THE first 60 pages of this issue are given over to clinical talks on surgical and general diagnosis by Dr. Murphy and Dr. Mix, and cover a number of renal conditions, intrathoracic sarcoma and meningitis. In the opinion of the reviewer the most valuable part of this section is that in which the differential diagnostic points are brought out in connection with the case of intrathoracic sarcoma. Murphy's discussion of traumatic epilepsy while operating upon such a case is also very instructive. Other subjects discussed in connection with operation are: Epithelioma of the glans penis; carcinoma of the corona penis with metastasis in the inguinal glands, in which the occasional cystic type of metastatic glandular involvement is well shown; fecal fistula; hypertrophy of the prostate; imperforate anus, and the use of radium and the *x*-ray in the treatment of cancer. In addition, about 70 pages are given over to the discussion of bone and joint work, not a little of which has been covered in previous issues. Sixteen illustrations of the method of doing arthroplasty of the elbow and knee joints give a very clear idea of Murphy's technique. All things considered it is one of the best of the recent numbers of the Clinics.

GONORRHOEA AND ITS COMPLICATIONS IN THE MALE AND FEMALE. By DAVID WATSON, M.B., C.M., Lecturer on Venereal Diseases to the University of Glasgow; Surgeon in Charge of the Venereal Department Glasgow Royal Infirmary; Late Surgeon Glasgow Hospital for Women; Late District Surgeon Glasgow Maternity Hospital, etc. With 72 illustrations and 12 plates, 9 of which are in colors. Price, $3.75 net. New York: Paul B. Hoeber, 1915.

"THE object of this book is to place at the disposal of the practitioner and student a review of the work, as I understand it, of the many scientists and clinicians, to whose labors any merit that this book may possess is due." So states the author his reason for presenting another book to the already well-filled field. It consists of twenty-seven chapters covering three hundred and sixty pages of text. Beginning with the history of gonorrhea, its bacteriology, pathological histology, the various phases of acute and chronic urethral infection in the male and their treatment are discussed. Four chapters are given to gonorrhea and its complications in the female. Following in logical arrangement are the chapters on infections of the urinary organs common to the sexes, the eye, gonorrheal rheumatism, septicemia and, lastly, modern advances in serology. Little or no reference is made to the sexual debilities sequential to gonorrheal invasions of the adnexa. Among the commendatory features are the sections on bacteriology and pathological histology of the disease, since those for whom the work is intended must perforce know these well ere they can intelligently direct treatment. The treatment advised is that of our accepted masters. The technique of the manipulative procedures is clearly described, especially that of urethroscopy. When the author speaks of a urethroscope as "internally lit," he doubtless refers to the "direct illumination" type. Many urologists will take issue with him in his approval of a rigid prostatic masseur, since its use is most often dangerous or valueless. American urology is complimented by the free draft upon the work of our writers, as well as that of his European confrères. The literary style is good, only here and there suffering from irregularities and lapses into the magisterial tone, faults which many medical writers are prone to commit. The illustrations are clear and well-chosen. The color plates are taken by permission from Chetwood's "Practice of Urology."

DIAGNOSTIC AND THERAPEUTIC TECHNIC, a Manual of Practical Procedures Employed in Diagnosis and Treatment. By ALBERT S. MORROW, A.B., M.D., Clinical Professor of Surgery in the New York Polyclinic, etc. Second Edition, Thoroughly Revised. Price, $5.00 net. Philadelphia and London: W. B. Saunders Company, 1915.

THE second edition of this well and favorably known manual has been slightly enlarged in the process of revision to which it has been subjected but has lost none of its thoroughly practical nature. It includes a detailed discussion of most of the ordinary diagnostic and therapeutic procedures written in clear and concise language. The volume is profusely illustrated and there has been no hesitation in repeating illustrations where such repetition would aid in the understanding of the text. It is rather a surprise that the author has not included any mention of the uses of tuberculin in diagnosis and therapy. It would seem safer if he were to insist on the wisdom of the wearing of rubber gloves in many of the measures described, especially where intrauterine manipulation is involved. In the discussion of the methods of transfusion, but slight mention is made of the various syringe methods and their modifications, which are so valuable in that their use does not necessitate the tying off of a vein. Laboratory workers would thank him if he had advised that smears of exudates for diagnostic purposes be made at the end of the slide so that the staining process would be a little easier. Also it is probably not a general practice to make blood cultures directly upon agar slants, a procedure that is apparently recommended.

THE CLINICS OF JOHN B. MURPHY, M.D. Vol. III, No. 6. Octavo of 175 pages, with 51 illustrations. Published bi-monthly. Price, per year, paper, $8.00; cloth, $12.00. Philadelphia and London: W. B. Saunders Company, 1914.

THE final number of the Clinics for the year 1914 has for a prelude a series of plates showing the new building and offices of Dr. Murphy and his staff, apparently a beautiful building and luxurious offices to be sure, but ——? For the postlude we have the index for the year—useful and understandable. In the section on general and surgical diagnosis a great many useful points are brought out. The first case in this section, one of fracture-dislocation at the level of the twelfth dorsal vertebra, is very interesting and the diagnostic points leading to the localization of the lesion are well brought out by Dr. Mix, who also contributes the discussion of a case of Hodgkin's disease. Murphy himself discusses appendicitis, based upon several cases, and the differential diagnosis of a case of cholecystitis from appendicitis and pyelitis. Many of the points have been emphasized in former lectures but will bear iteration and reiteration. A preliminary report on autosensitized autogenous vaccines is made by Kreuscher of Dr. Murphy's staff. The regular clinical lectures then follow, based upon five bone and joint cases, bilateral tuberculous epididymitis, gummatous tumor of the testicle, perforating duodenal ulcer, and retroperitoneal sarcoma of the upper abdomen. Except for the exhibition of horribly bad taste in the prelude, this is a commendable number.

DIE EXPERIMENTELLE PHARMAKOLOGIE ALS GRUNDLAGE DER ARZNEIBEHANDLUNG. Ein Lehrbuch für Studierende und Ärzte von Dr. HANS H. MEYER, Wien, und Dr. G. GOTTLIEB, Heidelberg, Professoren der Pharmakologie. Dritte, neubearbeitete Auflage. Price, 15 marks. Berlin and Vienna: Urban & Schwarzenberg, Wein. Rebman Company, New York, 1914.

THE new edition of this work embodies the changes which have taken place in this subject since the appearance of the scond edition three yars ago. A few new drugs have received consideration and the book is only slightly enlarged in the revision. The arrangement, like that of the former editions, is by systems of the body, *i.e.*, the nervous system, the muscular system, etc., and by organs, a method that has much to commend it. The few errors of the former edition have been corrected. It is probably the best and the most complete book which we have on the subject.

WORRY AND NERVOUSNESS, or the Science of Self Mastery. By WILLIAM S. SADLER, M.D., Professor of Therapeutics, the Post-Graduate Medical School of Chicago; Director of the Chicago Institute of Physiologic Therapeutics; Fellow of the American Medical Association. Price, $1.50 net. Chicago: A. C. McClurg & Co., 1914.

DR. SADLER acknowledges in his preface the help and inspiration which he has received from the works of Janet, Ford, Prince, Breuer, and Dubois. He is personally most optimistic as to the prognosis of neurasthenia, but there is much cheery wisdom in the advice to nervous women of leisure to get them to the settlements, the modern nunnery, and the emphasia he lays on the value of well chosen work. The success of Christian Science is explained with admirable tolerance and humor.

Society Reports.

ASSOCIATION OF AMERICAN PHYSICIANS.

Thirtieth Annual Meeting, Held in Washington, D. C., May 11, 12, and 13, 1915.

THE PRESIDENT, DR. SAMUEL J. MELTZER O. NEW YORK, IN THE CHAIR.

Tuesday, May 11—First Day.

President's Address.—DR. SAMUEL J. MELTZER of New York delivered this address and first called attention to Dr. Delafield's statement made in June, 1886, as follows:

"At the inauguration of a new medical association it would seem proper for the presiding officer to say some words concerning the objects of the association and the best methods of carrying those objects into effect, and it was my intention to do this; but when I considered the character and attainments of those whom I was about to address such a plan seemed to be unnecessary and even impertinent. We all of us know why we are assembled here today. It is because we want an association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers and who are not; in which we will not ask from what part of the country a man comes, but whether he has something to say worth hearing, and can say it. We want an association composed of members, each one of whom is able to contribute to the common stock of knowledge, and where he who reads such a contribution feels sure of a discriminating audience. We are all busy men, ambitious men. We all like to give instruction and to gain reputation, and both of these we can do in the societies already existing. But we also want a society in which we can *learn* something. And this, I take it, is the real object of the enterprise which we inaugurate today—to form an Association of Physicians and Pathologists to which we may come year after year with the well founded hope that at each meeting we will find something to *learn*."

Dr. Meltzer said he had been engaged in the practice of medicine for thirty years and had been during this time in close association with the other sciences and he believed that they should all endeavor to increase their knowledge of clinical medicine especially. He advised that they should get together more often and help one another, take a deeper interest in medicine, and be able to grasp what it all meant. The best men in the future would be the brainy men, those who had spent many years in studying the various methods of acquiring knowledge from the medical sciences, and who would apply all their knowledge in combating diseases. Clinical medicine and the medical sciences must be brought closer together and work in harmony. Dr. Meltzer said that he had been told that the papers read before the Association were "above their heads." They should not forget that the science of medicine was progressive and they had no right to halt because there might be some who were left behind.

Report of the George Washington Memorial Committee.—Dr. JAMES TYSON of Philadelphia, chairman, said that this committee had been appointed to raise a fund of $5,000, but so far it had only collected $200. Circulars asking for appropriations were sent out as long ago as 1912. The committee was so discouraged that it recommended that the project be given up and the subscriptions, all small in amount, be returned to the donors. This was agreed to.

Important Contributions to Clinical Medicine During the Past Thirty Years from the Study of Human Blood Pressure.—Dr. THEODORE C. JANEWAY of Baltimore read this paper. He said that in 1886 the literature on human blood pressure gave twelve different types. However, today the methods employed were of sufficient accuracy and so available that blood pressure should be taken in valvular diseases, in brain diseases and other diseases and as a routine procedure. To find a law blood pressure was of little value in making a diagnosis. In tuberculosis the taking of the blood pressure was of no value at all. In America one man had report examinations made of 28,000 healthy adults and he found that the average blood pressure increased with age. Dr. Janeway presented Fisher's statistics of 19,339 with ages and average blood pressures as follows:

Ages	Average Blood Pressure
18-20	119.85
21-25	122.76
28-30	123.65
31-35	123.74
36-40	126.96
41-45	128.56
46-50	130.57
51-55	132.13
56-60	134.78
General average	128.91

The Present Status of the Electrocardiographic Method in Clinical Research.—Dr. ALFRED E. COHN, Hospital of the Rockefeller Institute for Medical Research, New York City, (by invitation) presented this paper. He said that the electrocardiographic method had been used in clinical medicine for only ten years. It recorded the electrical discharges of the heart during its activity. The form of the curve remained constant through the greater portion of life. Any change in it represented a change in the heart or in its position. The normal curve depended on the orderly performance of four chief functions: first, on the orderly spread of electrically excited states; second, on the orderly sequence of auricles and ventricles; third, on the orderly coordination of the muscular mass of each pair of cavities; fourth, on the usual disposition and volume of the muscular mass of each pair of cavities. The abnormal electrocardiogram depended on a disturbance of one or more of these functions. Under the first head were grouped both auricular and ventricular extrasystoles, paroxysms of tachyardia, and changes in the *T* wave; under the second head, heart-blocks of various kinds; under the third head, the split *P* wave when there was auricular asynchronism in mitral stenosis, auricular fibrillation and flutter, ventricular asynchronism, and ventricular fibrillation; under the fourth head, the changes due to hypertrophy and dilatation and dextrocardia.

The Physiology and Pathology of the Duodenal Mucous Membrane.—Dr. THOMAS R. BROWN of Baltimore discussed this subject both as regarded its motor and secretory functions, and especial attention was paid to its rôle in connection with pancreatic secretions, and in causing the toxic symptoms met with in high intestinal obstruction.

Observations on the Use of the Duodenal Tube for Diagnosis and Treatment.—Dr. FRANKLIN W. W. WHITE of Boston read this paper. He said that the clinical use of the duodenal tube (introduced by Einhorn and by Gross in 1909-10) had proved its value in a limited field. The tube was used by the author in 86 cases; in 66 for diagnosis; in 20 for treatment. A fluoroscopic study of the technique of the introduction of the duodenal tube showed that by placing the fasting patient successively in simple postures, the tube might be introduced into the duodenum within one half hour in a majority of cases where organic stenosis was not present. Spasm of the pylorus, atonic and hook shaped stomachs might delay the tube. A heavy (Gross) tube tip entered the duodenum more rapidly than a light (Einhorn) tube tip. A small tube No. 8 French with a heavy tip of at least 100 grains weight (Palefski) was best of all for diagnostic work. It was not difficult to tell the position of the end of the tube. It was as safe as an ordinary stomach tube. In diagnosis, examination of the duodenal contents was most useful in diseases of the pancreas and in cases of chronic jaundice. It was the only method of directly obtaining the secretions of the pancreas and liver. There was considerable normal variation in the pancreatic ferments; only absence or marked diminution had much value in diagnosis. Examination of the feces in some cases was almost equally valuable and simpler; in others the examination of the duodenal contents was much more valuable. In treatment the duodenal tube (Einhorn) was useful in a limited group of cases of peptic ulcer. (It was only used in cases without organic obstruction and in cases resisting ordinary medical treatment.) It might be used to improve the patient's condition before operation, in ptosis and atony with delay in emptying the stomach and vomiting, and it had considerable value in cases of persistent vomiting of nervous and toxic type. Here an unusually long tube was desirable to prevent regurgitation into the stomach. It was used in two cases of cancer of the esophagus (stomach feeding). Almost every case was improved by duodenal feeding and in a considerable number the symptoms stopped. It was superior to rectal feeding as patients kept their weight or gained. A thermos bottle as reservoir and the Mur-

phy drop method was preferred to a syringe for introducing food.

Chronic Duodenal Ulcer.—Dr. WILLIAM J. MAYO of Rochester, Minn., read this paper. He said that the post-mortem statistics of chronic duodenal ulcer had been very misleading. The work of Rokitansky, Brinton, and Welch represented splendid research in their day, but that was thirty to seventy-five years ago. Even acute perforations were not always recognized post-mortem because of the accompanying generalized peritoneal infection. The clinical diagnosis of duodenal ulcer was even more chaotic until within a recent period. Ten years ago the statistics of three large hospitals showed almost no duodenal ulcers and varied in the clinical frequency of gastric ulcer with the same clientele from .13 per cent. to .48 per cent., both falling short of the post-mortem findings three to eleven times. In Germany the change of opinion as to the frequency of duodenal ulcer has been very remarkable during the last two years, their recent surgical literature showing a percentage as high as was shown in this country. These cases were not diagnosed in the past or they were called gastric ulcer, nervous dyspepsia, or hypochlorhydria. The modern view was the result of operating room findings. A large majority of ulcers in the vicinity of the pylorus which had been called pyloric ulcers were in reality duodenal. Gastric ulcers in the terminal inch and a half of the pylorus would probably be mistaken for carcinoma on account of the tumefaction due to edema and muscular hypertrophy. Our statistics showed 73 per cent. duodenal ulcers to 27 per cent. gastric ulcers. In typical duodenal ulcer the history was the most important diagnostic feature, the Roentgenogram second, the physical diagnosis including the use of the stomach tube third, and the laboratory diagnosis a poor fourth. Many duodenal ulcers gave atypical histories because of coincident disease of the gallbladder or appendix, so that a differential diagnosis at the operating table must be made in each case. Unless the duodenal ulcer could actually be demonstrated at the operating table, the operation should not be done. Symptomatic evidence could not be accepted to the contrary. The large majority of ulcers involved the first two inches of the duodenum and 83 per cent. were in men. Gastroenterostomy was the operation of choice. Excision combined with the Finney gastroduodenostomy was occasionally valuable to meet certain indications. Blockage of the pylorus was unnecessary unless there were symptoms of impending perforation or hemorrhage. The majority of the so-called recurrences of duodenal ulcers, after operation, were due to improper technique, especially to the use of continuous nonabsorbable sutures of silk or linen, which might cause a gastrojejunal ulcer, thickening of the stroma and adhesions and required many months before the thread was cast off. These patients usually obtained relief for some months following operation; the symptoms then recurred and were supposed to be due to dietetic errors. In cutting off more than 100 gastroenterostomies which had been made for sypmtomatic ulcer they had been wholly unable to find evidence of gastric or duodenal ulcer or that there had ever been one. Blocking the pylorus would not help to cure these patients who had been unnecessarily operated on. The scar left from the blocking introduced cicatricial changes which bore false testimony of the existence of an ulcer when re-operation was undertaken.

Chronic Duodenal Ulcer.—Dr. FRANK BILLINGS of Chicago considered the hematogenous infectious origin of this disease and said that chronic ulcers of the stomach and duodenum were properly named peptic ulcers. Pepsin required the presence of free hydrochloric acid to combine with and digest albumins. Free hydrochloric acid with pepsin was corrosive in action upon a granulated ulcer and tissues weakened by necrosis and malnutrition. Clinically, duodenal ulcer might be classed with chronic gastric ulcer located in the pyloric area; the symptom complex and medical management were practically the same. The principles of medical management included the removal of the sources of infection and the prevention of corrosion by the gastric juice. Surgery would correct the first. Rest, frequent feeding and the use of adequate amounts of alkalies would abolish the presence of free hydrochloric acid in the gastric juice and prevent further corrosion and permit healing to take place.

A Case of Severe Anemia with Leg Ulcer and Remarkable Blood Findings.—Dr. JEROME E. COOK and Dr. MEYER of St. Louis, Mo., presented this paper which was read by Dr. George Dock. The case reported was one of severe anemia with unusual red cell findings, occurring in a young mulatto girl. There was a complication of recurring, indolent, leg ulcers. The red cells showed the greatest degree of variation both in size and shape, giving the appearance as if many of the cells had been broken into fragments. But the most frequent abnormal type was the much elongated, curled red cell often more or less sickle shaped. Among the white cells an eosinophilia of varying and sometimes intense degree was the most marked feature. Two brothers and a sister, the other children in the family, were dead and all suffered from severe anemia. Two similar cases had been found in the literature, both cases being mulatto and both had a chronic type of leg ulcer.

Clinical Studies in Blood Transfusion.—Dr. E. LIBMAN and Dr. R. OTTENBERG of New York presented this communication. They stated that the real value of transfusions and the real indications for them were becoming better understood as a result of a large number of transfusions that had been done since Crile's introduction of direct transfusion. They had studied 212 transfusions in 189 cases at the Mount Sinai Hospital in New York. In typhoid fever, the results were exceedingly encouraging. Among seven transfusions done for typhoid hemorrhage, four were successful in relieving the immediate symptoms of hemorrhage. Two transfusions in protracted cases of typhoid exerted a very beneficial effect on the course of the typhoid itself and the authors recommended that in typhoid cases at the first indication of blood in the stools preparations be made so that a transfusion could be done at short notice if it should be necessary, and that in protracted cases of typhoid state, transfusion should be tried as a reviving effect on the patient. Possibly such transfusions would be more advantageous if a donor who had recovered from typhoid or who had been immunized against typhoid could be used. In the three cases of ectopic pregnancy seen by the authors transfusion was life saving. Among the most satisfactory transfusions in the whole series were some of those done preliminary to operation in patients whose desperate condition would otherwise have contraindicated any other operation. There were twenty-three such preoperative transfusions and in thirteen of them the result was decisive and the patients recovered. In shock, on the other hand, the results were very disappointing. The authors thought, however, that if shock could have been foreseen so that the transfusion could have been done immediately instead of after several hours delay in obtaining a donor, the results might have been better. Perhaps the best results in all the series of cases were those in the group of hemorrhagic conditions. The authors discussed those cases under three heads—purpura hemorrhagica, hereditary hemophilia, and symptomatic hemorrhagic diathesis. Of purpura hemorrhagica there were nine cases, all of them very severe, as no one had as yet advocated doing transfusions in the milder cases of this disease. Of the nine cases, six recovered completely and one left the hospital improved. The prompt cessation of the hemorrhage in most of the cases was very striking. The authors speculated as to what effect the blood transfusion might have had on this disease and pointed out that it was probably not due to restored coagulability (as it was in hemophilia), because in most cases of purpura the coagulability of the blood was not impaired. The two fatal cases of purpura hemorrhagica formed a peculiar group in that they were both cases of post-partum purpura hemorrhagica (in which the ordinary kinds of bacterial infection could be excluded). They suggested that possibly this was a separate type of disease with a pathogenesis different from that of the other cases. In hemophilia the transfusion treatment had an almost specific effect. In five of the six cases transfused the hemorrhage stopped promptly, and the coagulation property of the blood became practically normal. In the cases that were followed for some period of time, however, the deficient coagulability always returned after some weeks or months. On the basis of this observation the authors suggested a plan of prophylactic treatment for hemophilia. This was particularly important because, as was well known, hemophilia was a very fatal disease and the majority of persons afflicted with it never reached adult life. They suggested that every individual known to have hemophilia ought to have at his command several persons whose blood, by previous tests, was known to be compatible with his. Whenever serious hemorrhage occurred prompt transfusion should be done. Beside this a small intravenous injection (25-50 c.c.) of whole

blood should be given to such persons regularly at intervals long enough to have some continued effect. It was possible that if this was done the hemorrhage could be prevented and the majority of hemophiliacs able to lead a life of normal duration. In discussing the value of Weil's serum treatment in hemorrhagic diseases, Dr. Libman and Dr. Ottenberg were not in entire accord, though they believed that the serum treatment deserved a further trial. In almost all of the thirty-five cases which had been transfused for hemorrhagic disease, however, serum treatment had been tried out thoroughly before the transfusion and had had no effect. In various types of hemorrhagic disease secondary to other conditions in general transfusion helped to check hemorrhage, but only did so permanently if the original condition could be relieved. In cholemic hemorrhage the results were rather disappointing; only one of the seven cases recovered. They suggested that in these conditions the blood and the viscera were so badly damaged that only very large and possibly repeated transfusions so as to replace a very large part of the patient's own blood would be effective. They devoted considerable time to the discussion of pernicious anemia in which they had studied twenty-four cases. Thirteen of the cases underwent more or less prolonged remissions immediately following the transfusion. The cases which underwent remissions were generally cases of longer duration than the cases which failed to undergo remissions and the authors suggested that there were two types of pernicious anemia—one, a type with a rather definite onset and reaching a severe grade of anemia within three to six months, in which transfusion did little good; the other, a type with a less definite onset and slower progress, which tended to undergo remission spontaneously and in which new remissions could be brought about by transfusion. It seemed wise to do a large enough transfusion to overcome the anemia to a considerable extent because this tended to break the vicious circle caused by apparent degeneration resulting from the anemia itself. Nevertheless remissions sometimes occurred after small transfusions. The effect of the transfusion was remarkable on the general condition of the patient—the fever usually disappeared, the appetite returned, although apparently the hydrochloric acid did not return to the gastric secretion. In regard to pernicious anemia the authors concluded that transfusion was the best remedy and that though it never cured it led to remission in about half the cases. They recommended that if the first transfusion failed to bring about a remission one should be tried from a different donor, as they had seen two cases in which a second transfusion did bring about a remission. With regard to splenectomy in pernicious anemia they had seen two cases in one of which it was very successful, in the other not. They believed that splenectomy had about the same effect as transfusion, namely, brought about a remission, and that judging from the experience up to date it should be reserved as a final method of producing remission when transfusion would no longer do so. In leucemia, the results were interesting. In myelogenous leucemia and acute lymphatic leucemia transfusion was without effect, but in four of the five cases of chronic lymphatic leucemia transfusion was followed by a remarkable remission in which the blood picture returned temporarily to the normal. The ultimate outcome of course was not affected. In bacterial infections, transfusion was only of value in so far as it restored the general resistance of the patient. In cases of acute infection with pyogenic organisms of which the authors reported ten cases, transfusion was not of much value, but in protracted cases, particularly those of pyemia, transfusion sometimes produced remarkably brilliant results. In subacute bacterial endocarditis transfusion was of great value in combating the anemia and the general weakened condition. The authors suggested that in acute infectious diseases, particularly in those diseases in which no serum immunity had yet been demonstrated and in which it was therefore likely that the body cells (including the blood cells) and the carriers of immunity, transfusions be done from donors who had recovered and were therefore immune. This should be tried in malignant cases of the exanthemata. In gas poisoning, transfusion was almost a specific treatment and should be accompanied by phlebotomy. In diabetic coma it was useless. The authors then discussed certain technical questions which affected the indications for transfusion. They pointed out that by careful performance of the tests for hemolysis and agglutination of either donor's or patient's blood by the other, the danger of fatal accidents due to this cause could be absolutely excluded. They had had no such accidents in any of their cases in which this difficulty was so excluded, but had had three accidents in cases in which it was not. The danger of doing too large a transfusion was considerable, especially in cases where the heart action was already impaired. The amount of blood which ought to be transfused should be calculated out and strictly adhered to. The authors described two cases of serious accidents due to excessive transfusion. They discussed the methods of obtaining donors and stated that it was wise to have the donor, before transfusion, sign a legal form relieving the patient and the surgeon from liability. In discussing the question of the donor during the transfusion, they stated that fluids should be given freely, but that whiskey should be avoided as it seemed to cause vomiting when the patients became anemic. They discussed the various technical methods of performing transfusion and believed that the syringe method at present was best on account of the fact that it was very simple, and since it did not injure the vein could be repeated as often as necessary on the same patient.

The Treatment of Tetanus with Antitoxin Given Intraspinally.—Dr. MATTHIAS NICOLL, JR., of New York said that the best treatment of this disease was preventive. Magnesium sulphate and carbolic acid by Baccelli's method together with antitoxin was usually given. The results were frequently disappointing because it was given too late and in too small doses.

The Treatment of Acute Lobar Pneumonia by Specific Methods.—Dr. RUFUS COLE of New York presented this paper. He said that a study of the pneumococci isolated from cases of pneumonia indicated that these organisms might be divided into four groups. Two of the types were differentiated by immunological methods, and every member of each of these groups seemed to be identical with every other member of the same group, so far as immunological characters went. In Group III were placed the organisms which had been described as *Pneumococcus mucosus*. In the fourth group were placed, at present, all the remaining organisms. Each race of this group seemed to be distinct immunologically. The studies made at the Hospital of the Rockefeller Institute and at the Pennsylvania Hospital, in Philadelphia, indicated that about 35 per cent. of the cases of pneumonia were due to organisms of Type I, about 30 per cent. due to organisms of Type II, 5 to 10 per cent. due to organisms of Type III, and the remaining 25 per cent. due to organisms of Group IV. The cases due to the different types of organism differed in regard to severity. The mortality in the cases due to organisms of Type I was 25 to 30 per cent., to organisms of Type II 30 to 35 per cent., to organisms of Type III 50 to 60 per cent., or even higher, while the mortality in cases due to organisms of Group IV was much lower, probably under 10 per cent. It was evident from these studies that the determination of type of organism in the individual case was of considerable importance from a prognostic standpoint. Quite extensive studies had been carried on in the hope of isolating the toxin elaborated by pneumococci. If this poison could be detected it was possible that methods for overcoming its effects, either by chemical or biological measures, might be found. So far it had been impossible to detect the presence of poisons in cultures of pneumococci or in the body fluids of animals infected by them. It had been possible to show, however, that when pneumococci were placed in salt solution and allowed to undergo autolysis, or when the bacterial bodies were caused to undergo solution, either by addition of bile or by first freezing and then grinding the bacteria in salt solution, the extracts or solutions so prepared, when injected intravenously into guinea pigs, were very toxic. These solutions were also hemolytic, and by injection of these solutions into animals it had been possible to produce antihemolytic sera, but, so far, it had been impossible to produce sera which were able to neutralize the toxic effects of the solutions when injected into guinea pigs. The efforts, therefore, to produce antitoxic sera to pneumococci had not yielded promising results. It was not certain, however, that pneumococci produced their effects by the elaboration of poisons which might be isolated. Among the phenomena produced by pneumococci was the production of methemoglobin from oxyhemoglobin, when red blood corpuscles were added to the pneumococcus cultures. Studies of this reaction had shown that, for this reaction to occur, living pneumococci must be present and, in addition, a small amount of nutritive material. For this reaction to occur, therefore, the bacteria must be living and carrying on their

nutritive functions. No toxin could be found, however, either in the culture fluid or in extracts of the bacterial bodies, which was able to bring about this reaction. It seemed, therefore, that the reaction was caused by changes due to some modification in the conditions immediately surrounding the bacterial cells. If pneumococci could cause this reaction, merely by contact, and without the production of soluble toxins, it was quite possible that they might produce other effects on tissue cells in a similar manner. If the main effects of pneumococci upon the body were due to the action of the living bacteria, and not to toxins elaborated by them, it was quite probable that the only satisfactory serum for use in pneumococcus infections would be one produced by the immunization of animals to the living bacteria. Such sera had now been produced against organisms of Type I and Type II. It was impossible to produce an immune serum against organisms of Type III and since each individual race of the organisms belonging in Group IV was apparently distinct, it would be impracticable to produce an immune serum active against any large number of the organisms belonging in this group. At the present time, therefore, the only cases which experimental evidence would lead them to expect might be influenced by immune serum were those caused by organisms of Types I and II. In order to use the serum in these cases intelligently, however, it was necessary that, in each case, the type of organism causing the infection should be determined. An immune serum of Type II could do no possible good if the infection was due to an organism of Type I, and *vice versa*. Unless attention, therefore, was paid to the question of type, both in the preparation of the serum and in its administration, little effect could be expected from the use of antipneumococcus serum in the treatment of pneumonia. An examination of one antipneumococcus serum now on the market had shown it to be entirely free of immune bodies for organisms of Type I and Type II. Its use in treatment was, therefore, valueless. The results so far obtained in the treatment of cases due to the fixed types of pneumococci by the appropriate sera were promising, but much more experience must be obtained before any final judgment could be made.

Wednesday, May 12—Second Day.

Treatment of Poisoning by Bichloride of Mercury.—Drs. Samuel W. Lambert and Henry S. Patterson of New York presented this paper. They divided the symptoms of poisoning into (1) gastrointestinal irritation; (2) acute nephritis with suppression of urine; (3) secondary ulcerative colitis. In the treatment of the first stage, gastric lavage with exhibition of antidote was advised. In the second stage the prolonged use of the continuous rectal absorption by the drip method of solutions of the potassium diuretics; also daily lavage of the stomach and colon until there was a cessation of the secretion of the mercury by the stomach and intestine. The experimental investigations of the secretion of bichloride of mercury from the intestinal tract was given as an indication for the length of the treatment and they advised the application of Vogel's method of demonstrating the presence of mercury in the excreta. They gave the details of cases they had treated.

The Isolation of a Toxic Substance from the Blood of Uremic Patients.—Dr. Nellis B. Foster of New York said that accepting the hypothesis that uremia was a toxemia, the attempt had been made to isolate the specific toxin from the blood of patients with epileptiform uremia. This endeavor had been successful in that a substance, which caused death when injected into small animals, was separated from the blood of the seven cases of uremia studied. Eleven control bloods representing various diseased states other than uremia were also studied but none of these rendered a toxic body. The method of separation excluded, it was believed that errors due to manipulation of unstable protein complexes were present. The final product was recovered.

Intravenous Injection of Dextrose and Depancreatization.—Drs. I. S. Kleiner and S. J. Meltzer of New York presented this communication. When dextrose was injected intravenously into normal animals, it disappeared rapidly from the circulation, and the sugar content of the blood was, in a short time, quite normal again. In previous investigations they found that in depancreatized dogs there was a tendency for the circulation to retain for a longer period a part of the injected dextrose. In recent experiments it was further found that when, with the infusion of dextrose in depancreatized dogs, an emulsion of pancreas was simultaneously injected, the circulation seemed to lose its power to retain the injected dextrose. Finally it was observed and very recently that an injection of a pancreas emulsion in a depancreatized animal was apparently capable of reducing the hyperglycemia to the normal. The evident theoretical importance of these facts should not be discussed there.

Election of Officers.—*President*, Dr. Henry Sewall of Denver, Colo.; *Vice-President*, Dr. George Dock; *Secretary*, Dr. George M. Kober of Washington, D. C.; *Recorder*, Dr. Thomas McCrae of Baltimore, Md.; *Treasurer*, Dr. J. P. Crozier Griffith of Philadelphia; *Councillor*, Dr. Herbert C. Moffitt of San Francisco, Cal.; *Representative in the Executive Committee of the Congress of American Physicians and Surgeons*, Dr. Theodore C. Janeway; *Alternate*, Dr. Richard P. Strong of Manila, P. I.

Magnesium Treatment of Tetanus.—Drs. J. Auer and S. J. Meltzer of New York presented this communication. Of their recent experimental researches only the following facts should be mentioned here which had a practical bearing on the use of the intravenous method. A dog which received 250 to 300 minimal doses of tetanus toxin would probably be on the fourth or the fifth day after the injection in a most severe state of atypical tetanus. When such a dog received intravenously (jugular or ear vein) a 6 per cent. solution of $MgSO_4$ at the rate of about 3 c.c. per minute, in a few minutes a condition might be attained in which many or all the tetanic symptoms were abolished, while the respiration was still fairly satisfactory. The animal was not in danger from the magnesium, even if the respiration was fairly slow and shallow; the respiration improved immediately on discontinuation of the magnesium infusion. When by accident (or purpose) the respiration stopped entirely, an intravenous injection of a few c.c. of a 2 per cent. solution of CaCl, would bring the respiration quickly back and the animal was again out of danger, provided the calcium injection was begun while the heart was still fairly active. The striking inhibitory effect of an intravenous infusion of magnesium was only of a comparatively short duration, on account of the very rapid elimination of the magnesium salt from the circulation; however, the dangerous symptoms might be obviated for a much longer period. On the other hand, the antagonistic action of the calcium salts might be so effective as to bring back quickly every tetanic symptom which existed before the injection of the magnesium salts. Intravenous injection of magnesium had been recently tried in human cases; they would not discuss here the results or the correctness of the methods employed. On the basis of their recent experimental experience they wished, however, to formulate the following statement: The intravenous injection of magnesium salts was an unappropriate method for routine treatment of tetanus, in the first place, because the greatest part of the magnesium might leave the circulation before exerting any action upon the tissues concerned in the production and maintenance of the symptoms of tetanus. It was, however, a very good method to resort to in cases of tetanus manifesting symptoms of an immediately dangerous character, for instance, asphyxia produced by tetanus of the diaphragm or of the laryngeal muscles. The magnesium solution would then be infused until the severe symptoms subsided. It should be discontinued, at any rate, when the respiration became shallow and slow. A syringe containing a 2 per cent. solution of calcium chloride should be kept on hand, to be used immediately in case, by accident, the quantity of the infused magnesium was large enough to suspend the respiration. The injection of the calcium solution should be carried out slowly and continued only until respiration returns. When the procedures were carried out with proper care, they might render indeed an efficient service in cases of immediate need. Weintraud urged the demonstration of their magnesium calcium experiment on rabbits to larger circles of physicians, in order to impress them with the new knowledge acquired of the effects of magnesium and calcium. They might say that experiments on tetanic dogs, as they described them here, ought to make a still greater impression upon the minds of practitioners.

The Hygiene of Aviators.—Dr. George M. Kober of Washington presented this paper. He said that the combined effects of diminished atmospheric pressure and physical exertion in mountain climbing, characterized by palpitation of the heart, dyspnea, headache,

dizziness, faintness, extreme muscular fatigue, nausea, and occasional hemorrhages had been known for some time. These symptoms had been observed in persons not accustomed to a rarified atmosphere in altitudes of 1,500 to 2,000 meters, and higher altitudes naturally intensified the effect. While some of the effects might be due to diminished atmospheric pressure and deficiency of oxygen, muscular exertion and fatigue-toxins doubtless played an important rôle. This was shown by the fact that in the absence of physical exertion, the phenomena of mountain sickness were not observed in balloon flights until an elevation of between 4,000 and 5,000 meters was reached. Petard determined at these elevations a pulse rate of 114 and respiration 44 per minute. Schrötter found that serious symptoms were rarely observed in aeronauts until an elevation of 5,000 meters was reached. Beyond this elevation the pulse at first rapid, became small and irregular with more or less mental depression and the slightest muscular effort, such as unloading a sack of ballast was followed by faintness. Flemming and Steyrer in June, 1911, attained an elevation of 8,910 meters and experienced extremely grave symptoms, such as diminished cardiac and respiratory action, pulse almost imperceptible, cramps and trembling of the muscles, cyanotic countenance and unconsciousness, diminished mental and spinal sensibility symptoms, which urgently called for the use of oxygen inhalations. Most authors agree with Zuntz that, while these symptoms were caused by a deficiency of oxygen, the diminished atmospheric pressure also tended to produce a gaseous distention of the intestines, which impinged upon the diaphragm and thus seriously impeded the respiratory movements. Nausea with occasional vomiting was liable to occur at any elevation if the movement of the airship, in consequence of irregularities of the winds and eddies had become unsteady. The effects of aviation on the ear were characterized by a painful tension, ringing or buzzing noises, and impaired hearing. These phenomena were due to differences in atmospheric pressure and hence were more pronounced during sudden changes in elevation and after a rapid descent. The activity of the violet and ultra violet rays was greatly increased in high elevations, hence sunburns and severe forms of dermatitis were not uncommon, but there was no evidence that the sense of vision was in any way impaired, if protective glasses were worn. The effects of sudden changes in temperature and exposure to extreme cold, fog, rain, or hail and atmospheric electricity constituted hazards and were doubtless apart from mechanical injuries to the apparatus, a frequent cause of accidents. Among other occupational risks should be mentioned the possibility of gas poisoning. Prof. Glaister reported 16 cases of poisoning from arsenireted hydrogen gas, which occurred during the inflation or deflation of the balloon, of from leakage during balloon flights. Since the introduction of motors in dirigible balloons, new elements of danger had been added, such as gasoline explosions, breaks in the propeller, failure to get gasoline into the cylinder during a steep incline, etc. But the accident liability was not as great as generally assumed. According to Flemming in 1,713 balloon flights in Germany, in which 5,786 persons participated. 50 persons were injured; of these four or 0.07 per cent. resulted in death, 24 or 0.41 in serious injuries and 22 in slight injuries. The percentage of fatal injuries was very much greater among aviators. The statistics compiled up to August 7, 1913, showed that 342 aviators had been killed since 1908, when the first man lost his life. It was interesting to note that the physiological effects of diminished atmospheric pressure, upon the lungs, heart, etc., probably because of the more rapid flights of aeroplanes, were observed in very much lower elevations than in balloon ascensions. Cruchet and Moulinièr found at an elevation of 1,000 meters an increase in the blood pressure of between 30 and 40 per cent. with rapid action of the heart. These symptoms were not noted in elevations below 200 meters. None of the flights in that contest exceeded an elevation of 3,000 meters, and symptoms such as palpitation of the heart, earache, vertigo, etc., were especially observed in rapid descents. Flemming reported two cases of unconsciousness which occurred at an elevation of between 100 and 200 meters and which he attributed to the combined influence of cold, flatulent distention of the bowels and passive congestion caused by tight fitting clothing. Instances were cited which indicated that rapid descents after attaining great altitudes were fraught with special danger to the aviator.

The Relationship of the Pathological Histology and the Iodine Compounds of Human Thyroids.—Drs. Louis B. Wilson and Edward C. Kendall of Rochester, Minn., presented this communication and said that by decomposition of thyroid proteins the iodine compounds were separated into two groups. One was insoluble (designated A) and the other was soluble (designated B) in acids. Compound A produced toxic symptoms simulating exophthalmic goiter. In normal thyroids the total iodine was equally divided between "A" and "B" forms. In exophthalmic goiter the most active glands and those with the most diffusible secretion had their total iodine very low and the "A" fraction amounted to only 5 to 10 per cent. of the total. As the degree of activity became less diffusible, the total iodine and the "A" iodine increased to the amount and proportions found in the normal gland.

The Isolation in Crystalline Form of the Iodine-Containing Compound Occurring in the Thyroid: Its Chemical Nature and Physiological Activity.—Dr. Edward C. Kendall of Rochester, Minn., said that the thyroid proteins had been split into simpler products by an alcoholic hydrolysis. From a fraction insoluble in acid a crystalline compound containing 62 per cent. of iodine had been isolated. It appeared to be di-iodo-di-hydroxy-indol. This compound increased the rate and vigor of the pulse, increased metabolism and, in excess, produced symptoms simulating exophthalmic goiter.

The Relationship of Thyrotoxicosis to High Blood Pressure.—Dr. H. S. Plummer of Rochester, Minn., said that a review of the associated clinical and pathological evidence suggesting that thyrotoxicosis of a degree sufficient to produce clinical evidence might in time lead to hypertension.

(To be continued.)

Pathological Society of Philadelphia.

At a stated meeting held April 8 at the Medico-Chirurgical College, Drs. David Riesman and Joseph McFarland presented a specimen of "Carcinoma of the Stomach, with Metastasis of the Liver and Lung." In addition to the classic symptoms of malignant disease of the stomach and liver, jaundice was present. Post-mortem examination disclosed a much enlarged left lobe of the liver, with a fungating mass in the stomach and metatasis to the lungs. There was no obvious involvement of the biliary passages.

Drs. Joseph McFarland and Eugene A. Case presented a collection of "Monsters and Congenital Malformations," formed during the last ten years. There were several examples of acephalus, some associated with meningocele and encephalocele; one of fetus papyraceus; one of intrauterine amputation of extremities; one of congenital defect of digits of hands and feet, a similar condition existing in the father. Dr. McFarland exhibited also a plaster cast duplicating enormous hypertrophy of the three lesser toes and the outer part of one foot from a young man.

Drs. C. J. Stamm, George H. Meeker, and Joseph McFarland presented a communication entitled "An Enterolith from the Human Cecum." The patient presented a palpable mass in the right iliac fossa, in conjunction with symptoms of intestinal obstruction. The condition was looked upon as due to a neoplasm, but x-ray examination following bismuth ingestion by stomach and introduction by rectum disclosed a mass apparently in the bowel surrounded by bismuth. The possibility of the presence of an enterolith was suggested. Renewal of symptoms occurring at a later period, it was found impossible to introduce a tube for the administration of an enema, but digital examination disclosed a large firm obstructing body low down in the rectum, which was finally removed with some difficulty. On chemical examination the formation was found to consist mainly of magnesium phosphate. On inquiry it was learned that the patient had for several years been taking a proprietary preparation of milk of magnesia. The case reported was the only one that could be found in which an enterolith had been recognized and removed without operation.

Dr. Joseph McFarland presented (1) "A Psammosarcoma of the Dura Mater"; (2) "Two Cases of Intestinal Myiasis (a) Caused by Larvæ of Muscidæ and (b) Caused by Larvæ of a Syrphid."

Drs. J. W. Kennedy and Eugene A. Case presented specimens as follows: (1) "Sarcoma and Carcinoma of the Same Breast"; (2) "Sarcoma of the Breast"; (3)

"Congenital Cystic Kidney Removed at Operation"; (4) "Large Carcinoma of the Ovary"; (5) "Beginning Sarcoma in a Uterine Fibroid." Dr. Kennedy presented also an enterolith obtained from a patient who some time previously had had symptoms of perforation of the gall-bladder by calculi with escape into the bowels.

Dr. EUGENE A. CASE exhibited a group of specimens of "Gastric Ulcer."

Dr. J. HAMILTON SMALL exhibited a convenient form of "Easily Extemporized Tube-rack for Wassermann Tests." The device consisted of two wire baskets ordinarily used commercially as receptacles for letters and the like, and slipped one over the other, inverted and provided with a base or floor of wire of finer mesh. The apparatus is quite inexpensive and it has proved its utility practically.

Dr. HERBERT FOX presented a communication entitled "Hodgkin's Disease," representing part of a larger study of the question of diphtheroid microorganisms. He had found such organisms in various forms of adenopathy, but he had been unable to establish any specific relations between the one and the other.

Dr. M. B. HARTZELL presented a communication entitled "Histopathology of Benign Cystic Epithelioma." He showed by lantern slides how in some instances at least this neoplasm originated from the hair-folicles. The cavities present are not true cysts, being merely spaces not lined by epithelium and containing granular detritus.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading; but this is with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

MEDICAL CHEMISTRY AND TOXICOLOGY. The new (4th) Edition, revised. By JAMES W. HOLLAND, M.D., Emeritus Professor of Medical Chemistry and Toxicology, Jefferson Medical College, Philadelphia. Fourth edition, thoroughly revised. Octavo of 678 pages, 116 illustrations. Philadelphia and London: Published by W. B. Saunders Company, 1915. Cloth, $3.00 net.

SCHOOL LAWS OF PENNSYLVANIA. By NATHAN C. SCHAEFFER. Published by Wm. Stanley, Ray, Pa.; 172 pages.

PRACTICAL MEDICINE SERIES. Volume No. 1. By BILLINGS and SALISBURY. Published by Year Book Publishing Co., Chicago. Price, $1.50; 384 pages.

FEDERAL NARCOTIC RECORD BOOK. Published by Abbott Alkaloidal Co., Chicago; 120 pages; price, 25 cents.

AMERICAN SOCIETY OF TROPICAL MEDICINE. Published by Tulane University Press, New Orleans.

DISPENSARY CONTROL OF TUBERCULOSIS. Published by M. B. Brown; 37 pages.

MEDICINE IN CHINA. By The China Medical Commission. Published by University of Chicago Press; 113 pages.

DISEASES OF THE SKIN. By OLIVER S. ORMSBY. Published by Lea & Febiger, Philadelphia and New York. 1128 pages; price, $6.00.

INFECTION AND IMMUNITY. By CHARLES E. SIMON, B.A., M.D. Third edition, revised and enlarged; illustrated. Published by Lea & Febiger. Price, $3.25; 345 pages.

OVERCROWDING AND DEFECTIVE HOUSING IN THE RURAL DISTRICTS. By DR. HARVEY B. BASHORE. Published by John Wiley & Sons, Inc., New York; London: Chapman & Hall, Ltd. First edition, first thousand, 92 pages. Price, $1.00 net.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION. Printed for the Association, Philadelphia, 1914. Volume 30; 312 pages.

THE OPERATIVE TREATMENT OF CHRONIC INTESTINAL STASIS. By SIR W. ARBUTHNOT LANE, Bart., M.S. Published by James Nisbet & Company, Ltd., 22 Berners street, W. London, England. Third edition. Price, $4.00; 201 pages.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES. Proceedings of the twenty-fifth annual meeting, held at Chicago, February 17, 1915; 116 pages.

MOTHERCRAFT. By Sarah Comstock. Published by Hearst's International Library Company, 119 West Fortieth street, New York City. Illustrated. 214 pages. Price, $1.00 net.

Therapeutic Hints.

For Acute Radiodermatitis.—Dodd is credited with the following:

℞ Zinc oxide, 30 grams.
Phenol, 2 grams.
Glycerin, 4 grams.
Lime water, 240 grams.

M. et Sig.: For external use.—*Riforma Medica.*

Antipyrine and Aconite in Influenza.—Luigi Maramaldi states that Grasset recommends the administration of these two drugs, the former as a nerve sedative and the latter as a means of combating the initial catarrh of the respiratory tract. The following formula is given:

℞ Antipyrine, 2 grams.
Tincture of aconite, 12 to 15 drops.
Water, 90 grams.
Syrup of orange flowers, 30 grams.

Sig.: One teaspoonful every two hours.—*Giornale Internazionale delle Scienze Mediche.*

Drug Treatment of Albuminuria in Chronic Nephritis.—G. Rummo presents the following prescriptions:

℞ Gallic acid, 1 or 2 grams.

Sig.: This to be taken three times a day.

℞ Strontium lactate, 2 grams.
Distilled water, 120 grams.
Syrup of bitter orange peel, 30 grams.

Sig.: This is the amount to be taken in the course of one day and to be repeated for not more than three days.

℞ Crystallized calcium chloride, ½ to 1 gram.
Distilled water, 120 grams.
Syrup of vanilla or of raspberry, 30 grams.

Sig.: This should be taken in the course of one day.

In the parenchymatous type of nephritis the xanthine derivatives may be used to excite the activity of the renal epithelium. The following may be employed:

℞ Benzoate of sodium.
Theobromine, āā 2 grams.

M. div. in chart. No. vi. Sig.: One every six hours.

Agurin may be given in the daily dose of one gram.

The iodides of sodium and rubidium in conjunction with trinitrin are useful in the interstitial type of nephritis.

℞ Sodium iodide.
Rubidium iodide, āā 15 grams.

Ft. solutio saturata in aqua destillata. Sig.: 10 to 30 drops in water daily and gradually increased.

The nitro-glycerine is administered in doses of 3 drops of a 1 per cent. solution, not exceeding 12 drops in 24 hours.—*Riforma Medica.*

Intramuscular Injections of Insoluble Calcium Salts.—T. Silvestri finds that the insoluble calcium carbonate and phosphate injected intramuscularly are the best of the calcium salts for the prolonged calcification and hypercalcification treatment. For the purpose of an immediate effect, as in hemorrhage, oxalate poisoning, and tetany, the soluble calcium salts are best, in large doses, and preferably by the intravenous route.—*Il Policlinico.*

For Bright's Disease.—Brissemoret is credited with the following prescription:

℞ Gallic acid, 0.8 gram.
Theobromine, 0.7 gram.

M. et div. in pulv., No. iii. Sig.: These are to be taken in the course of one day.—*Riforma Medica.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 25.
Whole No. 2328.

NEW YORK, JUNE 19, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

CHRONIC PROGRESSIVE POLYARTHRITIS, OR ARTHRITIS DEFORMANS.

WITH A REPORT OF ONE HUNDRED AND FIVE CASES.*

BY SAMUEL W. BOORSTEIN, M.D.,

NEW YORK.

ADJUNCT ATTENDING ORTHOPEDIC SURGEON, MONTEFIORE HOME AND HOSPITAL; CHIEF OF ORTHOPEDIC DEPT., FORDHAM HOSPITAL, O. P. D.; CLINICAL ASSISTANT, ORTHOPEDIC DEPARTMENT, VANDERBILT CLINIC, COLUMBIA UNIVERSITY; ASSISTANT ORTHOPEDIST, MT. SINAI HOSPITAL DISPENSARY.

YOU are probably all interested to a certain extent in arthritis deformans, a disease which disables and cripples so many individuals and finally throws them a burden upon their relatives and the community. As is well known, patients of arthritis deformans are transferred to the orthopedist at a very advanced stage, after all ordinary medications have failed and the deformities are being increased. The general practitioner in disgust refers the patient to the orthopedist, feeling himself relieved of a pressing burden. It would be desirable that the general practitioner should begin the treatment in a proper manner. This will save the patient from getting deformed and crippled. The family physician, by starting the treatment early, will get better results than the orthopedist who is consulted at an advanced stage.

The reason why the family physician frequently fails, is that these cases are improperly diagnosed as rheumatism and treated as such till the typical deformities occur. The patient is then labelled as "an arthritis deformans invalid" or as a sufferer from chronic rheumatism, and is referred to a home for invalids to spend the rest of his life.

I may justly repeat the words of Goldthwait: "It is to these practitioners of medicine, to whom sufferers from joint diseases usually make their first appeal, that these studies are offered." It is my object to point out in this paper the important symptoms, latest etiological findings, and a short survey of the treatment of arthritis deformans, in order to give the general practitioner a clearer comprehension and a better understanding of the disease.

Most of these studies were made at the Montefiore Hospital for Chronic Diseases, where patients can be kept for rather long periods and thus afford the opportunity of careful study and observation.

Nomenclature.—The term "arthritis deformans," which was given to this disease by Virchow in 1869, is an unfortunate word, inexact, meaningless, and confusing. Any joint inflammation, acute or chronic, may lead to deformity and so even tuberculous and syphilitic arthritis might be included, which forms he never intended to be counted in this category. Most of the orthopedists have therefore discontinued the use of this name. The second name by which the general practitioner calls this disease is "rheumatoid arthritis" (a name given to it by Garrod in 1859). This term is still more misleading as this was probably the cause of confounding the ailment with rheumatism and thus led to saturating the sufferers with salicylates. These two diseases, rheumatism and arthritis deformans, can at present with more ease be differentiated and should not be confused. Another name, or rather misnomer, for the same affliction, is "chronic rheumatism." The use of this name is probable due to the fact that while the physician wrongly diagnoses it at first as acute rheumatism, he fails to check it. When the attack has lasted for more than six weeks, the physician as a rule, names it "chronic rheumatism." This term should, according to many authorities, be abolished altogether, as it is doubtful whether there exists such an entity. The term employed by most of the orthopedists and competent internists is "chronic progressive polyarthritis" or "chronic polyarthritis."

Definition.—It is a polyarticular affection beginning either acutely or insidiously, generally involving in a symmetrical manner the distal joints of the fingers and extending to other joints in more or less rapid succession. It is progressive but finally self-limiting, leading however to marked deformities.

Etiology.—(*a*) Sex—More prevalent in women, single more than married. In my series of one hundred and five cases, sixty-five are women.

(*b*) Age—More in adults; in only six cases of this series the disease commenced before twenty.

(*c*) Race—More frequent among white races. I have never seen it in colored people though I am in charge of a clinic where many patients are colored.

(*d*) Occupation and Station in Life—Have no appreciable influence. Those exposed to frequent traumas as dressmakers, etc., are frequently affected. It seems, however, that the frequent traumas are not the real cause but merely influence the kind of deformity. For instance, one of our patients—a dressmaker—used to keep the fingers of the right hand in a straight position while working and at present the ankylosis has stiffened her fingers in that position (Fig. 1). Another patient, a tailor, has the ring and little fingers of his right hand ankylosed in a flexed position for the reason that at work he kept them in that posture. Among the rich, the deformities are of a severer grade for the reason that the wealthy, having servants to attend to their needs, allow their joints to be kept in the easiest position and thus permit their muscles to contract and cause the deformities.

(*e*) Heredity—Has no influence.

(*f*) Fear, Grief, Great Nervous Shocks, and Mental Strain—Seem to have some doubtful influence, perhaps by reducing the power of resistance

*Read before the Medical Society of the Borough of the Bronx, Jan. 13, 1915.

of the patient. In many cases where there was no history of a mental strain or shock—as the patient himself related on first inquiries, subsequent examinations made him find some history of nervous influence. In my experience this happened particularly with patients of a race characterized by a nervous temperament. This shows how one must be careful in interpreting the history of a nervous patient.

(*g*) The Gastrointestinal Tract—Is probably responsible as a predisposing factor and also for keeping up the ailment. It is known that the products absorbed from ordinary bacterial action in the small and large intestines—under pathological conditions (without any new pathogenic bacteria) are causes of joint irritation (Marshal). This gives the class of diseases known as "myositis" and "myalgia," but not arthritis. Ptomaines circulating in the blood may irritate the joints, as proved by the fact that the eradication of ptomaine infection from the gastrointestinal tract has relieved joint pains. This was lately brought to light by the excellent studies started by Sir Arbuthnot Lane on intestinal stasis with the result of the new operation of short circuiting the colon. Visceral displacements causing indigestion have been accompanied by joint disturbances, as emphasized especially by Goldthwait in recent articles. We must not conclude, however, that every patient of polyarthritis has intestinal displacement. Conversely, there are many patients who do have intestinal displacements and show intestinal stasis (as proved with the aid of the latest duodenal methods and *x*-ray studies) who still have no signs of chronic polyarthritis. Elliott, in studying the *x*-ray findings of the intestines in many of the patients included in the series, found deviations from normal in 88 per cent. of the patients examined. He admits, however, that the condition of the intestinal tract cannot be regarded as the sole etiological factor. Many of these abnormalities might have been acquired. "There is however in most of these cases a delayed and sluggish intestinal action which results from a low grade of intestinal musculature and diminished abdominal pressure. The tract is probably an important contributory factor, feeding the malady when the latter has once been localized in the joints. The gastrointestinal tract contains the chief contributing feeder." (Elliott).

(*h*) Ductless Glands—Hyperactivity or disturbed activity of the organs and glands of the body seem frequently to be the cause of joint irritation. This is sometimes noted after pregnancy, in thyroid, pituitary, and pancreatic disturbances. Many of our patients (26) date this disease from the cessation of ovarian activities, *i.e.* the menopause. The arthritis of diabetics may also be classed in this category. The ductless glands surely play some part in disturbed joint function, whether directly or indirectly through general disturbance, but as the physiology of these glands is not clear as yet, we need not consider in detail their pathology.

(*i*) Metabolism—In real progressive polyarthritis, disturbed metabolism plays no part. Much study has been devoted to metabolic disturbances in this disease. Goldthwait and his collaborators found no definite change in calcium, magnesium, and the phosphates. Marshall on the contrary found changes in the amount of creatin, creatinin, and calcium. Pemberton has also made metabolic studies and reports some changes. It seems that the results of all these investigators are not uniform. They probably have not studied the same class of patients. There is, as Nathan has shown, some form which may be classed as distinct "metabolic osteoarthritis," but the number of cases placed in this division is diminishing all the time as our knowledge of the subject is increasing. We can justly predict that in the near future we shall be able, even by the symptoms, to recognize the class of patients in whom metabolic changes are responsible for the disease. In this present article I shall limit myself to such types in which metabolism evidently plays no part.

(*j*) Trauma—In chronic progressive polyarthritis trauma plays a very insignificant rôle as a cause. It perhaps influences the kind of deformity, as has been explained before. There is a class which presents the same pathological changes but is due entirely to trauma. This class is known as "traumatic arthritis," or "arthritis deformans statica" (of Preiser). Recently a theory has been advanced by Preiser of Hamburg, according to which many cases of arthritis deformans are due to an abnormal static condition of the body. The pelvis, thigh, leg, and foot form one static unit and the same applies to the upper extremity. A disturbance in a part of a static unit is felt not only locally but also in all the joints belonging to this unit. There is produced "a pathological incongruence" of the joint surfaces throughout the whole static unit. In such states, the joint structures which are more exposed to trauma have great interference with nutrition, probably from compression of the bloodvessels and nerves supplying them. Gradually the important changes of arthritis deformans appear. This explains the reason for pathological changes in the knee and hip joints and even spine in cases of flat foot and the immediate relief obtained by plates which correct the flat feet. Any mechanical injury to the joints, whether irritation, pressure, overwork, static, or insufficient circulation due to some old injury, as well as muscular weakness and likewise a difference of muscular pull; in short, anything which disturbs the nutrition of a particular joint or set of joints may become a cause of arthritis deformans statica.

The class of arthritis deformans statica can be easily differentiated from the cases of chronic progressive polyarthritis. Only in a few instances cases may be found that are on the border line; the number of these border-line cases is really small and we need not elaborate on them at present.

(*k*) Specific Cause—By far the majority of observers and investigators are now of the opinion that chronic progressive polyarthritis is infectious in nature. The term "infectious" is used here in a general sense, *i.e.*, aside from the cases in which the infection is found in the joint directly, it includes cases where there are minute foci of infection distant from the joint. In these latter cases there is in the joints a continuous bacteriemia of low grade. Under the term "infectious" are also justly included cases which appear to be complications or sequelæ of other infectious diseases, such as arthritis following influenza or scarlet fever.

Let us first consider the secondary infectious cases, *i.e.*, where the causal organism is supposed to be in a distant focus. Among the culpable distant foci are placed: chronic inflammation of paranasal sinuses (including the antrum of Highmore), chronic abscess, chronic bronchitis, chronic ulcerative enteritis, chronic appendicitis, cholecystitis, chronic pyelitis, chronic cystitis, chronic urethritis,

prostatitis, chronic salpingitis, and chronic endometritis. Crow and Soltau, of London, have isolated a staphylococcus from the urine of arthritic patients which they consider to be the main invader of the joints. Thus we see that the blame of arthritis has

Fig. 1.—Case LXXII. A. A. Single, dressmaker. Attack began at 36. Most of the joints ankylosed. Hands show marked wastings of the muscles. Fingers are straight or linear type and ankylosed in that position. This was the position in which she kept her fingers while attending to her work. Notice the marked anæmia. Elbows are ankylosed in that position.

been put on every organ of the body and the organisms causing the diseases of those organs are supposed to be the factors of the arthritis.

There are many experiments recorded in the literature where the contents of a focus of a removed suspected organ or gland (for instance, tonsil) of a patient suffering with chronic progressive polyarthritis were made into an emulsion and injected into the ear of a rabbit or dog. The animal later on developed arthritis. There are also incidents where cultures were made from pus obtained from tooth cavities and vaccines prepared. The patient was watched and in case he developed arthritis, a complement deviation test was made for the organisms of the teeth previously examined with the serum of the blood of the patient. In most of these cases the organisms were found to be the same (Camac).

Now we can turn our attention to the cases of primary infectious arthritis or those in which the bacteria are supposed to be primarily in the joint itself. The organisms found occasionally and directly in the joints of these patients are pneumococcus, gonococcus, streptococcus (of puerperal infection), *Bacillus Welchii*, staphylococcus, and *Streptococcus viridans*. E. C. Rosenow by improved methods has succeeded in isolating peculiar streptococci from the excised lymph glands draining the involved joints, from the contracted and diseased and adjacent muscles, and from excised portions of the diseased capsule of the joint itself. These organisms were isolated from nearly all the cases examined. In some cases the same organism has been isolated at the same time from more or less widely separated regions. Many of these organisms have shown a marked affinity for joints and muscles of dogs and rabbits. In some cases the lesions would closely parallel the condition found in the patient from whom the strain was isolated. From these findings there seems to be little doubt that the bacteria found in the glands draining the joints in chronic progressive polyarthritis are the actual cause of the disease. Parenthetically, your attention may be called to the recent observations by Rosenow and D. J. Davis, that the microorganisms present in any focus may be a changed form of bacteria found in another focus. Thus the organisms of these glands are possibly the changed form of those found in distant foci.

It is hoped that in the near future the orthopedic studies carried out at present with such great zeal will throw enough light to enable us to distinguish between (1) the certainly non-infectious cases, (2) the possibly infectious, (3) the probably infectious, and (4) the demonstrably infectious. An attempt was made to make such a division in this series of cases, but with the means at present available the division is incomplete, and so the cases were divided into groups 1 and 2. Eighty patients were thus classed in group 2.

In concluding the discussion of etiology, we ought not to hesitate to consider these cases of arthritis as infectious, though we are not always able to demonstrate the invading organism. We are placing scarlet fever and measles in the category of acute infectious diseases, though their microbic origin still awaits demonstration. All these patients of polyarthritis on careful inquiry will show fever, leucocytosis, and enlarged lymph nodes, and should be regarded as afflicted with an infectious disease (Barker). Excluding those cases which are distinctly due to trauma and are placed in the class of traumatic arthritis, it has been proved beyond doubt that the predominating etiological factor in chronic progressive polyarthritis is infection.

Pathology.—Differentiation of cases of chronic arthritis according to the pathological and anatomical changes met with in the joints is very complicated. Some have divided the cases according to the part of the joint involved as periarthritis, synovitis, etc., while others have divided them according to the nature of the lesion, *i.e.* degenerative and productive. The great confusion of the pathological

Fig. 2.—Case LIII. A. L. This patient shows the flexion of the knees caused by prolonged sitting in a wheel chair. The knees were later straightened. The spine is also flexed. The fingers show dislocations and ulnar deviations. The right hand shows Charcot's extension type, while the left—the straight type. The skin of the feet was covered with a slight eczema which cleared up later on.

findings is probably due to the fact that most of these cases which have been studied are far advanced. The early cases go to the general practitioner, who may miss the diagnosis and treat them as ordinary rheumatism. Unless the general prac-

titioner is willing to assist the specialist, the study of this disease will not be satisfactory.

I will not burden you with the minute anatomical differentiations. Suffice it to say that almost all the structures of the joints show changes. The joint

Fig. 3.—X-ray of patient shown in Fig. 2. Skiagram shows: (1) Subluxations. (2) Loss of cartilage. (3) Considerable loss of bone and joint destruction. (4) Marked bony outgrowths at the distal ends of the metacarpals, distal and proximalphalanges of thumb. (5) Great irregularity of many of the phalangeal joints with new bone deposit. (6) Spur at the distal and proximal phalanges of thumb. (7) Transparent areas especially marked at the mid-proximal interphalangeal joint of fifth finger. (8) Coalescence of the carpal bones (ankylosis). (9) Many of the interphalangeal joints show bony ankylosis. This radiogram shows clearly that atrophy and hypertrophy go hand in hand. (Courtesy of Dr. Elliott.)

capsule may either shrink or relax, and so we get certain deformities due to this and to muscular contractures with secondary flattening of the bones. There may be thickening of the fibrous tissue, localized edemas, or actual effusion into the joints. The cartilage may be thickened or thinned, smooth and homogeneous, or rough and fibrillated. It may be broken up or divided into layers more or less distinct. The bone itself may show atrophy and absorption, or, on the contrary, may show marked proliferation and hypertrophy with exostosis. Painter and his collaborators tried to divide arthritis deformans into two classes: (1) atrophic—where the bone shows atrophy; and (2) hypertrophic—where new bone growth and exostoses are found. In reality there cannot be so distinct a division. From careful radiographic studies and examination of postmortem specimens of some cases in this series, Dr. Elliott and myself have shown clearly* that atrophy and hypertrophy go hand in hand. We may find in the same patient atrophy in one joint and hypertrophy in another. We may even find both changes in the same joint.

The blood-vessels around the joint show marked proliferation of endothelial cells or a complete plugging of the blood-vessels with a consequent anemic necrosis. Bacteria have been found in these areas of endothelial proliferation. Rosenow states: "We are justified in concluding that the micro-organisms are taken up from the circulation by the endothelial cells which proliferate freely so that eventually the blood supply is reduced or cut off, in consequence of which there result areas of lowered oxygen tension, diminished nutrition, and atrophy." . . . "Such conditions would favor the growth of organisms which on isolation are sensitive to oxygen." Oxhausen, of Berlin, has produced aseptic osteochondritis resembling arthritis deformans by ligating the arteries supplying the joint tissues—thus proving that there may be bacterial emboli which deprive the joint tissues of nourishment. Arterial sclerosis is usually present, which has given rise to the theory that the arterial sclerosis is the primary cause of this disease.

It is to be remarked that among the men who have done excellent work in the pathology of this disease some New York orthopedists—notably Nathan—have played an important part.

Radiographic studies furnish valuable assistance as to the condition of the bones and cartilage as well as the synovial membrane and the soft parts surrounding the joints. We can see at once the presence or absence of: (1) Periarticular swelling; (2) Narrowing of the joint slits; (3) Atrophy or destruction of cartilage; (4) Luxations and subluxations; (5) Erosion of the articular ends of the bone; (6) Rarefaction or condensation of bones; (7) New bone connected with the articular ends entering into

Fig. 4.—Case VII. C. L. Disease began at the age of 50. Patient shows marked anemia. The fingers show the globular shape swelling at the proximal-interphalangeal joints, also the beginning of Charcot's flexion type.

the joint; (8) New bone formation separate from the joint; (9) Distortion of bone due to softening and pressure; (10) Subperiosteal swellings; (11) Fibrous or bony ankylosis; (12) Cysts; (13) Transparent areas; (14) Tophi; (15) Calcified free bodies; (16) Calcification or ossification of ligaments; (17) Lime deposits in bursæ.

Symptoms.– Since we have not gone into details

*The specimens and the radiographic plates were shown at the American Orthopedic Association at the annual meeting in 1911.

of classification, we cannot give a very clear survey of the symptoms characteristic of every class separately. I will, therefore, describe the symptoms in general. As pointed out before, most of the cases

Fig. 5.—Case CIV. A. H. Spine and extremities are involved. The position of the spine, the deformed fingers, the swollen ankles and knees are very clearly shown.

are infectious; we will thus take this class as an example.

The small joints of the fingers and toes, wrists and ankles are first involved. Later the knees and elbows may be attacked. The hips and shoulders frequently escape. The spine in this class under consideration is hardly ever affected. Infrequently only one joint is attacked, when it is called "monoarthritis." The small joints of either both hands or both feet are usually involved symmetrically. In my series of cases, the joints first involved were as follows: fingers, 10; toes, 5; wrists, 40; ankles, 4; knees, 18; elbows, 6; shoulders, 11; hips, 9; spine, 1; mandibular joint, 1; monoarthritic cases, 5.

The disease begins either insidiously or with an acute or subacute stage with fever. Sometimes the patients cannot recollect having had fever, but on careful inquiry such a history can be obtained. Many patients with fever walk around without the slightest suspicion of having an elevated temperature. Of this group, 59 patients gave a distinct history of fever. There is more consistency about the history of swelling at the onset (in seventy-eight cases). Each joint of the proximal row of the interphalangeal joints often presents a fusiform appearance and feels elastic when compressed between the thumb and forefinger of the examiner. Redness may be present, which frequently contributes to the wrong diagnosis of rheumatism (only forty-nine gave a history of redness). Pain is very severe. In the beginning the patient may complain of weakness of the muscles, later on he has crampy sensations, then actual pain. The pain is increased on motion as well as at night. In some patients, particularly in women near the menopause, the onset is very insidious. These old women complain at first of formication, of chilly feelings, and of slight stiffness at the metacarpal phalangeal joints. In almost all patients with infectious arthritis muscular atrophy quickly appears, especially of the interossei. (Figs. 1 and 5.) Contractures and deformities gradually develop. (Figs. 2, 5, 7, 8 and 9.) Many joints become ankylosed, while, on the contrary, some will be very lax and show upon examination a great deal of crepitus. (Case I and Case II.) We cannot predict in advance whether a certain case will end in ankylosis or not, nor has our present knowledge been advanced as to explain the reason of the occurrence of ankylosis in some and laxity in others.

The hand may become deflected ulnarward. The fingers present either the "straight type" of the deformity where they are in a straight position (Fig. 1), or "flexion" or "extension" types of Charcot. In the flexion type, the phalanges of the second row are flexed on the proximal row while the terminal phalanges are hyperextended on those of the second row. The proximal phalanges are flexed on the matacarpals and the carpus upon the forearm. (Figs. 5, 7, 8.) In the extension type the phalanges of the middle row are hyperextended on the proximal row, while those of the distal row are flexed. (Fig. 2.)

Fig. 6.—Same patient of Fig. 5, showing the elbows with marked hypertrophic overgrowths.

Long quiescent periods are the striking feature in this disease. (Case II, for instance, felt perfectly well for nine years, when a second attack set in.)

In children we also find a large spleen, large lymph

glands, leucocytosis, and secondary anemia. This used to be called "Still's disease," but at present it is not placed as a separate class. The findings in Still's disease simply strengthen the theory that this affection is due to chronic infection.

FIG. 7.—Case I (Record Case No. XXI). This picture was taken at the age of 16, on admission to the Montefiore Home. The lifeless expression of the face is somewhat characteristic of this disease. Compare this with Case II. The elbows were contracted in this position. The fingers show the dislocation of the little phalanges on the proximal ones. The carpus is flexed, contour of the wrist joint is absent.

The most characteristic point about chronic polyarthritis is that the disease is self-limiting and very often comes to a standstill even if nothing is done to check it. But, of course, the deformities are present and are increasing, due to the muscular contractions and pressure upon the bones.

Differential Diagnosis.—There are many diseases from which chronic progressive polyarthritis is to be differentiated, but I will mention only the important ones with which it can easily be confused. These are acute rheumatic fever and gout. Acute rheumatic fever is also an acute febrile polyarthritis, but the affection shifts from joint to joint instead of affecting the joints simultaneously and symmetrically as in chronic progressive polyarthritis. The patient has a very high fever, acid perspiration, and marked tenderness of the joint. The swelling is present in the soft tissues rather than in the joint itself. Rheumatic fever is frequently complicated by endocarditis, pericarditis, and chorea. The joint attack usually ends in recovery without residual joint changes. Rheumatic fever in reality has been shown by Paine and Poynton to be an infectious disease and is probably due to a primary infection of the throat with secondary invasion of the blood with the virus and metastatic joint involvement.*

The second disease with which it can be confused is gout. The latter is characterized by a sudden onset, begins first in the feet and more particularly in the big toe. The pain in gout is excruciating and severe. There is no symmetry which is so characteristic in arthritis deformans. Later on the tophi and uratic deposits appear. A metabolism test, where possible, will decide the diagnosis.

Prognosis.—Considering this disease as infectious and self-limiting, we cannot regard the prognosis as unfavorable as formerly held. If the infection is found and cleared, the disease will stop progressing. But even in the far advanced cases a great deal can be done to alleviate the pain, check the disease (?), make the patient more comfortable, and in many cases allow him to walk unassisted and even return to his occupation. The treatments must be carried out patiently and energetically for years and will certainly compensate the efforts. The slow progress of the improvement frequently fatigues the attending physician sooner than the sufferer. These cases are, of course, more efficiently treated in an institution away from home surroundings.

Treatment.—I shall give only a brief survey of the treatment of those cases. The results of the various modes of treatment were concluded from patients treated at the Montefiore Home and Hospital for the last three and a half years and in private practice, but not in clinics with which I am connected. Thus the effects were watched more constantly and carefully. In previous articles (MEDICAL RECORD, February 10 and September 14, 1914) I have reported in full how the treatments are carried out at the Montefiore Home, and I refer the interested reader to those. The accompanying chart shows how the record of patients is made when they enter the orthopedic department. Such record cards can easily be kept even in private practice.

Form of Record Used.

CHRONIC POLYARTHRITIS.

1. Name..... M.F. S.M.W. Age.....
   Date..... Case No.....
2. Address..... Occupation..... Nativity.....
3. Financial Conditions and Hygienic Surroundings....
4. Atmospheric Influences: Exposure to Cold and Wet..
5. Age at onset.....
6. Family History: Rheumatism, Gout or any joint disease .....

FIG. 8.—Case II (Record No. XVI). Taken four months after admission to the Montefiore Home. The face is somewhat similar to Case I. Patient is still confined to chair. The deformities of the fingers are clearly shown to be of Charcot's flexion type. The five deformed fingers are ankylosed in that position.

7. Predisposing Causes: Worry, Anxiety, Mental Strain, Trauma, Static Disturbances, Debilitating Disease, Disturbances in Internal Secretions, Purulent Infections, Gastrointestinal Tract.
8. Exciting Causes: Fecal Infection, Cold, Trauma, Intercurrent Disease.

*The term "rheumatism" has been greatly misused and the orthopedists as well as the pathologists are agitating the abolition of this designation.

9. Initial Symptoms: (*a*) Joints first involved—(*b*) Fever—(*c*) Redness—(*d*) Swelling—(*e*) Pain.
10. Objective Findings: (*a*) Mouth: Teeth, Gums, Tonsils, Tongue—(*b*) Circulatory System: Heart, Blood Vessels (Sclerosis), Blood Pressure, Pulse—(*c*) Lymphatic Glands and Fibrous Nodules, especially near the involved joints—(*d*) Nasal, Eye, Ear and Genitourinary Examination—(*e*) Digestive System: Bismuth Test (if possible) for displacements and Visceroptosis—(*f*) Muscular System: Atrophy, etc.—(*g*) Static disturbances—(*h*) Skin and Appendages: Nails, skin (pigmented or not, glossy or not)—(*i*) Joints Involved, Description, etc. (A Careful Description of All the Involved Joints With Pictures and Measurements—(*j*) Ankylosis (fibrous or bony).
11. Clinical Examinations (if patient is in a hospital)—(*a*) Temperature—(*b*) Blood Count—(*c*) Wassermann—(*d*) Complement Fixation Test—(*e*) Urine Analysis—(*f*) Gastric Analysis—(*g*) Feces Examination—(*h*) Bacteriological Examination of Glands Draining the Joints, etc.—(*i*) X-Ray Findings.

General Treatment.—There should be no routine treatment for all the patients. Each patient with chronic progressive polyarthritis should be investigated carefully. In undertaking the treatment there should be team work between the internist and all the specialists, including dentists. Keeping in mind

Fig. 9.—Case IV (Record No. LXVI). E. C., taken at the age of 37. The swelling of the feet is enormous with marked valgus. The wasting of the muscles is also clearly seen. The knees are ankylosed at that position.

that the etiological factor is infection, we must make a systematic examination of all the orifices of the body: the mouth, teeth, nose, ear, gastrointestinal tract, and genitourinary tract. If there is any suspicion of an offending factor, it should be eliminated. An offending tonsil or bad tooth, etc., should be attended to, but we should not be in haste to conclude that if the bad tooth should be removed, the arthritis would be cured, as many want us to believe. Worry, nervous frets, and all excitements should be prevented. Here we can see the benefit of treating the patient in an institution away from the hustle and bustle of life, as well as from family tenderness. Gastrointestinal indigestion should be corrected. If the patient is in an institution where bismuth radiograms of the intestinal tract can be taken it is advisable to do so and find out whether there is any visceroptosis and evidence of stasis. Visceroptosis can be controlled by belts and corsets and proper support to increase abdominal pressure; but as far as Lane's short-circuiting the colon, one need not be in a hurry, as the results have not been reported as favorable as might have been expected. For constipation mild laxatives might be used. Liquid paraffin will be of benefit here as in all other costive cases. Patients may receive for a short time colonic irrigation and enemas. The functional activity of the liver, pancreas and gastrointestinal secretions must be studied and the cause of the nutritional disturbance be removed. If some deficiency is found, it may be advisable to use pepsin, trypsin and pancreatin. Some observers have found a diminution of hydrochloric acid in the gastric secretion. It may therefore be recommended to give the patient the benefit of hydrochloric acid administration. Parenthetically, it is to be remembered that hydrochloric acid is a good intestinal disinfectant and also kills the mouth organisms, and thus a twofold benefit is obtained from the use of it.

Diet.—Most of these patients suffer severely from anemia. This anemia is probably aggravated by the fact that their attending physicians have forbidden them to consume red meats and thus the anemia has increased. (See Report of Case III and Fig. 4.) The patient must get a full and nutritious diet. Let him eat whatever agrees with his digestion and causes no intestinal fermentation. Urge him to increase his weight by the ingestion of a wholesome amount of digestible food whether or not that food includes meats, starches, sugars, or fat. It is not necessary to remind you of the experiments carried out by von Noorden and his collaborators, which showed clearly that there is no difference between red and white meats. The difference is the way the meats are prepared. For instance, roast meat contains more proteins than soup meat. The increased nutrition will increase the resistance power of the patient and so combat the invading organisms whether they are known or not known.

Local Treatment: (*a*) Immobilization—Should an acute joint be immobilized or not, is a question for careful decision. Some advocate immobilization for a short time, maintaining that this will almost produce a cure. The opponents, on the contrary, show that the joint may become stiff and thus really injured. We must also keep in mind that a plaster of Paris splint, as brought out by Lovett, causes atrophy, and thus immobilization has another harmful effect. We need rather to promote tissue metabolism. While I have used immobilization and have seen the good effects, still I always keep in mind that there are many patients in the Montefiore Hospital who give a distinct history of getting stiff joints after these have been kept in plaster for a few weeks. (See Case III.) According to our findings, it is best to put on only one-half of a plaster splint, which has the benefit of immobilization, allows inspection of the joint, and does not cause atrophy and stiffness. It also gives a chance for the application of other local treatments in addition to rest. The immobilization may be left on from four to six weeks.

(*b*) Active Hyperemia—by means of dry hot air or baking—is very beneficial. Best is to use an electric heated apparatus. The temperature should be brought up to 250°-300° F., and limb kept in there for thirty to forty minutes. Baking has an excellent effect to relieve the pain and can be used in the acute and subacute cases. In the latter or in cases where the active inflammation has subsided, hot air treatment should be followed by massage. The benefits of this active hyperemia can be summarized as follows: (1) It increases the circulation of the joint. (2) The increased circulation causes

a leucocytosis which combats the disease. (3) It favors absorption of chronic exudates. If the general circulation is poor, the baking should be done under careful supervision and not so frequent or prolonged, in order not to debilitate the patient.

(*c*) Bier's Passive Hyperemia—By means of an elastic bandage is of great benefit. We have used it extensively and found that the pain and spasm was relieved, thus allowing better motion and easier massage. It should be started by using it for two or three hours a day, increased gradually, till finally it can be left on for twenty-two hours daily, taking it off for one hour twice a day when the limb is raised to allow return of circulation. It should not be used in case of patients with old sclerosed arteries. Those desiring to get a full conception of the theories and methods of application of the different forms of Bier's hyperemia should consult the special treatise on the subject by Meyer and Schmieden.

(*d*) Electric light baths have been used at the Montefiore Hospital to a great extent. We found that the light together with the heat is of extensive value. The patient should remain in the light bath for about twenty minutes.

(*e*) Massage—This is of greatest value if it can be carried out properly, *i.e.* without causing pain to the patient. As long as there is still redness and inflammation, no massage should be used. When these subside, massage is the strongest combating agent. It improves circulation, prevents deformities and atrophy and corrects any deformity present. The massage should be given only three times a week, and then mostly to the muscles and not much to the joint itself.

(*f*) Exercises, active and passive, with and without Zander's machines, should be started as soon as acute symptoms subside.

(*g*) Various electrical stimulants to the spine and joints do more good psychically than actually. Faradism and galvanism may be of use in the atrophied muscles. We have used also the static and high frequency, which we found of little practical value.

(*h*) Hydrotherapy has been used from time immemorial and is certainly of actual benefit. The steam boxes followed by cold douches are especially useful in cases where many joints are involved.

(*i*) Medications—All forms of salicylates, even aspirin, should be avoided. They upset the digestion and make the condition worse. Only those medications aimed to promote digestion, proper bowel activity, proper circulation and proper character of the blood should be used. It is therefore advisable to give strychnine, arsenic, iron preparations, phosphates and even cod liver oil. Tincture of gelsemium *mv.* (0.3 c.c.) t.i.d. may be used to relieve temporarily severe pain. If intestinal putrefaction is present we may use guaiacol carbonate or hydrochloric acid as intestinal disinfectants. None of the various lithia salts and none of the various laxatives and alkaline waters have any specific action. Radium water, radium baths, and radium emanations are reported by Wachsmann as not having been of service at the Montefiore Home.

(*j*) Glandular extracts of almost all ductless glands of the body have been used. Many report great benefits, but it seems that the good results are reported by the enthusiastic pioneers and are not so favorably reported by others. Among the glands used are: thyroid, parathyroid, thymus, ovarian, testicular, and pituitary. (Some have been administered by mouth, others subcutaneously or intravenously.) I have used all of these, and in my opinion they are of benefit only in those cases where one gland proved to be affected by other symptoms besides the joint findings. If one determines to use any of these he should use it for a very long time before he decides that the patient has not been benefited by it.

(*k*) Vaccine Treatments—Since the "infection theory" has gained so many adherents, the natural turn was for vaccines and we find already a great deal in the literature about the benefit derived from their use. Vaccines have been prepared from the pus pockets around the teeth, nose, nasopharynx, ear, intestinal tract, and genitourinary tract. Crowe and Soltau have isolated a staphylococcus from the urine from which they prepared a vaccine. The use of vaccines from any pus cavity of the body is certainly illogical, as we are not certain that these organisms are really the cause of this particular joint trouble. There may be pyorrhea, otorrhea, vaginal discharge, or what not, but it does not follow that the organisms in any of these are really the cause of the joint lesions. We must also bear in mind Rosenow's findings that the microorganisms present in the lesion may be quite different in character from the germs found in the focus of infection at the same time. The organism might have undergone change. Hasting's work in employing suitable antigens and testing the patient's blood serum by a complement fixation method analogous to the Wassermann test is of great importance in this work. The fixation test is, however, only suggestive but not conclusive, for a person can have a positive pneumococcal or gonococcal test and still have a joint due to another organism, just as one may have a Wassermann positive and still the disease in question may not be due to spirochetes. The only logical use of vaccine is to prepare it not from the focus itself, even if that is known, but from the adjacent lymph glands or tissues. (Rosenow.)

We have not used vaccines in our cases, as we had no facilities as yet for isolating the organisms according to Rosenow's excellent technique (otherwise it is not scientific). We have, however, made arrangements in the Montefiore Home to do this work in the near future and hope to report later on the results of this work.

Prevention of Deformities.—This should be the main aim of the physician. The best method is to steady the joints in the best position while the patients are in bed, and when necessary to employ splints for part of the day and special splints for night time. As soon as the active inflammation has subsided, the patient should be encouraged to use his limbs, but only within the limits of pain. It has been shown that the deformities are of a worse grade in the well-to-do, as these, having assistants to depend on, allow their joints to stay in the most comfortable position and thus marked deformities develop.

In static arthritis deformans the attending physician should correct the causing factor; for instance, if flat feet are the cause of the hip or spine arthritis a plate will correct the foot and bring the set of joints in proper posture.

Correction of Deformities.—If deformities are present at the time when examined, they can be corrected by massage and exercises with and without Zander's apparatus. Surgical interference for correction of the deformities, when the acute inflammations have subsided and likewise for render-

ing the joints more useful, has lately been instituted. The most common operation is brisement forcé (without opening the joint). The cases have to be carefully selected. Elliott and I have broken up even ankylosed deformed fingers and have obtained good results (Cases I and II). Open operations include tenotomies of the contracted muscles, arthrectomies, arthrodesis, insertion of flaps of fascia, cargile membrane or animal membrane. The discussion of these operations does not lie within the scope of this article and I shall therefore omit it.

Analysis of Results of the Treatment.—Considering that these invalids come to the orthopedist at an advanced stage, and also remembering that the report comes from the Montefiore Home, where many of the patients are admitted with the worst deformities possible, some having been sick for ten or fifteen years, we must take this report not as conclusive of the percentage of cure possible, but on the contrary, with an optimistic view, *i.e.* if in advanced cases such reports can be shown in three years' treatments, the outlooks in early cases are still more hopeful.* There are no acute cases included in this report.

Total number of patients treated (of this series), 70.

Number of patients discharged, 22.

Number of patients who have discontinued the treatment of their own accord, 14.

Number of patients still under treatment, 34.

Patients discharged: Total number, 22; cured, 9; improved (as to walking and cessation of pain), 10; not improved, 3; became worse, none.

Patients who discontinued treatment: Total number, 14; improved, 5; not improved, 9; became worse, none.

Patients still under treatment: Total number, 34; improved, 20; not improved as yet, 14.

Conclusions.—1. This disease has no relation at all to rheumatism and antirheumatics should be avoided.

2. The predominating etiological factor is distinctly an infection either in the joint itself or at a distant point.

3. The disease is not dangerous to life and is usually self-limiting, but it leads to marked deformities making the patient a cripple.

4. Prophylaxis in preventing any systemic infection and keeping the digestion and intestinal tract in good condition is essential. Removal of chronic foci anywhere in the body is imperative as a prevention of progressive ill-health.

5. When the disease is present, the place of infection should be sought for and the territory cleared, if possible.

6. General treatment, such as good hygiene, good food, tonics and building up of the patient, is essential to success.

7. Acute joints should be kept at rest.

8. When active symptoms subside, local treatment to the joints, in the form of active and passive hyperemia, hydrotherapy, massage, active and passive exercises, should be administered regularly with great care and patience and kept up for a long time.

9. The occurrence of deformities should be prevented by steadying the joints in proper position at the time of acute infection. When the deformities have already occurred they should be corrected.

*Some patients have received treatments for a short time only while others for two or three years.

10. Patient and energetic work will bring excellent results even in the far advanced cases.

The following are reports of a few illustrative cases:

Case I. (Record Number XXI).—H. H., female, age 17. This is the youngest patient we have in the Home. Her disease began at the age of seven. She gives a distinct history of recurrent attacks of tonsillitis. The disease began with swelling of the right wrist. Within a year and a half all the joints of the body (including the mandibular joints) became affected and many of them ankylosed. The muscles were contracted and thus the joints were deformed in undesirable positions. (Fig. 7.) When she was admitted to the Home three years ago, *i.e.* seven years after the attack started, she presented a very tragic picture: was confined to bed, could neither walk, sit up, lie down, nor use a wheel chair, and even had to be fed. She had no pain except on severe motion as her disease was inactive after the first two years.

Physical examination on admission showed the following: both shoulder joints—marked limitation of motion in all directions. Both elbows in flexed position allowing flexion to 100° and extension to 110°. Supination and pronation—nil; the forearms kept in a position midway between supination and pronation. Hands—flexion of the wrist with marked limitation of motion. Fingers show dislocation of the middle phalanges on the proximal ones. Could not use the fingers. Lower extremities: thighs are flexed on the abdomen and adducted. Both knees in flexed position; extension permitted only to an angle of 105°; flexion to an angle of 135°. Feet: right one is in a position of equinus while the left one is in a position of talipes equinovarus. Active motion in all the joints was almost nil while passively a slight arc of motion was present which was accompanied by pain. Patient could not speak clearly as her mandibular joints were similarly affected.

She received a great deal of mechanical treatment, *i.e.* light baths, baking, Bier's passive hyperemia, massage, and exercises. The digestion was attended to and the bowels regulated and she was put on a good nutritious diet. Her contracted joints were stretched under brisement forcé in several sessions and put in plaster for a few days, then massage and exercises were instituted. Even her contracted fingers were straightened under brisement forcé. Within two months patient could wheel the chair herself. Within six months she walked with crutches for ten or fifteen minutes. At present she can walk for two or three blocks, though she still uses a cane. The physical examination on January 1, 1915, shows that motion of the shoulders is only slightly limited; the elbows can be flexed actively to an angle of 75° and extended to 175°; passively, the forearms can be flexed to an angle of 65°. Fingers are straight and have not contracted, though two and a half years have passed since the operation. She uses them in sewing and writing and has some power of flexion in them. Hips are only slightly flexed on the abdomen, can be extended to angle of 170°, abduction slightly limited; the knees are extended to an angle of 175° with normal flexion. Feet in a normal position. In her temperament she presents a very hopeful appearance. She is still under treatments.

Remarks.—Her recurrent attacks of tonsillitis point to infectious origin. The occurrence of those marked deformities within a year and a half after onset illustrates the bad results of the lack of care in placing the joints in proper position at the time of the acute attack. The disease came to a standstill after two years, showing the self-limitation of this disease. Brisement forcé led to good results when the after treatments were carefully carried out. Brisement forcé of the fingers, which is rather a recent method and can be used only in special quiescent cases, has been resorted to in this case with favorable results. Dr. Elliott has described fully the method we have followed in this particular patient, and I would refer the reader to his recent article in the *New York Medical Journal*, November 14, 1914. The improvement in this case shows that patient and energetic work can produce excellent results even in far advanced cases.

Case II. (Record Number XVI).—M. H., male, age 29, law student. The history of this patient is interesting from an economic standpoint. He had his first attack at the age of 13, which subsided after a year and a half but left him with deformities of the fingers and ankylosis of right elbow. (Fig. 8). He had no trouble whatever for nine years. In 1909, a few months after his graduation from the College of the City of New York, he had a second attack affecting all the joints, accompanied by pain, swelling, redness, and fever. Within a year and a half the patient became a helpless invalid, unable even to use his hands to feed himself. The pain was so severe that he could not sleep. His physical examination on admission to the Montefiore Home in January, 1911, was as follows: Fingers markedly swollen and tender. The right wrist presents a silver fork deformity and partial ankylosis (from the previous attack). The left wrist is contracted and extremely painful. Right elbow is ankylosed in a straight position. The left elbow is swollen and painful. Forearm could not be extended more than an angle of 45°. Supination and pronation in the left elbow, nil. Motion in both shoulders is markedly limited due to muscular spasm but not to ankylosis. The hips are adducted and flexed. The thighs cannot be separated more than five inches. Both knees are swollen and tender and flexed to an angle of 45°. Active motion is nil, but passively the knees can be straightened to a position of 90° and flexed to an angle of 40°. The feet are both everted (turned out), but motion in ankles is free. The specific cause in this case could not be determined, but the fever, enlarged lymph glands and marked intestinal disturbances pointed to an infection. He was put under the service of Dr. Elliott and myself.

The treatments carried out on this patient were in short as follows: A metabolism test was made which showed no deviation from normal. The patient was then put on a good nutritious diet and three to four glasses of buttermilk daily. Special attention was given to his intestinal tract to avoid constipation but enemas were also administered every other day for two or three weeks. The joints received baking followed by very light massage. Bier's passive hyperemia was applied daily for ten to twenty hours. No motion of the joints was allowed. Within two weeks the pain was relieved. Active motion within the limits of pain was then permitted after each massage. Within three weeks patient could feed himself. Within four weeks the knees could be extended to an angle of 135°. A plaster splint was then made for the knees to keep them in that position. This plaster cast was left on during the night to prevent contraction; also for fifteen minutes three times a day while the patient was allowed to walk with crutches. More exercise was permitted daily. In two months patient could walk with one cane only. In three months he was able to shave himself. In six months patient for the first time ventured to go out in the street and one month later he even traveled by car alone. By the end of the year he made a complete recovery from his second attack. The patient was so pleased with his success that he urged us to correct his deformed fingers resulting from his previous attack. Since the disease in these had been quiescent for nine years, we have not hesitated to straighten his fingers by brisement forcé. This, to the best of my knowledge, was the first case where brisement forcé was ever tried on the fingers. Though the pain was severe, the patient followed the after treatments very carefully and obtained very favorable results. It is two and a half years since his fingers were operated on and thus far the deformities have not recurred and the patient has good use of his fingers. He stayed at the Montefiore Home for a year and a half and was discharged, being able to walk without a cane though with a slight limp. He felt well enough to resume his studies and is at present in his last year at law school. All this time he has worked and earned his living while gaining honors at the university. This shows how well he has been feeling for the last two and a half years.

Remarks.—The interval of nine years between the first and second attack in this patient illustrates the statement, made above, that long quiescent periods may pass between the attacks. Though the specific cause has not been discovered, still the attention paid to the diet and intestinal tract and raising the resistance of the patient have succeeded in checking the progress of the disease. The brisement forcé on the fingers was likewise successful in this case, but from our observations in a few cases that we have resorted to this method, only the quiescent cases may thus be treated. This particular case was also mentioned in Dr. Elliott's article on treatment of ankylosed fingers. By patient and energetic work an able and ambitious young man was saved from helpless invalidism and made a useful member of society.

Case III (Record No. LXI).—M. D., female, single, age 24, stenographer and typewriter. The disease began last April, two days after an attack of influenza, thus showing that it was an infection. The right wrist became swollen, red, and very painful. From the beginning there was a great tendency to flexion of the wrist. The disease was diagnosed by her attending physician as rheumatism. She was receiving antirheumatics till her ears were buzzing and her stomach was upset. She was also getting local applications, but all these were of no avail. The pain and swelling were not influenced. She became very anemic due to the restricted diet on which she was kept. After two months "the disease stopped by itself" (I am using her exact language) and she had no more pain. The wrist was flexed to an angle of 160° and there was no motion at all in that joint. The fingers were straight and allowed fair motion actively and passively. There was still swelling of the wrist. Her physician extended the wrist and put on a plaster cast extending from the flexed elbow to the tips of the fingers. The plaster was left on for ten days. When it was removed the wrist and fingers were straight and atrophied and she could not use her fingers at all, presenting almost the appearance of Volkmann's ischemic paralysis. Within a few days her wrist became flexed again and the motion in the fingers remained nil. Her physician then straightened the wrist under anesthesia without putting it in a splint, but as he did not follow carefully the after treatments this became flexed again within a few weeks and the fingers also began to show a tendency to flexion. When she came under my care, in the latter part of August, she presented a wrist flexed to an angle of 160° with no motion actively, but passively an arc of motion of 5° to 10° could be obtained but with pain. The fingers were stiff and the terminal phalanges were slightly flexed on the middle. The skin was glossy and tense, showing marked evidences of atrophy. There was no active motion at all in the fingers. There was no pain at all while the joints were kept at rest. The *x*-ray showed the disease in the carpal bones only with atrophy in all the phalanges. She was put on a good nutritious diet, taking plenty of meat, buttermilk, and cod liver oil. For the wrist and fingers she was ordered baking, massage, and careful exercises. She was allowed to follow her occupation. Within two months patient regained some motion in the thumb, index and middle fingers, but no improvement whatever in the other two fingers except perhaps in the appearance. The wrist became straight and there was even an arc of 5° of motion to extension. She has gained eight pounds in weight. Two months later a brace was ordered for her which allowed the wrist to be slowly and gradually extended but no flexion. She was ordered to wear the brace at night time and for fifteen minutes three or four times a day. The patient herself flexes the little and ring fingers daily. The progress is rather slow, but the patient is so enthusiastic about the results so far that she energetically and punctually carries out all the treatments and there are hopes of fair recovery.

Remarks.—This patient illustrates many important points of my paper. The infectious origin of this attack was clearly shown. The disease stopped by itself, showing the self-limitation of the affection. The antirheumatics have not influenced the pain or swelling. The immobilization done at the improper time and with lack of care has aggravated the deformity and produced the ischemic paralysis. After straightening the wrist under the anesthesia, no after treatments were given, and thus the operation was a complete failure—thus discouraging the patient. No Bier's passive hyperemia was given to this patient for the fear of aggra-

vating the ischemia. The wrist is gradually hyperextended instead of doing this forcibly.

For permission to reproduce the photographs of patients of the Montefiore Home, I am greatly indebted to Dr. S. Wachsmann, the Medical Director of that institution. I also wish to express my gratitude to Dr. G. R. Elliott, attending orthopedist of the institution, in lending me the *x*-ray prints and for his valuable assistance.

1210 Tinton Avenue.

MEDICAL LITERATURE AND ITS PREPARATION.*

By EMIL MAYER, M.D.,

NEW YORK.

LARYNGOLOGIST TO MOUNT SINAI HOSPITAL; FELLOW OF AMERICAN LARYNGOLOGICAL ASSOCIATION; AMERICAN EDITOR, SEMON'S INTERNATIONALES CENTRALBLATT FÜR LARYNGOLOGIE; ABSTRACT EDITOR, AMERICAN LARYNGOLOGICAL ASSOCIATION, ETC.

THE third of a century just passed marks an era of wonderful discoveries in the field of physics, such as the development of the electric light, the telephone, the typewriter, the Roentgen rays, the submarine, and aviation. During this time the advance in medicine has been as remarkable. To mention just a few of these—surgical asepsis; intubation; all of the bacteriological discoveries, notably the diphtheria bacillus and the antitoxin theory; improved methods in diagnosis and in therapy, as salvarsan and pituitrin; painless and bloodless operations and the increased knowledge in sanitation that prevents disease. Two notable instances of these latter are the methods of sanitation in the Japanese army and our own triumph at Panama.

It seems hardly possible that we could have worked and even done fairly well before all these and many more unmentioned boons were given to us for the public weal. For the dissemination of the knowledge of all these advances in medicine we must give great credit to our journals which have also participated in the general advance.

This advance can best be seen if one compares the bound volumes of journals published in the late 80's and those of the present day. In the former a single volume or two at the most represented the year's work, while in the latter from two to four volumes are required for the same amount of time.

Special journals have since sprung up, so that in our own country the number of journals issued monthly is now over two hundred.

Articles prepared for publication in these journals represent not only careful and painstaking medical observations, but also labor of a literary sort no less trying and infinitely more difficult. It is with the hope of making the latter a little less arduous and to aid in the preparation of your future journalistic efforts that I have ventured to address your society, composed exclusively of the younger men in the profession, on the preparation of medical literature.

The presentation of an article for a scientific journal or book is not the easy thing many imagine, and in medicine, at least in our country, no instruction is given on this subject, and it has become a problem each must elaborate for himself. As the future of medicine and the public welfare have always demanded that medical men enter into the literary field, it is remarkable that our medical colleges have thus far neglected so important a part of the conscientious physician's life work.

While not desirous of adding to the heavy burden of the medical student, I would suggest that a few lectures at least should be delivered in our medical schools by qualified instructors on the preparation of medical literature, immediately after graduation and before commencement time. No other studies intervene then, a few lectures only would be required and some credit could be given for attendance. At present the young physician who enters the field of literary medicine has sufficient command of language, the result of his preliminary training, but the demand of the scientific paper is entirely unknown to him. He might learn more rapidly if his early and perhaps faulty contributions were occasionally rejected and the reasons therefor given, and if he had no means of disposing of his work elsewhere; but unfortunately we have such a large number of medical journals eager for matter to fill space that a rejection by one is followed by its prompt acceptance by another and its publication. Rejections, as we know, are very rare.

Editors of medical journals should formulate a plan for some similarity in their methods of acceptance or rejection of manuscript. Then a paper that is full of grammatical errors, tautological, or presented in a slip-shod manner, or whose bibliography is incorrect in presentation or full of errors, would be rejected by each of them, and these journals would soon become known as of the first class and receive communications from the best men in return.

As it is at present, the physician with a message to convey must depend entirely upon his own efforts or be aided by those who have labored hard and earnestly in the field of medical literature, who, while disclaiming perfection in their own endeavors, from many years of experience in writing and in reviewing thousands of medical papers, have learned to appreciate one that is well written and to know how it should be presented.

Preparation.—In the early days of medical practice, when patients are few and far between, I would strongly urge preparation for future medical writing. Remember that to write well is no heaven-born gift, but rather the result of industry, training and application. I would suggest the careful reading of that masterly and readable book by Professor T. Clifford Allbutt, entitled, "Notes on the Composition of a Scientific Paper" (Macmillan Company, 1904); the pamphlets issued by the American Medical Association: "Suggestions to Authors," and "The Bibliographic Style;" as also "Bibliographic Style in Medical Literature," by Mr. Frank Place, assistant in the Library of the New York Academy of Medicine (MEDICAL RECORD, January 25th, 1913, p. 157). Having selected the subject upon which you are to write, mark a large envelope with the name of your subject and place therein everything relative thereto, notes, clippings, case reports, etc.

The Paper.—A well balanced paper is one with an appropriate title, an interesting opening, and a regular method of presentation of cases. It should be free from excess verbiage and with the fewest abbreviations, however, with a bibliography that is very exact but not necessarily complete. It should have a proper conclusion.

The general make-up of a paper should be clean and legible and reasonably free from corrections.

Many a paper has been rejected because of gross

*Read before the Hunterian Society of New York City, November 10, 1914.

carelessness in this regard. With efficient typists, this carelessness is inexcusable.

Papers are often presented for reading before a Medical Society and sent in the same condition for publication, and the transposition is left to the editor. Unnecessary verbiage is the result and many a paper is not read when published because of this fact.

Style.—That combination of language in which felicitous words explain in a clear manner what one intends to convey, namely, style, is not amiss in a scientific discourse. Allbutt states that "the rules of English prose, the English style and the graces of literary art, can as well be employed upon a scientific theme as upon a romantic one."

The command of several languages is of great value, especially when references are sought in journals published abroad. To a very few indeed is it given to be able to write clearly and interestingly in more than one language.

References.—These are best made by yourselves, for much may be learned from the point of view of those who have trod the same fields, and you may also discover and elucidate points omitted by them. It is vitally necessary to have the advantages of an extensive medical library such as we in New York City are proud to possess. Beginning with the last number of the *Index Medicus*, copy carefully the full references on separate slips of paper, leaving space on each for such notes as you may subsequently make when the original is at hand. Working backwards and making use of the catalogue of the Surgeon-General's Library at Washington, also for your purpose, you will either come to the first article upon your subject, or you will find some exhaustive article thereon, to which you may refer as your starting point. Having all your references complete, arrange your slips under appropriate headings so that you will have all the histology, etiology, treatment, etc., in separate packets. Then, and not until then, look up the references, and endeavor to see the originals whenever possible. If the original is not seen by yourself, do not credit the journal not seen by you, but mention the journal from which you quote, stating that it is a quotation taken from the original.

Place on each slip a brief note of the contents of the article referred to. Should it require more, fasten your slip to the notes. Then when you reach the subdivision to which the notes apply you will have a complete reference to the literature of that part of your subject.

As soon as each slip has served its purpose, draw a line through it, but keep it for possible future reference until the article has appeared.

Writing.—The best command of language is obtained by writing rather than by dictation.

The Beginning.—Many writers find their greatest difficulty to lie in the beginning of an article. There is no set rule for the beginning of an article. If such difficulty exists, write the body of the article and then go back to the first page and the opening paragraphs will be more readily written. A felicitous opening will often command close attention, as in the case of a spoken address.

Clearness.—Avoid confusion in your use of terms; the words "case" and "patient" are often used interchangeably. "Case" is an instance of disease, the "patient" is the person affected, not merely a case of disease. The case is reported ended by recovery, but the patient still exists.

The Personal Pronoun.—In the endeavor to eliminate the personal pronoun, one may be too modest and thus appear stilted, confusing the whole subject. There is no doubt whatever as to your meaning when you say, "I saw the patient and three hours later I operated upon him," or "the patient came to my clinic and I operated upon him at once." When the words "the author" or "the writer" are used one must be very explicit.

Grammatical Errors.—Your early training must stand you in good stead here. The scope of this article will not permit a reference to even the most common errors.

Time.—Time should be distinctly defined. The present date should be exactly stated, otherwise "six weeks ago" becomes very indefinite.

Conclusions.—The fewest writers pay attention to this most important rounding out of a paper. Every scientific article should have properly drawn conclusions for several reasons: You do not force the reader to go through all your paper to ascertain what your contentions are; and when you are quoted by the careful abstractor, you will find that he does so in your own words. You have a message to deliver, and what better method can there be than its brief presentation in your own words?

Errors in Bibliography.—I had occasion to enter a protest against such an error but a few months ago. There appeared in one of our medical journals an article on "Vincent's Angina Treated with Salvarsan." The writer of the article stated that "Vincent first recognized the disease in 1898; Bruce also gave a thorough résumé of the disease." The reference to Bruce was given as: "*Lancet*, January 12, 1899." I had been under the impression that I was the first to describe this affection in the English language in 1901, and hence was surprised to learn that Bruce was alleged to have preceded me by two years. I found that there was no issue of the London *Lancet* for January 12, 1899, and that Bruce's article appeared in that journal on July 16, 1904, p. 135, three years after my own publication. As the author who made the misstatement could not see from my letter that he had misstated facts, I wrote to the editor of the journal wherein the error appeared and he promptly published my correction. I stated therein that "our work is often ignored by foreign writers, who claim an alleged inaccessibility of our journals, but we have a right to expect that credit should be given to our own countrymen when the facts warrant and are so easily obtained from our exact medical indices." This is by no means an isolated instance. I have in my possession the reference to an article published this year in one of our best weekly journals. Of the seventeen references, not one is correctly stated. But eleven are referred to in the text, the six other references are added with no indication as to who wrote the article or why they were added. Of the eleven numbered in the body of the article, three were not found in the journals stated and therefore were false. One of the remaining eight mentions the collaboration of two writers, when one of the names does not appear in the original.

Verify References.—Because of the frequency of such errors I have dwelt upon careful attention to the references. They should always be verified and correspond to the numbers in the text.

Description of Proper Reference.—Each reference should contain the name of the writer and his initials, the title of his article, the name of the journal, the year, the volume in Roman letters and the

page. In referring to a book, the title, the number of the edition, the place and year of publication, the name of publisher, and the page are essential.

Title.—While the title heads the subject written about, it is best written after the article is finished and should be attractive and comprehensive as to what is to follow.

Revision.—By the time this part of your work is finished put the paper aside and do not touch it for a week or two. You will then look at it in a more critical way as the work of another and make appropriate corrections.

Typewriting and Directions.—It is now ready to be typewritten. Each page should be numbered, including the title page, and sent in proper order. Double spacing affords room for corrections and these corrections should be in the body of the article and not carried out as in correcting proof, and at least a half inch of space kept on the left of the article. Use quotation marks in referring to other authors and refer to other writers by name. Never roll manuscript; folding is even inadvisable. Send original only, keeping a carbon copy. Neatness is all important. Never send to more than one journal.

Publication.—If simultaneous publications should be deemed necessary, write to the editor and express your desire. It is very unusual for editors to publish articles that are printed elsewhere, but occasionally it may occur without their knowledge. One enterprising colleague wrote an article many years ago and succeeded in publishing it in thirty-five different journals. I have never seen his name in print since that remarkable achievement nor a more disgusted set of editors. Editors often refuse to print an article that has appeared in a foreign country and in a foreign language though it may be of much interest to their readers. Frankness in dealing with editors is only fair and pays in the long run.

Illustrations.—Descriptive legends should accompany all illustrations. If the latter are desired mark them "Return." Drawings in black ink are preferable to photographs. Negatives are of no value and the author's name should be on each illustration.

Proofs.—Proofs are always sent for correction and these should be very carefully read and revised. No detail is too small for your notice—punctuation, spelling, spacing, and paragraphing. Changes of text should be legible and if many changes are made, rewrite the portion as it should be. Note proofreader's remarks or questions, and answer each by correcting or crossing out if it is to stand as you have it. If proofreader's corrections are in black ink, make your corrections in red ink and vice versa, and at the end mark it O.K. and sign your name.

Accuracy.—In spite of all care, errors may furtively enter. Be brief where possible without sacrificing facts. Above all be accurate. Make no statement that you cannot abundantly verify. I have known a whole career to have been wrecked by statements that could not be verified when challenged. Do not consider "any old thing" good enough, because it is to appear in some far away journal. Nothing escapes the eye of the careful abstractor; for the journal of the remotest and smallest city has its place alongside of those from the metropolis in the libraries, and is noticed. When once you have a reputation for accuracy, fairness, and honesty of purpose, your every statement will be accepted no matter how unusual it may seem.

Language.—Simplicity of language, plain and direct, is all important. Quotations in Latin are often incorrect and sound pedantic. Reading the works of the best authors in general literature results in a better command of language, enables you to have a style of your own, and broadens the scope of your knowledge of men and things.

Imitate no one but strengthen and enlarge your ideas, your understanding, and your diction; and finally, do not write for the sake of writing but wait until you have a message to deliver, and then give it your most careful consideration.

With a well rounded out paper you will reread it in subsequent years without embarrassing memories and have the satisfaction of having performed a duty carefully, accurately, and conscientiously; and finally you will have contributed toward the dissemination of medical knowledge and to the honor and glory of a noble profession.

40 East Forty-first Street.

THYROGLOSSAL CYSTS.

REPORT OF CASE.

By CHARLES BERNARD BURKE, M.D.,

ATLANTIC, IA.

Of the various types of tumors of the neck, especially those of congenital origin, the thyroglossal cysts seem to receive the least attention, although they occur with comparative frequency. This report was stimulated by the apparent lack of published descriptions of this condition and the difficulty with which it is diagnosed. Let us first review briefly the embryology of the thyroglossal duct from which these cysts originate.

Embryology.—If we were to examine the floor of the mouth of a five-months' embryo we would find a rhomboidal depression in the median line between the ventral ends of the first and second branchial arches, and from these there rises a dorsal projection of rounded form, known as the tuber impar.

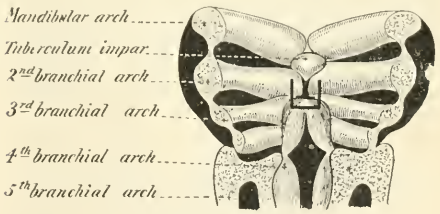


Fig. 1.

Behind this is the deep epithelial (hypoblastic) pit which is the thyroid evagination (thyroid anlage). This grows out, expanding in all directions, especially laterally, to form a stalked vesicle whose lumen becomes obliterated later. Prior to its conversion into a solid epithelial cord the stalk of the vesicle constitutes the thyroglossal duct. The site of its opening into the mouth is marked in the adult by the foramen cecum, which is in reality a short but varying length of the stalk of the thyroid vesicle which fails to solidify and disappear.

After the solidification of the duct the vesicle becomes bilobed and displaced caudally, eventually developing into a broad structure composed of irregular cords of cells. The ultimo-branchial bodies apply themselves to this mass and are, as indicated above, probably enclosed within it. The thyroid

gland belongs, therefore, primarily to the medial region between the first two ventral pharyngeal grooves and becomes displaced caudally until it reaches the position which it occupies in full-term fetus. This explains why the thyroglossal duct,

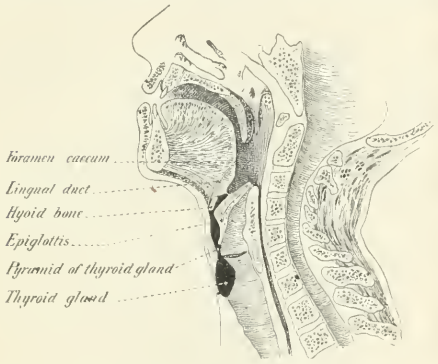


Fig. 2.

when it persists, usually runs posterior to or through the hyoid bone and why it is so difficult to remove it surgically.

It may be seen from the above that since thyroglossal cysts occur in the thyroglossal duct, they may be found any place in the median line between the foramen cecum and the isthmus of the thyroid gland. They may occur at any age and seem to be more frequently seen in the male than in the female. They are usually firmly fixed to the hyoid bone, just above or just below it. They are classified according to their location; those between the foramen cecum and the hyoid bone are called sublingual cysts and those below the hyoid bone, subhyoid cysts.

Diagnosis.—They grow slowly, are usually painless, and they may rupture through the skin and form a median fistula which discharges a mucus-like material. They impart a fluctuating sensation to the palpating fingers. They are freely movable from side to side, but are firmly fixed when an attempt is made to draw them forward. They do not impart a shadow when strong light is applied to

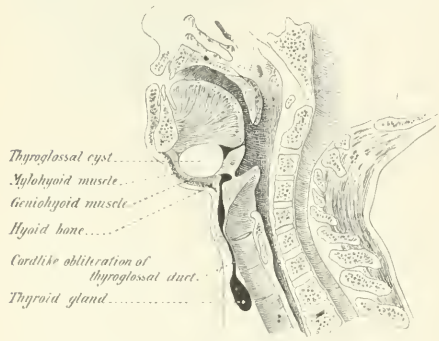


Fig. 3.

one side of the neck while the other is examined in a dark room.

They are to be differentiated from: (1) dermoid cysts, which are frequently found in this location, and (2) sebaceous cysts; the latter, however, are located in the skin and do not appear before puberty. The prognosis depends upon the completeness with which they are removed. A tumor or cyst of the thyroidossal duct requires excision. They are usually firmly fixed to the hyoid bone and must be

Fig. 4.

completely removed, even if it is necessary to split the bone to accomplish it. If any portion of the cyst wall is left a recurrence may be expected.

Mrs. R. N., age 26. Seven years prior to operation she noticed a slight enlargement under her chin but said she paid no attention to it thinking she was getting a double chin, commonly seen in fat people. It gradually enlarged without pain or discomfort, for six years, when it began to interfere with deglutition and speech. She consulted in all five different doctors, and each had a different diagnosis. The last one she called on said that it could be cured with *x*-ray treatments, but after taking these treatments over a long period of time she became discouraged because there was no apparent improvement. The enlargement or cyst as may be seen from accompanying illustration, was located in the median line just above the hyoid bone, to which it was firmly attached and from which it was removed with difficulty.

The following test may be of some value: Take an ordinary Bellevue head lamp and apply it firmly to one side of the neck and examine the tumor mass from opposite side, having the patient in a dark room. In this case the neck had a clear pink color not showing any shadow as would be expected from a solid tumor or dermoid cyst.

DOUBLE CLUB FOOT IN TWINS.

(From the Orthopedic Clinic of Stanford University.)

By LEONARD W. ELY, M.D.,

SAN FRANCISCO, CAL.

The two patients, three weeks old, were brought to the Orthopedic Clinic by their mother with the following history:

The father is an Italian, the mother an English woman. No history of deformity appears in the parents' families. These are the first children of the mother. They are both girls and are supposed to have been 7 month babies, weighing at birth 6½ and 5½ pounds. The labor was an easy one, and both children were born with vertex presentation. The deformity was observed immediately after birth. The examination showed two babies slightly smaller than the average. Both had well marked

double club foot. The deformity was quite rigid in all four feet. No other deformities were present. Neither child showed any evidence of spina bifida. The accompanying photograph shows the deformity

well. The occurrence of double club foot in twins is unique.

The treatment consists of gradual reduction by plaster of Paris bandages.

RADIUM THERAPEUTICS OTHERWISE THAN FOR MALIGNANCY.*

By JOSEPH B. BISSELL, M.D.,

NEW YORK.

IN response to the request of your president it gives me pleasure to present to you some patients who have been treated and cured by means of radium applications. These were not cases of malignant disease, and it is interesting to realize that radium is available to relieve other than cancerous conditions.

CASE I.—Mr. J. McC., 43 years of age, has always been a healthy, robust man, working hard as a laborer. A few days before coming into the hospital he infected his thumb while opening oysters. He states that a piece of oyster shell penetrated under his thumb nail, making a very painful wound. This soon became red and swollen, and the pain and tenderness extended up his arm. On entering my service at Bellevue he presented a typical picture of infection of the thumb and forearm, with an involvement of the metacarpophalangeal joint and ostitis of the bones entering into this joint of the right thumb. There was a severe cellulitis of the surrounding soft parts with abscesses extending up the arm. The disease was treated in the usual way by incisions, irrigations, and wet dressings. At the end of three weeks there were several profusely discharging sinuses about the thenar eminence, and bare bone was felt through these sinuses. An *x*-ray picture taken at this time, which I now show you, disclosed a badly disorganized joint, and a necrosis of both bones. It was decided by the patient and myself that the best thing to do to get him well quickly was to remove the thumb. Before doing so, however, I decided to try the effect of short time radium applications into the sinuses. Thirty milligrams of radium in three different tubes were inserted into the sinuses leading to the joint. These insertions were made on four different occasions, and the radium was allowed to remain in the sinuses ten minutes each time. The applications were made four or five days apart. Immediately following the first application the discharge decreased, the sinuses contracted, the swelling began to lessen in amount, and at the end of the third application only one sinus remained large enough to insert a tube into. The other two tubes were therefore placed on the outside of the affected part and for the fifth and last application all three tubes were so applied. At the end of two weeks from the beginning of this treatment the infection had entirely disappeared, the thumb was again a solid part of the hand and the patient was able to use it as you see now. Here is a remarkable change from a soft, jelly-like mass of broken down tissues with a foul odor, discharging sinuses, and a painful and useless hand to what is as you see a perfectly comfortable and available organ, although somewhat scarred and stiffened. He uses the thumb now for every purpose for which it was designed. At no time was any dead bone removed or did any come away, although the *x*-ray picture shows its presence.

CASE II.—Another patient, a woman, 35 years old, who suffered from an infection of the foot, due to a compound fracture of the second phalanx of the second toe of her right foot. The injury was so severe and the infection so deep that the toe was amputated at the metatarsophalangeal joint; the infection continued however, and involved the metatarsal bone. At the end of several weeks a sinus remained, extending from the upper surface of the foot to the diseased bone with no tendency to healing. Into this sinus, and alongside the bone, a tube containing ten milligrams of radium was inserted and allowed to remain for twenty minutes. Pain, swelling and discharge at once began to disappear, and the sinus to grow smaller, so much so that the next insertion of the tube five days later was quite difficult and almost unnecessary. A week after the original application the patient had entirely recovered and walks, as you may see, without a limp or any evidence of having so recently convalesced from a severe infection.

CASE III.—Mr. L. M., 28 years old, clerk, has been suffering for the past three years from diabetes. Early in December, 1914, he first noticed pain and swelling of the under surface of the base of the second toe. This gradually became localized into an abscess at this point followed by an ostitis and necrosis of the head of the second metatarsal bone and the adjoining phalanx. February 10th a sinus remaining, and no improvement having taken place in the foot which was now quite decidedly involved in a secondary cellulitis and lymphangitis, the sinus was washed out with a weak solution of radium and 10 milligrams of radium protected by a silver capsule and rubber screen applied for half an hour. Three days later the discharge was much less profuse, and 35 milligrams of radium were applied to this region, 10 milligrams of radium being applied as before into the sinus. Five days later the sinus was so nearly healed that it was impossible to insert the radium capsule. The same quantity of radium was applied in divided doses on both surfaces of the toe and foot near the sinus. Ten days after the first application of radium there were no further evidences of inflammation of the foot or bone, and the patient was out of bed and walking with only a slight limp. His diabetes had been treated dietetically during this surgical attention, and his general improvement was also marked. He was discharged March 10 free from sugar and apparently medically and surgically well.

CASE IV.—Another case, Mary H., 49 years old, had been treated by me seven years before the present trouble. At that time I had removed a cartilaginous and badly lacerated fibrous cervix uteri. The patient had had no symptoms of any trouble in this respect until six months ago, when she presented herself to my friend, Dr. Baldwin, of this city, because of constant uterine hemorrhage. He treated this with varying degree of success for several months. About six months ago I saw her and put her under an anesthetic for an examination and removal of a piece of the bleeding tissue for microscopical examination. On examination under ether blood could be seen oozing from the stump of the uterus. Curettage was performed rather unsatisfactorily, 75 milligrams of radium was then applied against the curetted point and kept in place by packing for eighteen hours. The packing was removed, irrigations advised, and no further treatment applied. The radium was applied June 25, 1914. There has been no return of bleeding up to date. Following the radium insertion the patient had a very severe rectal and vesical tenesmus lasting several weeks, and accompanied by rather profuse and painful vaginal discharge. This I assume was due to a radium burn. The radium in this instance was screened off by a half millimeter of lead and silver, reinforced by another half millimeter of rubber and adhesive plaster covering.

CASE V.—This lady, 25 years old, unmarried, had been operated upon some six weeks before February 1, 1915, for gallstones. Following their removal the gall-bladder was drained and the biliary sinus is still open. She is suffering now from small abscesses in either axilla. These abscesses are not large,

*Read in part at the meeting of the City Hospital Alumni, March 17, 1915.

about the size of a small grape, and superficial in depth. They were slow in healing after opening and in that way troubled her considerably. A ten milligram of radium capsule was placed in the cavity of each abscess for five minutes. The cavity at once began to dry up and in forty-eight hours every abscess so treated closed and remained closed. New abscesses appearing were opened widely, and a ten-milligram radium capsule applied to the cavity for five minutes, with the result that the lesions all healed very rapidly. A course of four or five days of this treatment cured the patient of her tendency to suppuration in this region. No attempt was made to treat the biliary sinus with radium and this finally closed after several weeks' treatment.

Case VI.—Another case of totally different nature is offered for consideration. Mrs. H., 44 years old, came into the hospital, December 13, 1914, appearing to be in the last stages of pernicious anemia. Her blood picture was as follows: Reds, 1,207,000; whites, 4,400; hemaglobin, 32 per cent.; eosinophiles, 3. Appetite poor, sleep badly broken, suffering from considerable dyspnea. Temperature 100°, pulse 120. Physical examination shows slightly enlarged spleen and great emaciation, weight being about 72 lbs. in a patient of five feet, two and one-half inches. She has a well marked hemic murmur. No signs of any disease of other organs. Repeated examinations of the contents of the bowels showed no ova or any evidences of hookworm or any other intestinal disease despite her marked eosinophilia, which at times during her treatment was as high as 14 per cent. This patient was seen by many of my colleagues who concurred in the belief that she was suffering from pernicious anemia. Before coming under my care, and since, she has been treated very thoroughly with various iron tonics and other medication, by dietetic measures, by rest and change of climate and environment, by various sera, and recently by long-continued intermuscular injections of caccodylate of soda. She grew steadily worse, her anemia increasing as well as her weakness until her red blood count was reduced to 1,080,000 and her hemoglobin to 27 per cent. This was early in January, 1915. January 6 she was given intravenously 100 micrograms of radium solution. This was repeated in eight days. Following this every second day she received an intermuscular injection of one-half a microgram of radium in solution for two weeks and thereafter every third or fourth day for six weeks. The first week in February the patient began to show marked signs of improvement which steadily continued. She now weighs about 100 lbs., has improved in appearance and color, is out of bed and out of doors, eats and sleeps well, and is entirely a different woman in every way. Her hemoglobin is 75 per cent. and her red cells are 3,850,000. The radium injections have been left off for the past two weeks. She has had no medication whatever since March 10.

These few cases are presented because of the striking results obtained by rather uncommon ways of using radium. Attention is particularly called to the interesting effect of the application of radium in streptococcic bone infection. The cure of pernicious anemia by intravenous injection and intermuscular injection of solutions of radium as seems to be the result in the last case would suggest new opportunities for treatment in this usually fatal disease.

46 West Fifty-fifth Street.

PITUITARY GLAND IN GONORRHEAL ARTHRITIS.

A REPORT OF THREE CONSECUTIVE CASES.

By MARY SUTTON MACY, M.D.,

NEW YORK.

NEUROLOGIST, DEMILT DISPENSARY.

Gonorrheal arthritis occurs in probably 1 per cent. of cases of urethral gonorrhea (Keyes) as an expression of the generalized infection, and as a rule the severity of the inflammatory process is not as great as in other forms of septic arthritis.

Nathan (*New York Medical Journal*, March 16, 1907) insists that gonorrheal arthritis is never genuinely chronic though it may be recurrent. The cases which are called chronic, he says, "are those in which the initial acute inflammation has left behind bands of adhesion or other structural change in the synovial membrane. . . . These changes, unless treated mechanically or by operation, are permanent." Keyes says that "this is not strictly true as is shown by the cures resulting from serum and toxin treatment."

Treatment of gonorrheal arthritis by Bier's hyperemic damming and other forms of producing hyperemia, such for example as baking, massage, and high frequency currents have their advocates. The more general acceptance of the value of autogenous vaccines and of sera must never be overlooked in handling these cases, and, if possible, the method reported by Titus (Medical Record, July 25, 1908), who uses a vacuum electrode, introduced into the rectum, for the destructive effect on the bacteria exerted by the actinic action of the high frequency rays, should be given a trial, as it is very essential, if permanent results are to follow, to disinfect effectively the genitourinary canal. Dardel (Medical Record, Jan. 25, 1913) states: "From the general viewpoint we must disinfect the genitourinary canal, and it should be borne in mind that many of these obstinate cases are consequent upon slight uterine affections or chronic urethroprostatitis. The local treatment of these affections is even more important than that of the inflamed joints. On the other hand, Leopold Levi, Parnac, and Papiman and Viola have published notes of cases in which very marked improvement followed a course of thyroid treatment."

Wallace and Child published (Medical Record, Oct. 4, 1913) a preliminary report on the "extract of pituitary body of the ox in the treatment of rheumatic arthritis," in which they state: "All of these cases showed improvement in the general conditions, in the pains, swellings, and the motions of the joints affected, and in the effect on the bowels." They gave a preparation of fresh gland in sterile physiological salt solution intramuscularly, and as it is known that the active principles diffuse but slowly through animal membranes and that pituitary extracts are absorbed slowly from the stomach and destroyed by the pancreatic digestion, some other form of administration than either of these was sought when pituitary treatment was considered for the cases herewith reported.

These three cases of gonorrheal arthritis occurred in my dispensary class, being referred to me for electrical treatment from other departments or dispensaries, not equipped with electrical apparatus. Each case had, at the time it was referred to me, been under autogenous vaccine treatment, as well as local antiseptic treatment for the infection of the genitourinary tract. The arthritis had been of some months standing and had not yielded at all or in very mild degree to the vaccines nor to hyperemic treatments. The genitourinary examinations having shown repeated "sterile" specimens and the arthritis still being persistent, the cases were referred to me for high frequency treatment of the arthritic joints.

Case I.—Mrs. G. had suffered for four months from a gonorrheal inflammation of all the digital joints of the left hand, the thumb and index finger excepted, and recently—two weeks before beginning electric treatment—the joints of the ring and middle finger of the

right hand had shown a mild inflammation. Treatment with high frequency current resulted in slight improvement in the pain, but had no appreciable influence upon the swelling or motor ability of the fingers. After two weeks the patient was given thyroid gland, gr. j., t.i.d. on the indication of her general symptoms, with noticeable improvement in the texture of skin, relief from the great sensitiveness to cold, and improvement of the constipation, but still no effect upon the arthritic joints. The high frequency was continued during thyroid medication, at the end of twelve weeks electric treatment—during ten of which thyroid was administered—a tablet of pituitary gland substance, gr. j., was triturated, and then the powder ionized into the joints by the high frequency spark. At the next visit, *i.e.* after one treatment of this ionized pituitary, the patient expressed herself as "feeling much better" and demonstrated her improvement by showing decreased swelling and ability to move the fingers in some slight degree. At the second treatment the error was made of triturating the pituitary in glycerin, thinking it would be easier to spread smoothly over the surface of the joints. The effect was to produce a skin burn on two fingers—but not on the others—which was very obstinate in healing. Later treatments avoided such complications by using the powdered substance only, not more than 1 gram being used at any treatment. Within ten days after beginning this treatment all inflammation had disappeared and motion had returned without contracture of the tendons or other disability. Treatments were discontinued after two weeks and in the subsequent three months there has been no return of the symptoms—nor of the previous thyroid symptoms, which disappeared simultaneously—though the patient reported for some time because of the burn and was accidentally encountered a few days ago. Previous to discharge other genitourinary specimens were sterile.

Case II.—Mrs. R. Came with similar history of gonorrheal arthritis of right elbow persisting for six months though sterile genitourinary specimens had been obtained for three months, and no improvement had followed vaccine, hyperemic, or massage treatments, and very slight improvement had resulted from thyroid therapy. As she came to me after the beginning of Mrs. G.'s improvement under pituitary, I did not linger long over preliminary high frequency treatments. She showed no appreciable effect at the end of a week, so the pituitary was begun then, and at the end of the first week of pituitary ionization the pain had disappeared. The amount of pituitary used was increased to 2 grains and improvement became marked and progressive. In six weeks she was discharged with perfect motion, no appreciable inflammation and no pain; the amount of pituitary was reduced again to grain at the end of the fourth week. No internal medication was given during the treatments and no burns resulted from the ionizing of the dry triturate.

Case III.—C. L., a lad of ten years, referred from a children's clinic, with an arthritic knee and ankle of the left side. History of gonorrhea but sterile specimen for two months, and no improvement in the joint condition which had persisted for three months. Pituitary was used at once, on the evidence of the other two cases, and cure resulted, uneventfully, in six weeks.

I am at a loss to explain the reason for this action of pituitary in these cases. The effects on the blood pressure were those generally noted by observers, *i.e.* a preliminary slight rise and a coincident diuresis, but neither of these conditions persisted to the end of the treatments. In the case of Mrs. G. thyroid medication was stopped when the ionization of pituitary began but the hypothyroidal symptoms continued to improve and disappeared entirely simultaneously with the arthritis. Mrs. R. had no marked symptoms of thyroid insufficiency when she came to me, and I discontinued the use of the thyroid on beginning the pituitary treatment.

If the explanation of the reduction of the inflammatory process by the pituitary treatment is one of increased metabolism, why was the thyroid medication not more effective in the two adult cases? On the other hand it seems perhaps possible that the pituitary did produce some increased metabolic effect—or at least catabolic effect—as in all three cases the preliminary diuresis was accompanied by increase in transpiration and perspiration and increased intestinal activity as evidenced by the complete disappearance of constipation, and, in Mrs. R. and the boy, the appearance of a mild diarrhea. Might this be interpreted as interaction of the pituitary on the thyroid mechanism? But again, if so, why did not the thyroid therapy have more preliminary effect?

The above report is submitted with a full recognition of the fact that the cases are too few to be conclusive evidence, but, as the results have been so unusual and so prompt, it seemed to me worth reporting in order that the method may be tested by other observers and possibly some further definite and reliable data obtained and a reasonable theory evolved to explain the pituitary action.

101 West Eightieth Street.

DIAGNOSIS AND CONSERVATIVE TREATMENT OF INFLAMMATION OF THE ACCESSORY SINUSES OF THE NOSE.

By J. L. MAYBAUM, M.D.,

NEW YORK.

ASSISTANT SURGEON NOSE AND THROAT DEPT., POST-GRADUATE HOSPITAL, O.P.D.; CLINICAL ASSISTANT, EAR DEPT., MANHATTAN EYE, EAR, AND THROAT HOSPITAL.

In considering this important subject, no endeavor will be made to enter upon the detailed and intricate methods of diagnosis and treatment, such as are only at the command of the trained rhinologist; rather an effort will be made to confine myself to the simpler diagnostic and therapeutic procedures, many of which can readily be employed by the general practitioner. The importance of these cases to the general practitioner can be fully appreciated when one recognizes the fact that acute sinusitis, involving one or more sinuses, is a frequent accompanying condition of severe acute coryza, influenza, and other infectious diseases, while under ordinary conditions such acute inflammatory affections of the sinuses heal spontaneously, if unrecognized or improperly treated, the mucous membrane lining these cavities undergoes chronic inflammatory and degenerative changes, with the production of a diversity of symptoms and signs often difficult to eradicate except by the use of radical operative measures.

For a proper comprehension of the diagnosis of sinusitis, a brief anatomical consideration of the subject is necessary. The clinical classification of Hajek, brought to our attention twenty years ago in his classical work on Diseases of Accessory Nasal Sinuses, is still adhered to with but slight modification by rhinologists the world over. Hajek divides the sinuses into two groups. To the first group, which he designates Series I, belong the frontal, anterior, ethmoidal, and maxillary sinuses. The ostium of each of these opens into the middle meatus, *i.e.* in the space between the middle and inferior turbinates. Inflammatory disease of one or more of the sinuses of this group reveals itself by the accumulation of purulent discharge in the middle meatus. In Series II are included the posterior ethmoidal cells with orifice opening into the posterior part of the superior meatus (between superior and middle turbinates). The sphenoidal sinus, also included in this group, has its orifice located in the anterior wall of the sinus usually

near the roof of the cavity. Diagnostic of inflammation or sinusitis of the second group is the presence of purulent discharge in the olfactory space, that is in the space between the septum and the medial surface of the middle turbinate. A post-rhinoscopic examination showing purulent secretion on top of the posterior end of the middle turbinate, together with the presence of crusts and secretion in the vault of the epipharynx, is suspicious of posterior ethmoidal and sphenoidal sinusitis. Ordinarily both of these sinuses are simultaneously affected, with symptoms and signs so similar that a differential diagnosis is impracticable.

In arriving at a diagnosis of inflammation of the accessory sinuses, one must not overlook the fact that a single sinus is rarely diseased, two or more sinuses being commonly affected at the same time. I observed not a few cases at Halle's Clinic in Berlin, of long-standing sinus disease in which a unilateral involvement of all the sinuses was present—pansinusitis. As an exception to the above, it may be remarked that the maxillary sinus may alone be affected in about 25 per cent. of cases, this phenomenon being explained on the ground that in the above proportion of cases inflammation of this sinus is attributable to infection from the teeth (bicuspid teeth and first molars). In such cases the roots of these teeth are either in close relation to the floor of the maxillary sinus or actually penetrate the sinus mucosa. Inflammation of the other sinuses, including a large proportion of cases of maxillary sinusitis, have a common source of infection, that is the nasal mucosa. A few general considerations will therefore be of greater importance to the proper comprehension of the diagnosis of these conditions, rather than a detailed description of the symptoms resulting from inflammation of individual sinuses.

Every unilateral chronic discharge of pus from the nose should be regarded as suspicious of chronic sinusitis. Furthermore, the discharge of pus in these cases is marked by a definite periodicity, that is, it usually appears in the morning. The discharge, accumulating in the diseased cavity during the night, flows through the ostia more or less freely as soon as the patient assumes the upright position. The latter fact is particularly applicable to the frontal sinus, inasmuch as the orifice of this sinus is located in the floor, that is the lowest level of the sinus. To a lesser extent this fact can be applied to the sphenoidal and maxillary sinus, the ostia in these sinuses being located at a higher level above the floor of the sinus.

Headache is a frequent symptom of sinusitis, the location depending on the sinus or sinuses involved. In sphenoidal disease occipital headache is a common symptom. Formerly supraorbital or infraorbital neuralgia was frequently diagnosed although frontal or maxillary disease was the causative factor. In true supraorbital neuralgia, the symptoms are paroxysmal in character, occur suddenly, radiating to the area corresponding to the anatomical distribution of the nerve. Pressure continued for some time causes lessening of pain. Pain due to frontal sinusitis is delimited by the size of the sinus, and is mild at first, increasing in intensity and disappearing slowly. Pressure causes an accentuation of pain. The pain in frontal sinusitis is complained of especially soon after rising, diminishing in intensity or even disappearing towards evening. Edema of the soft part overlying the affected sinus frequently occurs.

By means of anterior rhinoscopy, one can arrive at the decision not only that the sinuses are involved, but the particular group to which the sinuses belong may be diagnosticated with a fair degree of accuracy. So small and concealed are the ostia of the different sinuses that a direct inspection of them is rendered impossible. The presence of pus in the middle meatus, as previously mentioned, is indicative of maxillary, frontal, or anterior ethmoidal sinusitis. Should pus be seen in the olfactory space, that is in the cleft between the medial surface of the middle turbinate and septum, suspicion would be directed to the posterior ethmoidal and sphenoidal sinuses. Reappearance of pus immediately or soon after being wiped away from the middle meatus would be a point in favor of diagnosis of frontal sinusitis. After lavage of maxillary sinus, pus will not reappear in the middle meatus for a considerable time, *i.e.* half an hour or more. In inflammatory affection of this sinus, the explanation of this fact is reached on an anatomical basis, that is, the larger size of this cavity and the location of its opening at almost the highest level. Before arriving at any conclusion regarding the diagnostic value of the location of purulent secretion in the nose, a careful and thorough irrigation of the nasal cavity with saline solution should be the first procedure, followed by the application of a 5 per cent. cocaine solution in 1-2000 adrenalin solution, in order to bring the respective areas into better view.

As an aid to diagnosis and therapeusis of sinus disease, the utilization of negative pressure in the nasal cavity, by means of appropriate suction apparatus is to be recommended. By this means the presence of pus may be demonstrated in the middle meatus or olfactory space, the nasal cavity having previously been thoroughly cleansed with saline solution.

Transillumination of the frontal or maxillary sinuses offers an excellent although not infallible means of reaching a conclusion as to the presence or absence of fluid in these cavities. This procedure is less satisfactory in determining the presence of fluid in frontal than in maxillary sinusitis, because the frontal sinus varies so much in size and conformity that a definite conclusion cannot be reached by a somewhat darker area of the affected side. The application of this method consists in placing a small electric lamp in such a position that the rays of light will penetrate the sinus, thus permitting one to obtain an idea of the internal condition by the character of the shadow.

To obtain the best results with this method, an absolutely dark room is necessary. When maxillary sinusitis is suspected, a small electric lamp is placed in the patient's mouth, and the current is turned on until the face becomes luminous. One then compares both cheeks; if one sinus remains dark and the other light, we assume that the shadow is due to the exclusion of light by some affection of the dark sinus. Other phenomena noticed as a result of transillumination of the maxillary sinus are absence of a brilliant light in the pupil of the eye on the affected side, presence of shadow in the infraorbital region.

In transillumination of the frontal sinus, the electric lamp, properly shielded with a metal cover, is placed firmly against the floor of the frontal sinus at the inner angle of the eye. I have been using a double lamp for simultaneous examination of both frontal sinuses, thus permitting a com-

parison of the shadows cast. As to the diagnostic value of this method, it cannot be too strongly urged that absolute reliance is not to be placed upon the procedure, as it can be regarded only as one of the aids in establishing a diagnosis. Onodi, Hajek, and others have demonstrated that errors of diagnosis may frequently be committed because of variation in the thickness of the sinus walls, presence of septa, and differences in the consistency of the purulent secretion. Exploratory puncture offers the most reliable method of diagnosing maxillary sinusitis. The method of procedure is as follows: After thoroughly anesthetizing the inferior meatus with a 40 per cent. solution of cocaine, a trocar with a properly fitting cannula (Coakley's instrument is suitable for this purpose) is introduced into the sinus at a point directly under the attachment of the turbinate to the lateral wall of the nose and one-half inch behind the anterior end of the inferior turbinate. Moderate but firm pressure is all that is needed to enter the sinus. Pus may issue spontaneously from the cannula, but usually appears as a result of aspiration or irrigations of the cavity.

In recent years diagnosis of sinus disease by means of the *x*-ray has made rapid strides, so that this means is now regarded as invaluable not only in determining the presence of disease but by demonstrating anatomical anomalies present, determines the selection of the various types of operative procedures. For example, if by means of the *x*-rays inaccessible septa are demonstrated in the frontal sinus, or if the ethmoid cells are seen to extend over the orbital roof, an intranasal operation would not be selected. Furthermore, the height and depth of the frontal sinus can be shown, thus determining the type of operation, whether by the intranasal or external route. While of considerable value in the diagnosis of maxillary sinusitis, here it is of less importance, as other means previously referred to offer accurate and rapid means of diagnosis. As to the other sinuses, *i.e.* the anterior and posterior ethmoidal and sphenoidal sinuses, the *x*-ray findings by means of improved technique of today, are thoroughly reliable.

Treatment.—The kind of treatment directed toward the eradication of sinus disease, whether operative or non-operative, is influenced largely by the duration of the disease and the individual symptoms. For mild cases an expectant form of treatment is to be employed, while severer cases with evidence of the onset of serious complication involving the cerebrum or orbit call for urgent and energetic surgical measures.

Palliative local measures to be employed are of importance, inasmuch as they not only alleviate the acute symptoms, but by reducing the congestion permit of early restitution to normal, thus preventing the possible onset of complication.

To begin with, a 40 per cent. solution of cocaine in adrenalin, 1-1000, is thoroughly applied to the anterior end of the middle turbinate and the middle meatus, followed by irrigation of the nasal cavity with warm saline solution. This measure, repeated twice daily, contributes considerably to the relief of the patient's urgent symptoms. The hot saline irrigation not only washes away the excess cocaine solution but in addition serves the excellent purpose of relieving the intense congestion of the nasal and sinus mucosa. Inhalation of menthol, 10 per cent. solution in hot water, may be used. Passive hyperemia by means of an appropriate suction apparatus applied to the nostrils is a useful measure in the declining stage of the disease. I observed decided beneficial results at Killian's Clinic in Berlin from the use of superheated air applied to the nasal mucosa by means of appropriate apparatus. Electric light head baths, administered for 15 minutes daily, were effectively used for relief of the annoying neuralgic symptoms in frontal and maxillary sinus disease.

The use of vaccine therapy in the treatment of sinus disease has as yet met with indifferent results. Still, further experiments along these lines in certain types of subacute and chronic sinusitis are to be recommended.

In a majority of cases, as a result of free drainage which follows upon the application of the above measure, the acute condition soon subsides and restitution to normal is as complete as in the ordinary case of acute rhinitis. However, should the disease continue and become subacute or chronic, then resort to more energetic means of treatment becomes necessary. The object to be obtained in the treatment of chronic sinusitis is first of all to facilitate proper drainage and secondly to restore the lining mucosa to the normal. The first condition is met by the removal of any obstructions to drainage, *i. e.* removal of polypi (a frequently associated condition) resection of the anterior end of the middle turbinate, submucous resection of the septum, if a marked deviation to the diseased side is present. To restore the sinus mucosa to normal, frequent lavages with normal saline, boric acid, or permanganate solutions of the diseased sinuses are necessary to remove retained products of inflammation. If, following the removal of obstructive lesions in the nose, lavage produces the desired effect in relieving the patient of symptoms, this measure may be continued until all evidences of disease disappear. Should little or no improvement follow the above treatment employed over a reasonable period, the decision of having recourse to more or less radical operative procedures rests entirely with the patient. Many of these patients are content to go through life complaining of headaches of varying degrees, nasal discharge, etc. However, should repeated acute exacerbations follow, with or without the occurrence of cerebral or orbital complication, one is confronted with an absolute indication for surgical interference.

In recent years conservative surgical measures have replaced the more radical treatment formerly employed. Killian of Berlin on a number of occasions expressed the opinion to me that his well known operation for frontal sinusitis was used with far less frequency than in former years.

Conclusions.—1. Acute and chronic sinusitis is so frequent an accompanying condition of acute coryza, influenza, and other infectious diseases that a recognition of the early signs and symptoms should be at the command of the general practitioner.

2. Recourse to palliative therapeutic measures, when taken during the early stages of acute sinusitis, usually results in early restitution to normal.

3. In recent years radical operative measures in the treatment of the severer types of sinusitis have been replaced by conservative surgical procedures.

4. Absolute indications for radical operative treatment are definite, *i. e.* orbital or cerebral complications or frequent severe acute exacerbations of chronic sinusitis after persistent conservative treatment.

17 East Thirty-eighth Street.

Medicolegal Notes.

Authority of Employer's Agents and Servants to Contract for Medical Services.—Action was brougt by a physician against a railway company to recover for medical and surgical services rendered to an employee of the railway company, who was taken suddenly sick while loading a railroad track scale. The employee's foreman, Bernhart, endeavored to get the company's physician, and failing, called at the plaintiff's office and procured his assistance. He made an examination of Hanson, the sick man, who, on his advice, was taken to a hospital, where the plaintiff and three other doctors operated on him, discovering that he was suffering from a rupture of the walls of the stomach, which was caused by an abscess that had weakened the tissue so that the strain from lifting produced the rupture. The perforation was closed, the abdominal cavity cleaned out and sewed up, drainage put in and recovery of the patient followed. The plaintiff received a verdict and judgment in the circuit court for $150, from which verdict, however, the railway company at once appealed.

There was no claim of carelessness or negligence of the railway company. The labor in which Hanson was engaged was not especially hazardous; while the strain from lifting probably caused the rupture of the weakened wall of the stomach, it was not a strain that would have affected a normal man. There was no claim that the railway company employed the plaintiff to perform the service in question, or authorized anything in the matter, except in so far as it might be held liable for the acts of its foreman Bernhart, who was the foreman of a gang of two men. There was nothing to indicate any authority or apparent authority on his part to bind the railway company by any contract or agreement out of the line of his employment as a foreman in charge of a few laborers in the company's yards. There was conflict in the evidence as to whether he did or did not attempt to authorize or direct or acquiesce in the plaintiff's direction that Hanson should be removed to the hospital. But no officer or employee of the railway company gave any direction or assumed any responsibility as to the operation, and no employee of the company, other than Bernhart, had any knowledge of what was to be done, or what was done by the medical attendant at the hospital, until after the operation was performed.

The principal inquiry was whether there was any contract between the plaintiff and the company either expressed or implied. None was claimed except in so far as the company could be held bound by the acts of its employee Bernhart. The plaintiff insisted on the authority of Toledo, W. & W. R. Co. v. Rodrigues, 47 Ill. 188; Indianapolis & St. L. R. Co. v. Morris, 67 Ill. 295; Chicago Consol. Traction Co. v. Mathews, 117 Ill. App. 174, and Chicago & A. R. Co. v. Davis, 94 Ill. App. 54, that the request of Bernhart, the foreman in charge at the time of the occurrence, was sufficient to bind the company. But the court pointed out that in all these cases the liability of the defendant was based, not on the contract of some inferior servant, but on the ratification of the contract by some competent officer of the company.

In the Rodrigues case the general superintendent was presumed to have authority to ratify the contract of a station agent and the decision was based on the act of the general superintendent in ratifying the contract. In the Morris case the company was held liable for the services in question, not because of the contract of the conductor of the train, but because the officers of the company were notified of the services rendered and to be rendered at its expense, and it was held that it was its duty to notify the person performing the service if it did not intend to be held responsible, which it did not do.

In the Mathews case it was only held that the company was liable because when the plaintiff stated the case to the superintendent and asked as to a continuation of his services the superintendent made no direct reply, and therefore the trial court was justified in finding that the employment of the plaintiff by a conductor was ratified and confirmed by the company. In Cairo & St. L. R. Co. v. Mahoney, 82 Ill. 73, there was a recovery for services rendered at the request of a station agent, but the decision was based expressly on the ground that the employment by the station agent was ratified by the conduct of the general superintendent. And in St. Louis & K. C. R. Co. v. Olive, 40 Ill. App. 82, the right of recovery from the company on the contract of the conductor was expressly denied, because there was no evidence to show a ratification of such contract. In Chicago & A. R. Co. v. Davis, 94 Ill. App. 54, it was held that where an accident has happened to an employee and local surgeons of the company are not available, and the condition of the injured man requires prompt medical attention, the representative of the company in authority has the right to employ medical assistance, and thereby render the company liable for services. So far as the court could learn, the doctrine of the authority of an inferior officer in emergency cases, *i.e.* one in authority at the time and place of the accident, to bind his principal by contract for medical services rendered the injured in the absence of the company's physician rests on the dicta of the court in the Mathews case and the decision of the court in the Davis case. In the latter case the decision was based on the authority of the Rodrigues and Morris cases, and while the reasoning of those cases might tend to the support of such a rule, the court held that neither of them was express authority for it.

The rule is discussed and authorities reviewed in Salter v. Nebraska Tel. Co., 79 Neb. 373, 13 L. R. A. (N. S.) 545; and the conclusion is reached that under certain conditions such authority may be presumed without proof, and it is said: "This rule is one required by an emergency rather than one based on any general legal principle and that the authority of the officer with limited powers can extend no further than the emergency demands;" and that the "emergency services, unless expressly limited at the time of procuring them, ought to extend to a sufficient time for the party employed to communicate with the company, and, if it declines to be further responsible for notice to the proper poor authorities, if the injured party is entitled to public care." The authorities are to some extent reviewed in Bonnette v. St. Louis, I. M. & S. Ry. Co., 87 Ark. 197, and the authority of a conductor in charge of a train to employ a surgeon to attend a stranger injured in the running of the train was sustained on the ground that the emergency created the authority, the conductor being the highest agent of the company on the ground.

The railway company cited no authorities on this question of authority implied from the arising of an emergency, and its counsel said the question was too plain to require argument. It seemed to the court, from such examination of the reported cases as it had made, that the law is not settled either in the state of Illinois or by any uniform holding of the courts of other states. It seemed clear, however, that the foreman Bernhart had no authority to bind the railway company to pay for the services performed at the hospital. The surgeons presumably had time before operating on Hanson to communicate with officers of the railway company having apparent authority to act in the premises, and failing to do so they could not recover of the railway company for such services. But if it were a fact that Bernhart was the highest officer of the company on the ground, which it seemed to the court the plaintiff should have affirmatively proved, the court held that he had authority to employ the plaintiff to perform such temporary service, by way of first aid, as the occasion required, and therefore the plaintiff might on proper evidence recover in this action the value of the services rendered in treating Hanson in the company's yards and for such other and further service as the evidence might show was necessarily performed before he had time to communicate with authorized agents of the company; but he had no authority to employ other physicians and make the company liable either to them or himself for their services. The judgment was therefore reversed and the case remanded.—Aimone v. Chicago, M. & St. P. R. Co., 182 Ill. App. 592.

Expert Evidence—Medical Authorities.—A physician stated on cross-examination that in his opinion, partly from his own experience, the percentage of diabetes among people from thirty to fifty was greater than at any other period of life. He was asked, "What authority do you rely on in regard to that?" It was held that the cross-examining party should have asked him whether he relied on any medical authority and not have assumed that he did so, and the question was therefore very properly excluded.—Douglas vs. Berlin Dye Works & Laundry Co., California Supreme Court, 145 Pac. 535.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., EDITOR

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 19, 1915.

THE THERAPEUTIC VALUE OF HEXAMETHYLENAMINE.

It is unfortunate that so many of the newer remedies are at first accepted with unreasoning enthusiasm and later, when results seem not to be commensurate with the original expectations, are condemned with an enthusiasm just as active and unreasoning. It takes a long period of time and much experimentation to establish definitely the proper place for each remedy, and much of it is unnecessarily wasted. Salvarsan has passed through all these stages and its position seems now quite definitely assured. Hexamethylenamine has had to struggle more slowly through its probationary period. It was at first hailed as a universal antiseptic which was excreted in the bile, cerebrospinal fluid, nasal mucus, and the urine and capable of sterilizing all of them. The results obtained with its use did not fully justify these claims, and recently there have been several papers, especially in the literature in this country, which have endeavored to show that its value was limited to conditions in the urinary tract. Doubtless the pendulum is swinging too far to the negative side and eventually the true status of hexamethylenamine as a most useful drug, though not a panacea, will be established.

The most recent of these articles has just been published embodying the results obtained by Höst (*Zeitschr. f. klin. Med.* 1915, lxxxi, 272). He claims that Nicolaier's test for formaldehyde is more reliable and much more delicate than the Rimini test which has been used quite generally hitherto. He very definitely establishes the fact that the decomposition of hexamethylenamine into formaldehyde and ammonia depends upon three factors: the reaction, that is, the relation between the hydrogen and hydroxyl ion concentration; the absolute amount of the hydrogen ions; and the hexamethylenamine concentration. The temperature, which is an important factor, acts by influencing the degree of ionization. Thus he shows that if a solution of hexamethylenamine is raised to the boiling point decomposition takes place to a high degree, while if it is cooled again to zero the constituents recombine. All other things being equal the amount of the decomposition depends upon the time during which the action is allowed to proceed. So he agrees with other authors that an acid reaction is most favorable to the liberation of formaldehyde, but points out that even in faintly alkaline solutions the decomposition takes place, though very slowly. For instance, a neutral 0.2 per cent. solution will give a positive reaction for formaldehyde in fifteen minutes, while a solution of the same strength in N 10,000 sodium hydrate will give a positive reaction only at the end of twenty-four hours. A combination of the action of both heat and acidity results in a more complete decomposition than does either factor alone. They differ in that while a solution subjected to the influence of heat will yield only formaldehyde and ammonia, and these will wholly recombine on cooling, when the decomposition is effected by the action of acid there is produced also some methylenamine, and complete recombination does not take place on neutralization. Since the process is accompanied by the production of ammonia it is necessarily a self-limited one and will slow up as the acidity of the solution is diminished.

Höst states that hexamethylenamine is excreted by the kidney as such and that the decomposition therefore is proportionate to the hydrogen ion concentration and the time. It is partly broken down in the stomach and resynthesized in the intestines, and its time in the circulating blood is very short since it may appear in the urine within ten minutes of the time of its administration. He concludes that in diseases of the kidneys, renal pelvis, and ureters the therapeutic action is less marked since the urine is passed along so quickly, though there is possibly a better action when the urine is highly acid. In bladder conditions its value depends upon the reaction of the urine and on the frequency of micturition. When the urine is neutral or alkaline the effect will be more pronounced if the bladder is emptied at infrequent intervals.

EPITHELIAL PROLIFERATION.

As the result of numerous attempts to produce cancer experimentally by means of the injection of various substances, in which attempts Ribbert was the pioneer, Fischer discovered that scarlet-red, Sudan III, and indophenol have the property of stimulating the proliferation of epithelium. He attributed this power to the chemotactic influence exerted by the injected substance with respect to the attraxines of the epithelial elements. Alberto Marrassina (*Lo Sperimentale,* March 15, 1915) studied this subject anew, paying particular attention to the mechanism of the formation of atypical epithelial proliferation. He found that many of the substances capable of stimulating this proliferation in the ear of the rabbit are also oxidizing agents and concludes that it is not improbable that the stimulating power with reference to epithelial proliferation is at least in part associated with the oxidizing capacity.

The injection of the above substances into the lobule of the rabbit's ear is capable of accelerating the proliferation not only of the epithelium of the hair follicles, sebaceous glands, and epidermis, but also of the connective tissue and endothelium. In some cases there is an extraordinary predominance

in the proliferation of the epithelium, and in other cases in that of the connective tissue and endothelium. These differences depend upon certain conditions present in the animal experimented upon, as may be seen in the fact that in the rat there is a predominance in the proliferation of connective tissue and endothelium, whereas in the mouse there is a predominance in the proliferation of epithelium.

The addition of oleic acid to a saturated solution of Sudan III in olive oil does not appear sensibly to modify the result. If, however, one of the oxygen molecules of the oleic acid is replaced by a molecule of ozone, this tends to favor the process of proliferation. In many instances the proliferated epithelium has but slight resistance and rapidly undergoes corneous degeneration. It shows no tendency to infiltration and increases under the form of lobes or lobules that later assume the aspect of epithelial pearls. In other instances it forms cord-like masses that wind deeply and irregularly into the connective tissue, in the same manner in which epithelial tumors develop in connective tissue. The action of Sudan III and probably of other substances upon epithelium cannot be explained upon the basis of a chemotactic influence, but can be accounted for by assuming a stimulus of a blastic nature; for a similar action can be brought about by simply changing the normal equilibrium or relationships of the epithelium.

SALT IN THE DIETETICS OF PROTRACTED FEVERS.

THE study of the mineral component in the various diets for chronic ailments is a comparatively recent one. The use of common salt in this connection is of unusual interest. A diet rich in salt is believed to cause water retention and increase the weight, this being especially evident in renal insufficiency. To a layman it might seem that the greatly increased ingestion of water which accompanies a salty diet could in itself explain this gain in weight; but we know that the water retention which results from consumption of salt is a much more subtle phenomenon. Many subjects can ingest much salt daily without corresponding thirst and copious drinking. The great differences in weight between individuals and in the same individual at different times seem associated largely with ability or inability to retain water in the tissues, women especially showing remarkable fluctuations in weight within short periods which are inexplicable by ordinary reasons. No doubt such changes may in some cases be due to disordered mineral metabolism.

As is well known a milk diet, largely because of its poverty in salt, can be made to cause a rapid reduction in weight. Suppose, however, the patient has a chronic ailment and is bedfast, especially if the presence of fever forbids him to leave his bed. Does not the poverty of salt in his milk diet come in time to threaten him with deprivation symptoms?

Schütz, in the military supplement of the *Münch. med. Wochenschrift* for April 13, expresses his fear of such a contingency. Poverty of salt in the diet should in time affect unfavorably the production of gastric juice. It naturally occurred to him to add salt to the milk diet of patients with chronic elevation of temperature on general principles; but he hardly expected the brilliant results which he obtained. The patients at once began to feel much better and developed an appetite, doubtless as a result of increased acidity of the gastric juice.

LOCAL AMYLOIDOSIS OF THE HEART.

GENERAL amyloidosis as a result of bone suppuration, syphilis, etc., is sufficiently well known, but the localized types, which may have a different origin, are much less in evidence, being largely necropsy fluids without definite symptomatology. However, when so important an organ as the heart suffers from this condition, a phenomenon of clinical significance may be in evidence. At a recent session of the Halle (a. S.) Medical Society (*Münchener medizinische Wochenschrift*, April 13) Beneke discusses the few cases of this affection personally known to him (some five). The cases showed a sufficient resemblance to one another to constitute a type. Clinical and etiological data are scanty. One patient was a 74-year-old prostatic with pyelonephritis and cystitis, likewise chronic bronchitis. In regard to the heart it is asserted positively that the muscle, especially of the auricle, and also the endocardium, was permeated with spherules of amyloid substance. Of much interest is the fact that the process tended to involve the great veins while the arteries were spared. The amyloidosis did not penetrate within the muscular fibers and force them apart but involved only the sheath or external aspect. As studied in the heart, amyloidosis possesses a morbid similarity to the ordinary formation of connective tissue. A ferment catalyzator is doubtless responsible for the precipitation of amyloid substance from the lymph.

A METHOD OF VEIN DISTENTION FOR INTRAVENOUS INJECTIONS.

THE method of distending the superficial veins of the forearm preparatory to intravenous injection, advocated by Hoge (*Surgery, Gynecology, and Obstetrics*, December, 1914). is so simple and efficient that it deserves a word of appreciation. His method consists in the use of an inflatable rubber bag, such as the arm band from a blood-pressure apparatus, with a tube attached leading to a hand pump with a screw escape valve. When the operator is ready to proceed with the intravenous injection, the apparatus is adjusted to the upper arm by an assistant and the bag inflated until the desired degree of pressure and consequent distention of the veins has been obtaind. When the needle or cannula has been properly inserted into the vein the valve is opened and pressure rapidly relieved. The air release thus occurs without jarring the arm or disturbing the sterile field. The advantages claimed for the method are: That the degree of distention is easily controlled, and with a degree of accuracy that is not possible with an ordinary tourniquet, which is often tied too tightly, thus stopping both arterial and venous flow, or tied not tightly enough, causing insufficient distention; that there is no fumbling with knots, the entire procedure being controlled easily and well away from the site of operation; that there is no jarring of the arm in releasing the obstruction, hence the risk of displacing the needle is

thus prevented; and that there is minimal danger of injuring the intima of the obstructed vessels. The experience of those who have tried this method in a number of cases shows that the author's claims are entirely justified and that the method should be resorted to by those who have been so unfortunate as to have a perfectly placed needle jerked out of the vein by a sudden twitch of the arm during the removal of the tourniquet.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—The treasurer, Dr. F. F. Simpson, 7048 Jenkins Arcade Bldg., Pittsburgh, Pa., reports the receipt of the following contributions for the week ending June 12, 1915:

New England Hospital Medical Society, Boston, Mass.	$30.00
Aux Plaines Branch of Chicago Med. Soc., Maywood, Ill.	41.00
Vigo County Medical Society, Terre Haute, Ind.	25.00
Dr. Jacob Schwinn, Wheeling, W. Va.	10.00
Dr. John Bryant, Boston, Mass.	10.00
Drs. Robert J. and John L. Sagerson, Johnstown, Pa.	10.00
Dr. Catherine H. Travis, New Britain, Conn.	2.00
Dr. George B. Lake, Manila, P. I.	2.00
Dr. M. J. Kenefick, Algona, Iowa	10.00
Dr. E. W. Link, Palestine, Texas (second contribution)	10.00
Receipts for the week ending June 12th	$153 00
Previously reported receipts	7,159.00
Total receipts	$7,312.00
Disbursements for the week ending June 12th:	
140 Standard boxes of food at $2.28.. $319.20	
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20..$3,575.00	
1,274 Standard boxes of food at $2.30.. 2,930.20	
213 Standard boxes of food at $2.28.. 485.64	
Total disbursements	7,310.04
Balance	$1.96

Death Rate in New York City.—The Health Department reports for the first twenty-three weeks of 1915 a death rate of 14.44 as compared with 15.15 for the corresponding period of 1914. Several of the infectious diseases show a slight increase, which, however, is offset by reductions in the death toll of other diseases of this group. The greatest increase is seen under the heading of bronchopneumonia.

Virulent Smallpox at New Bedford, Mass.—The United States Public Health Service reports that there is at present an outbreak of virulent smallpox at New Bedford, Mass. Since May 15 there have been 10 cases, of which 3 have terminated fatally. Four of the cases have been of the hemorrhagic type.

Discounts on Surgical Instruments.—At the joint convention of the American Surgical Trade Association, the American Surgical Trade Credit Association, and the Wholesale Surgical Trade Association, recently held in New York, one of the statements made was that because of the great demand for surgical instruments of all kinds by the warring nations in Europe there is a shortage in this country. Discounts to physicians of 10 per cent. and even higher for cash payments have been cut to 2 per cent. Criticism was made of what was termed the questionable activities of certain classes of surgeons who sometimes get as high as 25 per cent. discount from dealers on purchases made by the patient. The latter as a rule gets no benefit from the reduction.

Tuberculosis Nurses.—The people of Los Angeles at the city election held June 1, passed by a vote of about two to one an initiative ordinance providing for the employment of municipal visiting tuberculosis nurses. The Health Commissioner of the City of Los Angeles is empowered to employ municipal visiting tuberculosis nurses in the proportion of one nurse per one hundred reported cases of tuberculosis. The above ordinance was drawn and fathered by Dr. George E. Malsbary, editor of the *Southern California Practitioner*.

A Diagnosis.—It is reported that Dr. G. of the Stamford Hospital called a New York surgeon one day last week for the purpose of making a differential diagnosis in a puzzling case with abdominal complications. The consultant who has the reputation of being something of a wag made a diagnosis of gallstones and stated that forty-six gallstones would be found in the gall-bladder. This proved to be the exact number, according to the testimony of members of the hospital staff who were present at the operation.

War Against Alcohol.—Dr. S. S. Goldwater, Commissioner of Health of New York City, has asked for the organization of a special committee of the advisory council of the Department of Health for the purpose of starting a campaign against the abuse of alcohol.

"Child Welfare Day."—The New York State Department of Health has designated Sunday, June 20, as "Child Welfare Day." Pastors of all denominations have been asked to cooperate and are receiving from the department data upon which to base sermons or short talks at one of their services on that Sunday. The educational campaign of the Division of Child Hygiene of the Department of Health last year brought about a decrease in the infant death rate from 137 to 112 per thousand births. This means that approximately 1400 deaths of infants were prevented.

Wood Alcohol in Toilet Preparations.—An investigation conducted by inspectors of the New York City Health Department last year disclosed the fact that more than one-third of the toilet preparations sold in this city contained wood alcohol. The use of wood alcohol in all preparations for human use, either externally or internally, is forbidden by the Sanitary Code, and manufacturers have been repeatedly warned through their trade papers concerning this provision of the law.

Mayo Offer is Accepted.—By a unanimous vote of the ten members of the Board of Regents present at the University of Minnesota on June 9, that body decided to adopt the six year trial period in which graduate medical work will be pursued at Rochester, Minn., under the offer of the Mayo Foundation, which makes available, in the event of a permanent arrangement, the income of a $2,000,000 endowment.

New Appointments to Willard Parker and Riverside Hospitals.—The following appointments have been made to the staff of the Willard Parker Hospital: Dr. Edward D. Fisher, consulting neurologist; Dr. James T. Gwathmey, special anesthetist and instructor in anesthesis to the Willard Parker and Riverside Hospitals; Dr. M. C. Pease, assistant attending physician; Dr. William Ropes May, assistant attending physician; Dr. Charles H. Smith, assistant attending physician. Dr. Lamont H. Fisher has been appointed assistant attending physician to the Riverside Hospital, and Dr. Harold Hays, assistant laryngologist to Riverside Hospital.

Campaign Against Venereal Diseases in Vermont.—A law enacted by Vermont on March 25, 1915, contains the following provisions: "A person who, knowing himself to be infected with gonorrhea or syphilis, marries, shall be fined not more than

$500 or imprisoned in the house of correction for not more than two years." "A person who, while infected with gonorrhea or syphilis, has sexual intercourse shall be fined not more than $500 or imprisoned in the house of correction for not more than one year."

Charitable Bequests.—By the will of the late Rosalie L. Hope, of Philadelphia, the sum of $2,000 is bequeathed to the Jewish Hospital for the endowment of a free bed in memory of her husband and herself.

By the will of the late Thomas A. McElwell of Philadelphia, the sum of $5,000 is bequeathed to St. Joseph's Hospital, to endow a free bed in memory of the testator's brother, Rear Admiral Jackson McElwell of the United States Navy, and the sum of $5,000 to St. Agnes Hospital, to endow a free bed in memory in the name of the testator. Also contingent bequests are made to St. Agnes, St. Mary's and St. Joseph's Hospitals.

By the will of the late Alice H. Richardson, the sum of $5,000 is bequeathed to the Episcopal Hospital, to endow a free bed in memory of William H. Richardson, and $500 to the West Philadelphia Hospital for Women for the endowment of C. D. Richardson Free Room.

Medical College Commencements.—At the annual commencement of the Women's Medical College of Pennsylvania, held at Philadelphia on June 2 the degree of Doctor of Medicine was conferred on 29 graduates, and an address was delivered by Dr. Richard C. Cabot of Boston entitled "The Mission of Medical Women in the Social Service Field."

The annual commencement of the Medico-Chirurgical College of Philadelphia was held on June 4, and the medical degree was conferred on 82 graduates.

At the annual commencement of Jefferson Medical College held at Philadelphia on June 5 the Doctorate was conferred on 146 graduates, and Dr. Victor Clarence Vaughan of Ann Arbor, Mich., president of the American Medical Association, delivered the valedictory address, entitled "A Doctor's Ideals." The degree of Doctor of Laws was conferred by the trustees of the college on Dr. Vaughan.

At the annual commencement of Temple University of Philadelphia on June 5 the medical degree was conferred on 24 graduates, and Dr. Charles E. de M. Sajous was made a Doctor of Science.

At the annual commencement of Cornell University Medical College held June 10, 1915, the medical degree was conferred on 20 graduates. An address was delivered to the latter by President Jacob Gould Schurman of the university.

Dr. Henry L. Elsner, Professor of Medicine in Syracuse University, has received the honorary degree of Doctor of Laws at the recent commencement exercises of this university.

Dr. Edward Livingston Hunt of New York has been appointed assistant professor of clinical neurology in the College of Physicians and Surgeons, Columbia University.

Dr. I. Arthur Stoloff of New York has been appointed Assistant Surgeon to the New York City Children's Hospitals and Schools, Randall's Island, under the service of Dr. William Seaman Bainbridge.

Dr. Francis H. Mead has resigned as health officer for the city of San Diego, Cal. The Board of Health on his resignation passed a resolution thanking him for his services during the past 8 years. He is succeeded by Dr. A. E. Banks, who has held the position of assistant health officer during the past 8 months.

Dr. Ella B. Everitt of Philadelphia has been elected president of Wilson College at Chambersburg, Pa.

Alumni Association, Medical Department, University of Buffalo.—At the annual reunion of this association held on June 3, due recognition was given to Dr. Peter W. Van Peyma, teacher as well as clinical professor of obstetrics for thirty years, who retires this year. The graduating class presented an enlarged likeness of Dr. Van Peyma to the university to be hung in the college library. The constitution and by-laws of the association were revised and steps were taken to establish an Alumni Endowment Fund which is to be used for the advancement of teaching and research work in the institution. The following officers were elected: *President*, Dr. Lesser Kauffman of Buffalo; *First Vice-President*, Dr. Charles D. Aaron of Detroit; *Second Vice-President*, Dr. Archer D. Babcock of Syracuse; *Third Vice-President*, Dr. James E. King of Buffalo; *Fourth Vice-President*, Dr. Jane W. Carroll of Paterson; *Fifth Vice-President*, Dr. Lee A. Whitney of Rochester; *Secretary*, Dr. Julius Richter of Buffalo; *Treasurer*, Dr. Frank E. Brundage of Buffalo.

Medical Society Elections.—The Dakota Medical Association at its annual meeting, held in Bismarck May 13, elected the following officers: *President*, Dr. H. V. Stickney, Dickinson; *First Vice-President*, Dr. V. J. Larose, Bismarck; *Second Vice-President*, Dr. George M. Williamson, Grand Forks; *Third Vice-President*, Dr. E. A. Pray, Valley City; *Secretary*, Dr. H. J. Rowe, Casselton; *Treasurer*, Dr. W. F. Sihler, Devils Lake; *Counselors*, A. S. Nicholson, Max; William Baldwin, Casselton; G. Golseth, Jamestown; Charles MacKachlan, New Rockford; *Delegate to A. M. A. Meeting*, C. S. Crane, Grand Forks; *Alternate*, James Aylen, Fargo; *Medical Defense Committee*, C. N. Callander, Fargo; *Recommended for Medical Examining Board*, H. O. Altnow, Mandan; B. L. Meiggs, Edgeley; H. O. Woutat, Grand Forks. The next meeting place of the association will be Devils Lake.

The Homeopathic Medical Society of the State of Kansas at its annual meeting held in Topeka, May 6, elected the following officers: *President*, Dr. W. J. Gates of Kansas City; *Vice-President*, Dr. S. W. Royer of Wichita; *Secretary*, Dr. C. E. Kinley of Kansas City; *Treasurer*, Dr. M. A. Swift, Topeka; *Delegates to the American Institute of Homeopathy*, Dr. S. A. Bass of Wichita, and Dr. W. J. Gates of Kansas City.

The Mississippi State Medical Association at its annual meeting held in Hattiesburg, May 13, elected the following officers: *President*, I. W. Cooper, Newton; *Vice-Presidents*, W. H. Scudder, Mayersville; J. W. Lucas, Moorehead; W. L. Orr, Fulton; *Counselors*, third district, C. M. Murray, Ripley; fourth, J. J. Underwood, Nettleton; ninth, J. C. McNair, Fayette; *Members of State Board of Health*, S. W. Glass, Lyon; T. F. Elkin, Tupelo; S. E. Eason, New Albany; J. H. Johnson, Brookhaven; T. H. Seay, Laurel; *Delegate to A. M. A.*, Dr. J. S. Ullman, Natchez. The next annual meeting will be in Greenville.

The Florida State Medical Association at its annual meeting held in DeLand, May 14, elected the following officers: *President*, Dr. H. McGinnis of Jacksonville; *First Vice-President*, Dr. W. R. Stevens of DeLand; *Second Vice-President*, Dr. Mary

Freeman of Perrine; *Third Vice-President*, Dr. Coffie of Fort Meade. Arcadia was chosen as the convention city for 1916.

The Windham County (Vt.) Medical Society at its annual meeting held in Bellows Falls, May 11, elected the following officers: *President*, Dr. W. F. Hazelton of Bellows Falls; *Vice-President*, Dr. F. L. Osgood of Saxtons River; *Secretary*, Dr. G. R. Anderson of Brattleboro.

The Jersey County (Ill.) Medical Society at its annual meeting held May 13, elected the following officers: *President*, Dr. A. A. Barnett; *Vice-President*, Dr. H. R. Gledhill; *Secretary and Treasurer*, Dr. A. R. Bohannon.

The Clinton County (Ill.) Medical Society at its annual meeting held in Carlisle, May 13, elected the following officers: *President*, Dr. J. W. Du Comb of Beckemeyer; *Secretary*, Dr. L. Niess of Trenton; *Treasurer*, Dr. Orville O'Neil of Shattuc; *Delegate State Medical Society*, J. W. Du Comb; *Alternate*, Dr. J. Q. Roane of Carlyle.

Obituary Notes.—Dr. Matthew Joseph McKenna of Brooklyn, N. Y., a graduate of the Long Island College Hospital, Brooklyn, in 1912, and until recently an interne at St. Catherine's Hospital, died at his home from nephritis, on June 4, aged 24 years.

Dr. Sumner Carruth Saville of Boston, Mass., a graduate of Harvard University, Medical School, Boston, in 1894, and a member of the American Medical Association and the Massachusetts Medical Society, died at his home in Cambridge on May 27, aged 48 years.

Dr. Reuben Robinson of San Antonio, Tex., a graduate of the University of Nebraska, College of Medicine, in 1896, formerly on the staff of the Creighton Medical College, Omaha, and a member of the State Medical Association of Texas and the Bexar County Medical Society, died at his home after a long illness, on May 20, aged 54 years.

Dr. William J. Gills of Farmville, Va., a graduate of the University College of Medicine, Richmond, Va., in 1901, and a member of the Medical Society of Virginia and the Mettauer County Medical Society, and secretary of the latter, died in a sanatorium in Richmond, from pellagra, after a long illness, on May 19, aged 37 years.

Dr. Frank Neall Robinson, formerly of Camden, N. J., died at Monrovia, Cal., on May 26, at the age of 41 years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1895. He was a Fellow of the American Medical Association.

Dr. Henry D. Moore of Philadelphia died on May 27 at the age of 50 years. He was graduated from Jefferson Medical College in the class of 1887. He was a member of the Philadelphia County Medical Society and of the Medical Society of the State of Pennsylvania and a Fellow of the American Medical Association.

Dr. Arthur Worrall Palmer of New York, a graduate of the New York Homeopathic Medical College and Hospital in 1883, a member of the American Institute of Homeopathy, the Homeopathic Medical Societies of the State and County of New York, the American Editors' Association, and the Academy of Pathological Science, surgeon to the New York Ophthalmic Hospital and laryngologist to the Metropolitan Hospital, and formerly editor of the *Journal of Ophthalmology, Otology, and Laryngology*, died at his home, on June 10, aged 54 years.

Dr. George W. Guthrie of Wilkes-Barre, Penn., a graduate of the University of Pennsylvania, Department of Medicine, Philadelphia, in 1873, a member of the American Medical Association, the Medical Society of the State of Pennsylvania, the Luzerne County Medical Society, the American Surgical Association, and the American Climatological Society, for many years president of the Wilkes-Barre City Hospital, and consulting surgeon to the Pittston Hospital and continuously since 1878 a member of the Wilkes-Barre School Board, died at his home, after a long illness, on June 1, aged 70 years.

Dr. Charles H. Colegrove of Willimantic, Conn., a graduate of the Detroit Homeopathic Medical College in 1873, and a member of the American Institute of Homeopathy, the Hahnemann Society of Michigan, and the Connecticut State Homeopathic Medical Society, died at his home, after a long illness, on May 29.

Dr. Gustavus Freedom Walker of Boston, Mass., a graduate of the Vermont Medical College, Rutland, in 1888, medical director of the Massachusetts Department of the Grand Army, and lieutenant surgeon of the Ancient and Honorable Artillery of Boston, died at his home on June 1, aged 72 years.

Dr. James Henry Joyce of Salem, Mass., a graduate of Tufts College Medical School, Boston, in 1903, formerly city physician of Salem, and a member of the Massachusetts Medical Society and the Essex District Medical Society, died at his home, after a long illness, on May 28, aged 35 years.

Dr. George Henry Hutchings of Woburn, Mass., a graduate of the Eclectic Medical College of the City of New York in 1884, died at his home, from heart disease, on May 30, aged 75 years.

Dr. James Orton Edie of Grand Rapids, Mich., a graduate of the Jefferson Medical College, Philadelphia, in 1874, a member of the Michigan State and Kent County Medical Societies, and the National Association of Railway Surgeons, formerly consulting physician to the Butterworth Hospital and the Union Benevolent Association Hospital, Grand Rapids, and on the staff of the Grand Rapids Medical College, died in Everett, Wash., on May 26, aged 78 years.

Dr. Robert Clement French of Natchez, Miss., a graduate of the Tulane University of Louisiana, School of Medicine, New Orleans, in 1906, and a member of the American Medical Association, the Mississippi State Medical Association, and the Adams County Medical Society, died in New Orleans, following an operation for appendicitis, on May 29, aged 37 years.

Dr. Joseph Walker Floyd of Tabor, N. C., a graduate of the Medical College of the State of South Carolina, Charleston, in 1900, and a member of the Medical Society of the State of North Carolina and the Columbus County Medical Society, died at his home, from apoplexy, on June 4, aged 41 years.

Dr. Daniel R. McCormick of Lancaster, Penn., a graduate of the Jefferson Medical College, Philadelphia, in 1882, and a member of the American Medical Association, the Medical Society of the State of Pennsylvania, and the Lancaster County Medical Society, died at his home on May 31, aged 50 years.

Dr. B. Frank Zerbe died of meningitis at Schaefferstown, Pa., on May 31 at the age of 61 years. He was graduated from Jefferson Medical College in the class of 1878.

Dr. JAMES MACARTHUR of London, Ont., a graduate of the Medical Faculty of Queen's University, Kingston, Ont., in 1878, and one of the founders of the London Medical Association, died at his home suddenly on May 23, aged 60 years.

Dr. J. M. GUESS of Centerville, Ga., a graduate of the University of Georgia, College of Medicine, Augusta, in 1878, died on May 26, aged 61 years.

Dr. ISAAC R. LANDIS died at Philadelphia on May 29 at the age of 74 years. He was graduated from Jefferson Medical College in the class of 1865.

Dr. HARRY H. SHERK of Camden, N. J., died at Philadelphia, on June 1 at the age of 56 years. He was graduated from Jefferson Medical College in the class of 1886.

Dr. JOHN S. MACK of Schaefferstown, Pa., died at Buffalo, N. Y., on May 30 at the age of 45 years. He was graduated from the medical department of the University of Pennsylvania in the class of 1892.

Obituary.

COLONEL CHARLES E. WOODRUFF,

NEW ROCHELLE, N. Y.

CHARLES EDWARD WOODRUFF, Lieutenant-Colonel, U. S. Army, retired, died at his home in New Rochelle, N. Y., June 13, after a long illness. He was born in Philadelphia fifty-five years ago, received his early training at Annapolis, and in 1886 entered the United States Navy as a surgeon. A year later he resigned this commission to accept a similar one in the army. He became chief surgeon of brigade on Gen. Merritt's staff in the Philippines. Later he was commissioned by the Government to make a tour of inspection of foreign army posts. During his long service in the tropics Colonel Woodruff made a special study of ethnic conditions, the results of which study are recorded in his well-known works on "The Effects of Tropical Light on White Men" and "The Expansion of the Races." The last product of his pen, entitled "Medical Ethnology," has only recently been issued from the press. Colonel Woodruff wrote the article on this subject in the Reference Handbook of the Medical Sciences. He was a frequent contributor to the MEDICAL RECORD and other journals, and recently became associate editor of *American Medicine*. The death of Dr. Woodruff will be sorely felt by all who have recognized in him the scholar, the patriot, and the gentleman.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

THE WAR—ALLEGED SCARCITY OF DOCTORS AT HOME—PHARMACISTS' OFFER—R. S. M. TYROSINE—ANEURYSM—ISOLATING TYPHOID ORGANISMS—THYROIDISM—TUBAL PREGNANCY—OBITUARY.

LONDON, May 28, 1915.

THE war is still the uppermost subject at every casual meeting. Even medical men when they meet let it overwhelm all other topics. The National Health Insurance Medical Research Committee is devoting its energies to points connected with the war. They are compiling statistics as to the sick and wounded and assisting the military hospitals in their pathological work. In some instances they have equipped laboratories in these hospitals for special researches, mostly in connection with the R. A. M. C.

One effect of the state of war is more talked about than otherwise perceived; we are told that the needs of the army have already occasioned a scarcity of medical practitioners at home. No doubt, here and there the absence of busy men who have left civil practice for military service makes some difference to those remaining, but I feel sure they will be able to cope with the extra work. Indeed we have long been accustomed to lament the overcrowding of the profession and yet with a prospect of some diminution there is an opposite outcry. There is a movement to allow medical students who have enlisted towards the end of their curriculum to return and fulfill it, as they would serve their country better as surgeons than in the ranks. This is perhaps reasonable provided the clinical part is not diminished, the lectures being of less importance than the bedside work in the wards.

Taking advantage of the outcry certain pharmacists are putting forward a claim to be admitted to the medical profession on special terms, such as being excused from examination in the matriculation and on subjects they have already been tested in, *e. g.* chemistry and materia medica. This may not be very objectionable, but obviously hospital work must not be diminished in the least and the entire examination can be on a clinical and practical basis.

At the Royal Society of Medicine Dr. H. Charlton Bastian, in a paper on "Tyrosine as an Aid in the Demonstration of the Present-Day *de novo* Origin of Living Organisms," has put forward some reply to the incredulity with which his deductions from experiments as to spontaneous generation or "archebiosis" as he terms it, have been received. The attempts to explain them away he ranges under three suppositions: (1) That the bodies found were mere simulacra or pseudoorganisms. (2) That they were dead, having preexisted in the material experimented with and been killed in the sterilization. (3) That they had come from an impure pipette, or dropped from the air on to the slide before a cover glass had been applied. In answer to 1 and 2 he held that tyrosine had proved valuable since a small quantity of a very dilute solution caused any living organism present to grow and multiply freely. He described the effects observed on tubes opened at different periods and compared with one another and reclosed and opened again at another period. Growth was always found, proving they were neither dead nor simulacra. When tyrosine was added to new tubes they all remained sterile.

Dr. Kingston Fox exhibited an aneurysm of the left ventricle which projected from cardiac apex and looked about as big as a cricket ball. The aortic valve showed sclerotic change and the coronary artery some thickening of its walls.

The arc light method of isolating typhoid organisms devised by Professor Dreyer was demonstrated by him jointly with Dr. W. Ainley Walker. The former said the maximum effect was shown by the ultra-violet rays, but the ultra-red were also very effective. It was possible to isolate microorganisms by this means when ordinary bacteriological methods were of no avail. Professor Dreyer also demonstrated the agglutination method named after him. Dr. Ainley Walker considered this method reliable and an easy way of distinguishing an active case of typhoid from one in which immunity had been reached. It allowed

comparison of the agglutinating power of a patient's sera on succeeding days.

In another section (psychiatry) Dr. M. Kojima gave the results of examination of the thyroid gland in 110 cases of mental disorder. In this "consecutive series" all the ductless glands were carefully removed from the body and weighed. The minimum average weight in the non-insane was 22 to 25 grams. In the insane much less, 16.5 in males and 16.87 in females. But great variation was noted in the insane, especially in females. He considered all exhibited hypothyroidism. Dr. Mott (president) gave a microscopic demonstration of changes in the nervous system in hypothyroidism. Dr. Armstrong-Jones showed cases to illustrate a condition due to loss of function of the thyroid gland. Sir V. Horsley had shown the effect of removal. In children absence of thyroid produced sporadic cretinism, in adults myxedema.

In the obstetrical and gynecological section Dr. C. E. Purslow demonstrated a case of tubal pregnancy, showing the fetus undergoing dissolution removed by abdominal section from a married multipara Oct. 31. Menstruation had been regular until twelve weeks before admission to hospital., then amenorrhea until a fortnight before admission, since when there had been continuous slight loss. Two attacks of pain and faintness had occurred. On examination tubal pregnancy was diagnosed, though some signs were unusual. The swelling was above the pelvic brim and could not be reached by the finger per rectum or per vaginam. The specimen showed unruptured distended tube. Cross sections had been made showing diameter to be 2¼ in. Tube filled with firm blood-clot with cavity in center containing turbid fluid, in which was the macerated head of a fetus of about 10 weeks growth —no other part of fetus found.

Dr. Blair Bell read a paper to show that infundibulin introduced by him in 1909 had established its power of promoting rhythmical contractions during and after parturition, for which purpose he first introduced it.

The annual meeting of the Medical Society of London was held on the 12th inst. when there was an exhibition of early books on naval and military surgery besides other works in the society's library and objects of interest from various sources. The president, Mr. D'Arcy Power, gave a demonstration with the epidiascope and exhibited a silver penny struck in the reign of Henry III.

Surgeon-General Arthur James Payne died on May 21 in his eighty-ninth year. His career was in the Indian Medical Service in which he attained the rank of surgeon-general in 1885.

JAVA AND ITS MEDICAL SCHOOL.

(From Our Special Correspondent.)

A TRIP TO JAVA—ITS HOTEL ACCOMMODATIONS—THE JAVA MEDICAL SCHOOL.

BUITENZORG, JAVA, April 2, 1915.

A TRIP to Java is a very interesting journey not only for the tourist but for the medical man as well. Batavia, the largest city of Java, is 528 miles from Singapore. Steamers are frequent and the journey over the equator is pleasant. The steamers Melchor Treub and the Rumphius are the pride of the Dutch people. They are beautifully appointed and fast. One or the other of these vessels leaves Singapore every Friday evening and arrives at Tandjong Priok, which is the seaport for Batavia, early Sunday morning. There is a train about once an hour and Batavia is reached in 20 minutes.

The hotels are built entirely different from those in other parts of the world. A first class hotel consists of many two story buildings, arranged around a square that is as large as the average city block. These buildings have two sets of quarters on the first floor and two on the second floor. The quarters are entirely separate; each has its own entrance. There are separate driveways from the street, and the rooms can be entered or left with the same privacy as though the house were located in a park. When a guest registers for a room he is assigned to one of these sets of quarters. Each consists of a vestibule, a huge front veranda, a bedroom about 20 x 20 feet, a rear veranda, a toilet room, and a bath room. The office and dinings rooms are located near the center of the square. At other places in the grounds there are buildings which are used for reading rooms, library, billiard rooms, social hall, etc. The grounds contain many trees, flowers, shrubs and other plants, and artistically arranged walks lead in all directions. A servant is assigned to each guest, who looks after the quarters, waits upon him in the dining room and attends to his personal wants.

For the medical man one of the principal objects of interest is the medical school. As a rule anything undertaken by the Dutch in Java is done well, and the medical school is no exception. It maintains a standard that would serve as an excellent example to many schools in the United States. The only medical school in the Netherlands India is located in Batavia and is called the Schoot Tot Opleiding van Inl. Artsen. Another school is now being started in Sourabaya but it will be very small.

The Batavia institution was founded about 1865. It now has 116 students, and graduates from 10 to 15 per year. As only a few men come from abroad to practise, and as the population of Netherlands India is about 52,000,000, it will be noted how hopelessly inadequate this small number is to meet the needs of the inhabitants.

The course is nine years, but only six of these are spent in the medical department proper. It differs from most medical schools in that it has an academic department where a three-year preparatory course is given before the study of medicine is begun. The academic department was found necessary because there are no universities or other higher schools in Java where an education suitable to enter a medical school can be obtained.

Entrance to the preparatory course requires credits comparable to the first year of the average high school of the United States. An excellent general education is given in this school, and on account of its being conducted in connection with the medical school, it is possible to lay special stress on those parts of the course which are believed to be desirable to meet the needs of the medical school. To graduate from this course three years' attendance is necessary as well as to pass the examinations, which are equivalent to those of the first college year of an American university.

The medical course is six years, and compares very favorably with the standard established for class A colleges by the American Association of Medical colleges, and in some respects the requirements are higher. The school year extends over ten months of the year and an average of 26 hours instruction per week is given. A study of the curriculum and an inspection of the work of the stu-

dents, and seeing the teachers and pupils at work gave the impression that the course is thorough. There are eight whole time professors. The school is located near the military hospital, which has over 500 beds which are accessible to the students. During the last two years the students are required to live in the hospital and render regular duty as internes in so far as their school studies will permit.

The instruction is given entirely in Dutch. Much time is required to prepare Javanese students to receive medical instruction in that language. Every effort is made to make the course practical and much bedside teaching is done. Over 40 cadavers are dissected each year, which is an average of approximately 2 per student during the time he is studying anatomy.

The students are practically all Javanese males, although girls are admitted, and one is taking the course now. They enter the preparatory course from 12 to 16 years of age. By the time the preparatory course is finished most of the undesirable students have been weeded out. The Javanese are eager to learn, and make excellent students. The teachers report that they compare very favorably with students in European schools in their ability to assimilate knowledge. Discipline is excellent and very little difficulty is experienced in having them obey the rules. They pay no tuition fees. They are furnished with free board, lodging, books, in short, everything required to study medicine, and in addition they receive an allowance of $6 to $10 per month.

The government meets the entire expense of the school. There is now in course of construction at Salemba, a new medical school building which will accommodate 400 students. Even the present building is well adapted for the purpose. The laboratory space and equipment is excellent.

In addition to the clinical instruction at the military hospital there is actually conducted in the school by the instructors an outpatient dispensary. The students are required to take an active part in the work of the clinic under the immediate supervision of their teachers.

There is also conducted in connection with the school a students' club in which there are a general reading room, billiard tables, etc. The professors state that the contentment and discipline have improved greatly since the club was started.

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 3, 1915.

1. Percival Pott, His Times and His Work. R. W. Lovett.
2. Late Results of Surgical Treatments for Flexed Scapulæ, with a Discussion of the Subject. H. W. Marshall.
3. Program and Directions for the Mental Examination of Asocial, Psychopathic, and Doubtful Subjects. Rose S. Hardwick.
4. Urethral Caruncle. E. L. Young, Jr.
5. Cutaneous Tuberculosis. Report of a Case of Folliclis and Erythema Induratum. J. H. Bufford and C. G. Lane.

2. Surgical Treatment of Flexed Scapulæ.—H. W. Marshall states that Goldthwait has devised the operation of removing the tips of the superior angles, and has proved that painful symptoms in backs may be stopped if offending exostoses or abnormally flexed upper parts which scrape over the ribs are trimmed sufficiently to prevent further friction and irritation. This operation has been performed by orthopedic surgeons at the Massachusetts General Hospital upon eleven patients during the four years ending January 1, 1912. In the routine examination of many back cases in any large orthopedic clinic there are discovered numerous examples of slight tenderness without crepitus among scapulæ of debilitated persons. Pain is referred to the scapulæ, to the region between them, and around to the sternum in acute cases. It radiates up behind the ears at times and also down the arms, and there may be crampy sensations in the trapezius muscle as the latter tries involuntarily to hold the shoulder in a comfortable position. Pain is noticed upon motion, especially when the arms are moved in directions that demand greatest rotation of the blades. Shrugging the shoulders, with arms hanging passively at the sides, will produce painful symptoms due to the scraping of abnormal scapulæ. The pains of subdeltoid bursitis, inflammation of the shoulder joint itself, injuries of the acromioclavicular joint, neuritis, and myalgias have to be differentiated; but in combination with local tenderness and scapula crepitus there is usually little difficulty in determining scapula lesions. All the patients exhibit greater or less degrees of round shoulders. The condition originates in an habitual bad posture of the shoulders during early life when the bones are readily moulded into various degrees of flexion. As the bones strengthen and harden in adult life they retain their peculiarities, and can be changed only by operation.

4. Urethral Caruncle.—E. L. Young, Jr., notes that the pathological examination of this type of growth shows a surprisingly large percentage of cases in which the question of malignancy is raised. As there is clinical evidence to show that certain cases turn out to be carcinomatous later, it would seem wise to examine all specimens when possible and to watch carefully the suspicious ones. About 50 per cent. of caruncles have no accompanying symptoms and where urinary symptoms are present a large proportion are probably not due to the growth. Thirty-three per cent. of all cases of the author's series have recurred regardless of the type of operation and where a stricture was present it has always recurred.

New York Medical Journal.

June 5, 1915.

1. Gallstones. B. Robinson.
2. The Intravenous Use of Antiseptics in Gonorrhea. W. F. Bernart.
3. The Prognostic Outlook in Mental Disease. M. J. Karpas.
4. Secondary Carcinoma of the Bone. A. A. Matthews.
5. Röntgentherapy in Cancer. C. H. Archibald.
6. Blindness of the Newborn. Henry P. de Forest.
7. Treatment of Papilloma of the Urinary Bladder. C. W. Shropshire and Charles Watterston.
8. General Anesthetics. L. M. Jacobs.
9. Future Lines of Progress in Child Hygiene Work. S. Josephine Baker.
10. "Lest We Forget." J. W. Kennedy.

3. Prognosis in Mental Disease.—M. J. Karpas points out that psychoses may assume any of the following terminations: (1) Complete recovery with or without recurrence. (2) Recovery with defect symptoms. (3) The course of the disease may be progressive and may terminate in a state of intellectual deterioration varying in intensity. (4) Progression of mental symptoms (as in the paranoiac group) but without true dementia. (5) Fatal termination by reason of the nature of the mental infirmity. All forms of psychoses, be they organic, functional, or toxic, develop upon an inferior mental soil. In dealing with the prognosis of mental diseases, we should take into consideration not only the acute disturbance but also the constitutional make-up of the individual. After one has succeeded in carrying our patient through the critical period of the disease, one should then adjust the mental organism to an environment that would meet its needs without deleterious effects.

4. **Secondary Carcinoma of Bone.**—A. A. Matthews calls attention to the fact that when bone metastases occur early, while the primary area is still small and insignificant, the patient seeks the physican on account of the secondary suffering. Examination by the physician then reveals that prostatic, breast, gastric carcinoma, etc., is the primary focus of the bone tumor or there is a history of operation for cancer at some previous time. The symptoms of bone metastasis depend on the location and rapidity of growth of the cancer. Bone pain occurs in the later stage and is often unbearable. The affected skeletal areas show various deformities after localization. In vertebral metastases growths, angular or curved, with or without spinal cord symptoms, occur. Metastases in the bones of the skull cause symptoms aside from the local bone pain. In metastases of the extremities, pain, loss of function, and deformity occur. As to the operability of bone carcinoma, this is indicated only in solitary tumor, and even in these cases it is doubtful whether surgical procedures effectively remove all cancerous strata.

7. **Papilloma of the Bladder.**—C. W. Shropshire and C. Watterston conclude that all papillomata should be treated primarily with the high frequency current in view of the high percentage of recurrences following open operations—50 per cent.—and the high mortality —10 per cent. They should be watched for recurrence over a period of one year. A specimen should be examined in every case by a pathologist and, if found malignant, the tumor should be treated accordingly, for up to the present time fulguration has not proved effective in cases of malignancy.

Journal of the American Medical Association.

June 5, 1915.

1. The Phenolsulphonephthalein Test in Chronic Nephritis. A. R. Elliott.
2. The Organization and Activities of the International Health Commission. J. A. Ferrell.
3. Injection of Alcoholic Solutions of Different Strengths Into Peripheral Nerves. A Comparison of the Results Obtained. W. B. Cadwalader.
4. Relation of the Genus "Monillia" to Certain Fermentative Conditions of the Intestinal Trace in Porto Rico. B. K. Ashford.
5. Indications for Operative Interference in Goiter. V. P. Blair.
6. The Present Status of the Abderhalden Test. F. H. Falls.
7. The Feeding of Bile Collected from Biliary Fistulas in Obstruction of the Common Duct. J. C. A. Gerster.
8. An Unusual Case of Generalized Non-Regenerated Sarcoma of the Skin. A. Schaler and O. T. Schultz.
9. Tumor of the Third Ventricle. L. J. Pollock.
10. The Lesion in a Case of Serous Colitis. R. Floyd.
11. A Fence Staple in the Lung. A New Method of Bronchoscopic Removal. C. Jackson.
12. Gaucher Splenomegaly Diagnosed by Spleen Puncture Before Operation. E. P. Bernstein.
13. A Suggestion for Removing Foreign Bodies from the External Auditory Canal. F. P. Anzinger.
14. A Simple Means of Obtaining Specimens of Urine from Infants. C. R. Spicer.
15. Shield for Prostatic Examinations. W. S. Ehrich.
16. A Reliable Method for Table Microscopic Diagnosis. B. T. Simpson.
17. Some New Instruments to Simplify the Modern Tonsillectomy Operation. F. W. Alter.

3. **Alcoholic Injection of Nerves.**—W. B. Cadwalader states that intraneural injections of alcohol have been successful in the relief of the severer forms of neuralgia, the alcohol destroying the sensory fibers, at least for a time. The motor fibers, however, must also suffer, as alcohol has no selective action on the differently functionating fibers of the nerve. This is of the greatest importance in mixed nerves, as paralysis, more or less permanent, occurs. If a method of using such injections could be perfected that would diminish the degree of motor paralysis without lessening the sensory effects, it would be a boon. The author gives an account of experiments on dogs, in which the sciatic nerve was injected with the required solutions. After a certain time, the animals were killed, and the nerves removed for microscopic study and comparison. With 80 per cent. alcohol paralysis was immediate and complete; but with 50 per cent., it was not so severe; while 25 per cent. alcohol had little or no effect and examination showed no destructive changes. Salt solution caused no degeneration or paralysis and the mere procedure of inserting the needle caused no disturbance or hemorrhage or subsequent scar tissue. The deductions from these points were that strong alcoholic solutions completely destroyed the nerve fibers but, nevertheless, they were still capable of regeneration and recovery of function. There is abundant clinical evidence to prove that regeneration and functional restoration do occur, provided there are no complications. The experiments, however, do not warrant conclusions as to the length of time required. It is not impossible that in some cases the effects of very slight injury, like puncture of a needle, might be severe. In cases of facial spasm, for example, it would seem that repeated and gradually increased injections of the weaker alcoholic solution might relieve spasm at the cost of a greatly diminished paralysis.

5. **Indications for Surgery in Goiter.**—V. P. Blair concludes that toxic simple goiters and exophthalmic goiters that are still active are entitled to some sort of operation that tends to lessen the bulk or activity of the gland. Adolescent goiters, with rare exceptions, require no operation. Simple goiters are to be dealt with according to the indications of the individual case. Pregnancy greatly increases the risk of radical goiter surgery.

6. **The Abderhalden Reaction.**—F. H. Falls reviews the present status of this reaction as follows: The Abderhalden test is not a specific and infallible test for the diagnosis of pregnancy, carcinoma, or any other condition. A negative reaction in a given case is of great value as speaking against the possibility of pregnancy. A positive reaction must be interpreted as only speaking for the diagnosis of pregnancy, and that only in the absence of a large number of pathological conditions, to some of which I have already called attention. The ferments are increased in the blood during pregnancy. As yet, however, no way has been devised of differentiating between these ferments and the ferments mobilized in many pathological conditions. The test should be performed in all cases in which the diagnosis of pregnancy is in doubt, with a full knowledge of its limitations and possible error. It should be regarded as corroborative evidence together with other clinical phenomena.

7. **The Feeding of Bile in Biliary Obstruction.**—J. C. A. Gerster reports the case of a man who, after an operation for gallstones, suffered from a biliary fistula through which all the bile escaped, leaving him in a pitiable condition. The tentative closure of the fistula caused cramps and failed to divert the flow of bile into the duodenum; evidently there was an obstruction of the common duct. The patient's general condition forbade operation and, following the method described by Schmilinsky in a similar case, all the bile was collected through a catheter snugly fitting the fistula and passed into the stomach by the stomach tube twice a day (8 ounces each time). The procedure was followed by remarkable improvement. Fifteen days later a stone impacted in the papilla of Vater was taken out under local anesthesia. After the second day convalescence was uneventful and the man was discharged cured three weeks later.

The Lancet.

May 29, 1915.

1. The Influence of the Arboreal Habit in the Evolution of the Reproductive System. F. W. Jones.
2. Pulsus Alternans in Some of Its Clinical Aspects. C. O. Hawthorne.

3. Some Aspects of the Ciliary Body in Health and Disease. H. P. Dunn.
4. Fracture of the Pelvis, with Extraperitoneal Rupture of the Bladder. A. B. Blackburn and W. W. Cook.
5. Hypertrichosis in the Insane. C. T. Ewart.
6. The Use of Atropine in the Treatment of Those Suffering from the Effects of Irritant and Other Gases. D. V. Cow.

3. The Ciliary Body.—H. P. Dunn lays stress upon hypothyroidism as a causative factor in cases of iridocyclitis and upon the usefulness, clinically, of its recognition. That the ciliary body, so sensitive to toxemic influence, should readily respond to thyroid treatment is a natural sequence to the vascularity of its structure. Thus there is placed in the hands of the ophthalmic surgeon a means of relief, yielding results which can be obtained in no other way. The dose of the extract employed by the author for children beyond five years of age and for adults is three grains twice daily, and from this dosage he has never seen any ill effects.

5. Hypertrichosis in the Insane.—C. T. Ewart states that one cannot pass through the wards of an asylum without being impressed by the number of female patients showing an excessive overgrowth of hair on the face—a number much larger than can be seen in any haphazard collection of women selected from the every-day world. The overgrowth is not a mere pencilling of down on the upper lip and chin, but consists of hirsute appendages capable of arousing in some men a feeling of envy. It would also be observed that these cases are represented by a lusty and strong type of physique, thus conveying the impression that the overgrowth is correlated with animal vigor. The author suggests that there is evidence which goes to show that the secretions of the suprarenal glands may be important factors. Some forms of cortical overgrowth of the suprarenals cause an early adolescence and sexual precocity. The young male acquires hair on the face and pubes years before the proper time, and his body at nine years becomes that of a diminutive but strongly built man. The female, curiously enough, under like conditions, loses the characteristics of her sex, hair growing on the face, and her body assuming a masculine contour.

British Medical Journal.

May 29, 1915.

1. The Care of the Health of Married Women Missionaries. Mary Scharlieb.
2. Traumatism and Tuberculosis. Sir Thomas Oliver.
3. The Carrier of Yellow Fever: (*Stegomyia calopus*). A. E. Shipley.
4. A Case of Banti's Disease with Enlarged Hemolymph Glands. J. R. Collins and G. W. Riddel.
5. Exophthalmic Goiter. An Abstract of the Results Obtained from the Investigation of Ninety-three Cases. Helen M. Gurney.
6. The Cause of Appendicitis. B. Hughes.
7. Two Cases of Diaphragmatic Stab Wound. With Observations on the Production of Diaphragmatic Hernia and Operative Technique. C. J. Smith.
8. A Method for the Bacteriological Examination of the Nasopharynx in Epidemic Cerebrospinal Meningitis Contacts. W. H. Fearis.

2. Traumatism and Tuberculosis.—Sir Thomas Oliver describes the relationship of traumatism and tuberculosis as follows: Tuberculosis develops in a person who, until the accident, was believed to be quite healthy; a latent tuberculosis is roused into activity by the accident; a tuberculous lesion becomes localized at the site of injury, the microorganisms having been carried thither from a focus elsewhere in the body, or injury has simply aggravated a localized lesion which was previously present. Although there is no tuberculosis without the tubercle bacillus, the part played by the condition of the body, as exemplified in general and local resistance, cannot be ignored, and it is here that injury, by reducing resistance, comes in as a possible factor in the development of the disease.

6. The Cause of Appendicitis.—B. Hughes advances the theory that all cases of appendicitis are in the first place due to a mechanical cause, and this consists in a rotation of the organ about its mesoappendix. I consider the acute inflammatory process, whether it go on to abscess formation or not, is purely secondary to this rotation. This is assumed for the following reasons: The valve of Gerlach is by no means a reliable valve. In almost all quiescent appendices, which have never given rise to any symptoms and which have been removed during pelvic operations, the author has always been able to culture intestinal organisms from their cavities—that is, the normal contents of the appendix are not sterile. What happens when the appendix rotates? Anatomically the appendix is quite free to rotate on its mesentery, and as to what actually takes place will depend upon the degree of rotation. If the rotation be complete, then the condition is similar to that of an ovarian cyst completely twisted about its pedicle. The venous return is stopped, but the arterial supply is not wholly cut off. There is initially a state of acute congestion. Infection supervenes on this damaged organ, and gangrene with abscess is the usual termination. This type of case is familiar in that its onset is sudden, the pain is acute, the patient vomits, which vomiting the author regards as purely reflex; in fact, the initial symptoms are similar to those of a twisted ovarian cyst in the female. In less acute cases the rotation is not complete,and the venous return is not wholly cut off. These patients, if put to bed and kept quiet, invariably get over their first attack. The symptoms at the onset are not so acute; there may be vomiting, certainly some pain; there is tenderness over McBurney's point, but all this usually subsides. These patients, if operated upon in the acute stage, have always, in the author's experience, shown some degree of rotation of the appendix. The organ is stiff and congested, and there are subserous hemorrhages. Similar cases operated upon in the quiescent periods have shown the familiar kink in the organ, and if this be carefully examined it will be found to be produced by a partial rotation of the organ about its mesentery. The third type of case is that in which there is a long mesoappendix and the organ from mechanical conditions is rotating on its mesentery and recovering itself. The chief factors which bring this rotation about are a movable loaded cecum and a loss of tone in the abdominal muscles. The more important is the second of these two factors, for on it in some measure depends the first. A loaded movable cecum is free to move in three ways: it can descend, it can move laterally, or it can expand forward. These three conditions are just those required for a rotation of the appendix on its mesoappendix, and the only condition that can bring these about is constipation. Loss of tone in the abdominal muscles is one of the commonest causes of constipation and later of some amount of enteroptosis.

Berliner klinische Wochenschrift.

May 3, 1915.

Typhoid Abscesses.—Willimczik states that the formation of cutaneous abscesses is one of the rarest complications of typhoid fever, meaning, of course, abscesses due directly to Eberth's bacillus. During the present war the author has had the opportunity of studying many cases of complicated typhoid on the eastern war front. He has seen hemorrhagic forms, arthritides, cardiac complications of many kinds, emboli and pulmonary abscesses. Quite a number of patients presented the cutaneous abscesses. Of these the author made a special study with reference to bacteriology. The genesis of the abscesses might be due partially to

want of care of the skin, uncleanliness, and general want of sanitary conditions. Literature teaches that an abundance of abscesses due to ordinary pyogenics have been seen to affect typhoid patients, and are akin in cause to furuncles and in part to severe decubitus lesions. On the other hand, Curschmann never saw more than one case of abscess due to typhoid bacilli, and the total number known to exist must be exceedingly small. The question arises as to the possibility of such abscesses developing at the site of hypodermic injections. The author has now been able to place on record three cases of these abscesses thoroughly studied, and has accumulated a number of data as follows: Abscesses in typhoid fever which are due to uncleanliness, etc., contain only pyogenics; abscesses caused by metastases through the blood stream are specific and caused by the typhoid bacillus. These differ notably from the common type, which shows evidences of irritation and tend to occur in the more cachectic subjects. The metastatic abscesses show no signs of irritation, are cold and resemble tuberculous abscesses. We may assume as necessary for their origin a local factor—a locus minoris resistentiæ—or an embolus. The former factor was well in evidence in all three cases. In two of them it was associated with the site of hypodermics of caffein and camphor, both mechanical and chemical irritation thus being in evidence. Other less pronounced local factors might also be accused. In none of the cases, on the other hand, was there any evidence of embolism, or any reasons for believing in the existence of a general blood contamination like typhoid septicopyemia.

Essential Thrombopenia.—Under this title Frank describes constitutional purpura, otherwise pseudohemophilia, originally morbus maculosus Werlhoffii. Formerly this was erroneously regarded as one form of hemorrhagic diathesis, but while profuse hemorrhages occur in this condition no hemorrhagic diathesis is present. Hemophilia is an exquisitely familial disease, while purpura hemorrhagica is not handed down. It will suffice, therefore, if we call the latter pseudohemophilia. The so-called purpura simplex and purpura rheumatica, once regarded as a degree of purpura hemorrhagica, is probably only an anaphylactic phenomenon. The true morbus maculosus is in reality a very rare affection at the present time. The author has seen four cases, which were well followed up and cites as many more cases recently reported by others. The article will be continued.

Münchener medizinische Wochenschrift.

April 27, 1915.

Principles in the Treatment of Individual Local Wound Inflammations.—Von Herff first discusses numerous disinfectants, including bactercides, and substances with penetrative powers which diminish the virulence of germs. He next introduces a class of substances which "injure the culture bed." The latter have been worked out *in vitro*, and it is now known that the action of sublimate is due much more to the latter property than to any germicidal power. We need, therefore, some admixture of substances which possess a maximum of penetration with a minimum of toxicity along with some destructive action on the nutrient substances in the injured tissues. Phenol exerts a notable penetrative action, and hence while not a germicide of the first rank can greatly weaken the virulence of the bacteria. On the other hand, phenol is toxic. To begin with the surface, the author recommends mechanical disinfection of all kinds, stopping short of injuring the protective granulation wall. Forced irrigation under high pressure seems at present ideal. The water flushes out all recesses. A suction element can readily be combined with flushing. While sterile water may answer for irrigation, the author thinks it well to add some antiseptic powder. Unfortunately, not many of these are soluble either in water alone or with addition of glycerin, acetone or alcohol. The author discusses many solutions, such as iodine in dilute alcohol (1 part of the former to 1,000 parts of 50 or 60 per cent. alcohol). Warm disinfectants possess greater bactericidal powers than cool ones. If hydrogen peroxide is warmed to body temperature it furnishes one of the most practicable disinfectants for irrigation. Thus a 0.6 per cent. warm solution is equal in power to a 2 per cent. cold solution. The choice of disinfectant, however, is largely determined by the cause of the individual lesions. Should this be the staphylo- or streptococcus, nothing does so well as an initial application of 4 or 5 per cent. of carbolic acid, to be removed at once by irrigation. Hydrogen peroxide, by reason of its property of foaming, makes a superior irrigation fluid, and the nascent oxygen developed tends to destroy the tissue culture media. It is nontoxic, and as already stated, has a much stronger antiseptic action when warmed. The author adds that its action is also much enhanced by acidulating with a little acetic acid. For gas forming bacilli irrigations with chlorine water, iodine tincture, and especially oxidizing solutions such as H_2O_2 and permanganate of potassium are indicated.

Treatment of General Septic Conditions.—Hüssy, who is associated with von Herff, gives a supplementary article with the preceding title. The dicta of both men repose largely on their experience in the treatment of puerperal fever. Naturally the first step, that of diminishing the blood contamination, has already been covered under local treatment. This is indeed our chief dependence. Of internal remedies we know of but two which possess any power over the course of general sepsis. These are silver derivatives and formaldehyde derivatives. But little is said of the latter, beyond that urotropin has shown power over typhus. In regard to silver Hüssy speaks with encouragement of a combination of methylene blue and that metal which has recently been placed on the market by a well known firm of chemists.

Deutsche medizinische Wochenschrift.

April 22, 1915.

The German Physician and the Therapeutic Springs of France.—Kionka writes in the interest of German subjects who have made free use of certain foreign springs either by personal visits or through the use of the exported waters. Nonmedicinal table waters may be excluded from consideration. Of medicated French waters the chief demand has been for Vichy and Evian. The alkaline waters of Vichy have but relatively little carbonic acid gas, and are therefore less palatable than some of the German carbonated waters, and can readily be replaced by the products of the springs at Fächingen, Ems, Salzbrunn, etc., whose composition resembles that of the Vichy waters, and notably the former. The waters at Evian contain alkaline earths chiefly, and the total mineralization is small, as is also the amount of contained gas. Until recently these waters had no German counterpart, but in 1910 similar waters were found in South Germany in a spring now known as the Bissinger-Auer. These have a total radioactivity of 3.8 Maché units, due to the presence of radium emanation. A large quantity of gas escapes from these springs, which consists chiefly of nitrogen (84 per cent.). Oxygen is

represented by 9.5 per cent., and carbonic acid by 1 per cent. The remainder consists of the so-called "noble gases," by which term is implied the substances helium, neon, argon, crypton, xenon, in addition to radium emanation. These gases are given off at the rate of 33 minute liters.

Recent Foreign Remedies and Specialties, etc., in Germany.—Zernik takes the opportunity of informing the profession that certain imported popular remedies are really by no means what they are represented to be. Naturally certain American proprietaries have been sufficiently exposed by our own analysts. A well-known digestive tablet, for example (ethically marketed), contains sodium bicarbonate and charcoal, but no enzyme. A so-called "bromo-quinine" of English origin, which also has laxative properties, consists of phenacetin and jalap. A well-known English "fruit salt" is an effervescent preparation of tartaric acid and soda. French secret remedies are attacked by wholesale. "Kola" preparations contain no kola, but in some cases caffein. A gout remedy is alleged to contain "crystallized" colchicine, but this substance does not crystallize. The pills are no more than ordinary 1-grain colchicine pills. An alleged nutritive phosphorus preparation for children, sold at a high figure consists of phosphate of lime, starch, sugar and cocoa. Various sandal-wood preparations sold at a high figure are no more than ordinary sandal-wood capsules. Fancy, high-priced preparations of menthol, sold under various names, preparations of tamarinds, cacodylates, glycerophosphates, all can be dispensed cheaply by chemists who know the formulæ. A French apiol preparation is evidently an exception to the preceding, as it represents a valuable trade secret. The German chemists have been seeking a logical substitute, as a particular botanical source was evidently concerned in the French preparation. Thus far they have been unsuccessful.

Treatment of Subacute and Chronic Eczema with Filtered Röntgen Rays.—Meyer, at the close of a long article, hopes that he has demonstrated the superiority of hard filtered rays over the medium rays for these conditions. Results are more prompt, certain, and regular, doubtless because of a higher biological efficacy. No longer can from 7 to 7.5 Wehnelt units be considered the ideal radiation for skin diseases, for the author obtained his results with 10 and 11 units. The filter was an aluminum plate 1 mm. in diameter and the focal distance invariably 20 cm.

Deutsche medizinische Wochenschrift.

April 29, 1915.

Bread and Its Properties.—Rubner states that the daily bread problem is today one of the most important for the whole of Europe, not only for militant but for neutral nations. Everywhere there is difficulty in obtaining grain as a result of the disturbances of commerce. Bread grain is such a necessity that diminution of the regular supply is to be regarded as a serious danger. The ancient Germans raised oatmeal and barley originally. The cultivation of wheat came from the Galls on the west, that of rye from the Slavs on the east. The exotic grain was purchased both in bulk and seed. France as well as England have been wheat eating countries. No countries, in fact, can be termed rye countries; but rye is cultivated wherever it yields a more profitable return than wheat. Those who raise rye as a business proposition may, however, prefer wheat for its greater palatability. The making of bread is not as primitive and universal a condition as is usually believed. It is first heard of in Egypt, from which country the Greeks borrowed the art of baking it. The custom had reached Rome 168 B.C. Defining bread as baked fermented dough, it may be said that from the three countries mentioned, the consumption of bread has spread over the entire world. For many centuries bread cereals consisted exclusively of wheat and rye. Attempts to introduce other kinds of grain for permanent use were always failures. Even at present the use of wheat and rye bread is still being diffused through the world. These cereals are by no means of equal food value, for wheat flour is rich in gluten in available form. Rye gluten cannot be kneaded out of rye meal. Meals of this type are beaten rather than kneaded before baking. Another property possessed alone by wheat bread is that of forming a light crumb, and this in turn is due to the condition of the gluten in the dough. Good bread never goes out of use, one never gets tired of it, and it can be consumed continually every day of the year. When we speak of white bread we refer to that made of flour so fine that it can be passed through meshes 0.1 to 0.2 mm. wide. However, in the consumption of bread as a whole milling plays an enormous rôle in comparison with earlier years in which simple flat millstones were alone available. Grain can be milled in numerous ways and degrees. The whole grain meals furnish various breads, long in use, which while popular with many people and communities, are highly indigestible, and hence of relatively low nutritive value. By keeping the bowels open, however, they acquire the reputation of being salutary. Most of these breads are made from rye, pumpernickel being one of the best known. The first step toward fine milling was decortication of the outermost envelope, something which should be done at least in the interest of sanitation, as the outermost hull is filled with dirt and has besides little or no nutritive value. Flour and bran may be separated completely, and the bran subjected to various degrees of milling. In whole wheat the greatest available percentage of wheat is 75 per cent., while in the decorticated grain this figure may reach 96 per cent. For over thirty years the author has studied the problem of the utilizability of bran, with reference to the limits of use of whole grain flours. Bran alone can be ground exceedingly fine, but when whole wheat is ground the bran cannot be ground as fine as the wheat kernel. Separate bran has to be washed very thoroughly before milling. The question of utilizing the bran is one of great moment, and the finest milled bran when mixed in a certain proportion with the wheat flour proper should conserve to the bread all its original utilizable ingredients, while not interfering with its digestibility to any appreciable extent.

Value of Insect Powders.—Lehmann writes in the interest of the vast problem of the prophylaxis of typhus fever through warfare against the clothes louse. Immense quantities of insect powder have been and are being used for this purpose. The term insect powder is of course vague. Many pollen grains are always present and it is not difficult to count them. According to the number present we may judge of the quality of the powder. Microscopial and chemical studies show that first-class material should have 2000 granules of pollen for each mgm. of powder. This means that the powder is prepared from closed buds which contain all the pollen of the bud. If from 1000 to 2000 pollen granules are present the powder has been made from half open buds. If only 500 grains are present a large amount of inert matter from the bottom of the bud or the twig itself is present.—*Münchener medizinische Wochenschrift.*

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN" BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 1001)

THIS objection *per se* seems well founded. For the expansion is the difference between the least chest measure during expiration and the greatest chest measure in inspiration, and consequently if we leave out of count the diaphragm it is the expression of the breathing power of the applicant. The more extensive the work of the thorax, and therewith the greater the difference, the more abundantly are the lungs provided with air, and, according to our biological views, the less is the danger of a disease.

Life insurance practice nevertheless does not support this assumption. It is not only not rare but indeed common to find in a tuberculosis loss that the applicant had a very good expansion, while conversely risks with small expansion survive. The explanation of this apparent paradox is not difficult to give. The expansion is brought about practically altogether by inspiration, which is effected by elevation of the ribs and sternum. Now, the simplest observation of insured material teaches at once that the volume of inspiration stands in proportional relation to the height; or, in other words, the taller the man the greater, *ceteris paribus*, his expansion.

While tall subjects may have a chest expansion of 8 to 10 cm. (3 1/5 to 4 in.), the average being between 6 and 7 cm. (2 2/5 and 2 4/5 in.), short subjects seldom attain an expansion of 7 cm. (2 4/5 in.), and the average does not reach 5 cm. (2 in.). These differences are due to the fact that in the tall the ribs are wider apart and the intercostal spaces are broader, so that thoracic movement may be more extensive than in short people, where conditions are reversed. The thoracic relations which are peculiar to tall subjects are, however, those which characterize the thorax paralyticus, so that it is not surprising that in this condition also expansion can attain great limits—but only *can*, and therein lies the characteristic which separates the two. For how is inspiration effected? Solely through the power of the inspiratory muscles and upon their efficiency depends the aeration of the lungs. In the habitus paralyticus, however, in conformity with the condition of the general strength, the efficiency is quite notably depressed, and for this depression the maximum inspiration-circumference demanded and established by the examining physician is no measure at all. With great effort the subject examined can reach a wide inspiratory position—because the requirements are all present, and despite the ossification of the thoracocostal joints which play so large a rôle in the etiology of tuberculosis, he can make a great inspiratory effort —but only one; for as a rule the inspiratory excussion is slight, the respiration being superficial.

Hence the chest expansion found by the medical examiner and indicated in the application is only a delusion. The laity make the effort during examination to "throw out a chest," and if life insurance placed a special value on the exact determination of the expansion the single measurement of the volume of respiration now required would be the most useless procedure imaginable.

We only refer in passing to the extremely slight chest expansion of women. Despite this, they do not die of tuberculosis more frequently than men. We cannot admit the etiological significance in tuberculosis of the shortening and premature ossification of the cartilage of the first rib, as described by Freund, nor the reduced excussion of the sternal angle. In any case it is not the local alterations but the constitution as a whole, which will determine the selection.

We must again say a few words regarding the infection of tuberculosis. We have already said above that it is very seldom actually observed in life insurance medicine, and that in 1428 deaths from tuberculosis there were but 11 instances in which the wife developed the disease. In like manner, Mollwo found among 1244 cases of tuberculosis in the Lübeck Life Insurance Company but 5 cases in which the wife was infected, and Runge obtained similar results, based on an investigation which he instituted with the material of the Nordstern Life Insurance Company. (*Zeitschrift für die gesamte Versicherungswissenschaft*, 1906, No. 4.) But the insignificance of marital infection is shown in another way. Thus, Thorn in the statistics of the Hohenhonnefer Company, found 3 per cent., Jacob and Pannwitz 3.4 per cent., and Haupt 5 per cent., while, conversely, Cornet could show such infection in 23 per cent., and Elsaesser in 39 per cent. The difference in these figures, however, is at once explained when one takes into consideration the composition of the material from which the percentages were obtained. The small figures came from sanatorium patients of the well-to-do classes, while the large percentages came from the lower classes.

Weinberg has very thoroughly investigated the subject of consumption in married couples. (*Beiträge z. Klinik d. Tuberkulose*, 1907), supporting himself upon the observations made in Stuttgart during the years 1873-1902 on the survivors of those dying of tuberculosis. He did not content himself, like the statisticians just named, with simple enumeration of cases, but put to himself the question whether the mortality of the survivors was essentially higher than the tuberculosis mortality of the population as a whole. He found that the mortality was indeed twice as great as general experience could expect; but only ¼ of the women and 1/3 of the men could have been infected from their spouses. For the rest the women, after the death of their husbands, lived under unfavorable economical conditions, especially as regards housing. Then, grouping his material according to the social position of the dead, he obtained the following gradations: Upper classes, 69 per cent.; middle classes, 184 per cent.; lower classes, 235 per cent. Weinberg thereby confirmed the axiom (to be discussed elsewhere) that tuberculosis is a disease of habitations, and that life insurance need not fear direct transmission, provided the external conditions of the matrimonial survivors are favorable and the predisposition is lacking.

Thus far we have shown what importance is to be imputed to the constitutional factor in the selection of tuberculosis. Not so simple is it to establish its relations to those diseases in which we have to deal not with an infection, nor with the penetration into the body of a microorganism, but with one of those many sided disturbances of metabolism (diatheses) or a definite organic disease. That hereditary processes are of importance here is taught by statistics already cited, but here again it is not the disease but the predisposition which is inherited.

(*To be continued.*)

Book Reviews.

TEXT-BOOK OF SURGICAL OPERATIONS, ILLUSTRATED BY CLINICAL OBSERVATIONS, FOR PHYSICIANS AND STUDENTS. By Prof. FEDOR KRAUSE, Privy Medical Councillor, Directing Physician Augusta Hospital, Berlin; in Association with EMIL HEYMANN, M.D., Chief Physician, Augusta Hospital. Translated into English and Edited for American Readers by ALBERT EHRENFRIED, A.B., M.D., F.A.C.S., Assistant Visiting Surgeon, Boston City Hospital; Junior Assistant Surgeon, Children's Hospital; Surgeon, Boston Consumptives' Hospital; Assistant in Surgery, Harvard Graduate School. In six volumes. Vol. I, 267 pages with 55 plates, having 233 illustrations in two or more colors and 61 figures in the text. Price, cloth, $6.00. New York: The Rebman Company, 1915.

THIS is the first of six volumes which are designed to cover the entire range of surgical operations. From the preface by Krause we find that the purpose of the work is to offer every properly trained physician a foundation upon which he can independently undertake the operations described; and in order to fulfill this purpose in all its details, pictures true to nature, explaining the different phases of each operation have been liberally supplied on special plates. He also states that the work not only includes all departments of surgical therapy but takes up systematically the surgical affections in the manner in which they are considered in the lecture room. Upon looking through this first volume we find that it gives every promise of successfully accomplishing this end. The operations are clearly described and the various steps adequately illustrated, while innumerable cases are cited to show methods of diagnosis and the type of operation suited to the individual case.

Upon reading the translator's preface, however, we find that the work has lost a large part of the authoritativeness of the original German edition; for although Ehrenfried says that in this American adaptation he has attempted first of all to give an accurate transcription of the German text, even at the expense of fluency, he also says: "I have modified and rearranged freely wherever it seemed advisable. Where German practice differs from ours I have entirely rewritten sections and paragraphs. Technical and controversial discussions have been abridged; *new matter, illustrations, and cases have been added.* To avoid complicating the text *no attempt has been made to distinguish the alterations and additions.*" (Italics ours.) To the mind of the reviewer this seriously detracts from the value of the work. We are interested in knowing *Krause's* methods, and prefer to use our own judgment in the selection of his or American ways of doing things, rather than have an Americanized version thrust upon us. It is evident that one must often be in doubt as to whether the advice given conforms to the teachings of Krause or his translator and editor, and this we believe to be a great mistake. With no intention of making invidious distinctions as to the relative worth of their contributions, we feel that all alterations or emendations should be clearly indicated; that if this had been done the value of the work would have been increased many fold, and that this course should be rigidly followed in the preparation of the remaining five volumes of the series. As the text now stands, some parts are manifestly from the pen of Krause and some as clearly contributed by Ehrenfried; but there is a considerable percentage where exact authorship is indeterminate.

In spite of this fact, the work deserves high commendation. The chapters on general surgical technique and the portion devoted to such of the operations on the head, face, eye, ear, nose, accessory sinuses, and nerves as are covered in this initial volume are exceptionally good; and we feel that succeeding volumes, if exact authorship of all statements is made evident, promise to be well nigh invaluable.

LEHRBUCH DER SPEZIFISCHEN DIAGNOSTIK UND THERAPIE DER TUBERKULOSE FÜR AERZTE UND STUDIERENDE. By Drs. BANDELIER and ROEPKE. Eighth edition. Price, Mk. 8.80. Würzburg: Curt Kabitzsch, 1915.

THIS is the eighth edition of Bandelier and Roepke's celebrated textbook on specific diagnosis and specific therapeutics in tuberculosis. The admirable introduction by Koch, which accompanied the fifth edition, is again reproduced. Compared with former editions the book is increased by one-third in volume and a few more temperature charts are added. The first portion of the work is consecrated to the theories of tuberculin reaction and its influence as a specific means of curing tuberculosis. All the various diagnostic methods, such as the cutaneous of von Pirquet, the percutaneous, the intracutaneous, the conjunctival, and subcutaneous way of introducing tuberculin are carefully described. It is refreshing to read in this edition a protest against the ophthalmic method devised by Calmette. The authors base their objection on the uncertainty of the ophthalmic reaction on the one hand and the likelihood of serious complication arising from the tuberculin instillation on the other. The modification of the conjunctival test recommended by Wolff-Eisner, which consists in the replacing of the solution by a tuberculin ointment, received equal condemnation from the authors.

In the chapter on specific therapeutics all the numerous culture products which are and have been in use are enumerated, including the Friedmann product and also that of Carl Spengler, known as "I K" (meaning "Immune Koerper" or immune bodies). Those interested in the value of these respective methods are advised to read carefully the tabulated results of the extensive observations of Drs. Bandelier and Roepke. For those unfamiliar with the German language it may be stated here that a former edition was translated into English by Wilfred B. Christopherson, is entitled "Tuberculin in Diagnosis and Treatment," and published by William Wood & Co., New York, 1913. This American edition is more condensed, which would seem rather an advantage. The conclusions as to the therapeutic value of tuberculin at which the authors arrive and of which they speak very fully in their final chapter are those characteristic of all tuberculin enthusiasts. The claim is set forth by them that there has not been a single case treated with tuberculin which resulted to the detriment of the patient when the injections have been made carefully and according to what the authors call the "mild method." As a whole the book deserves to be ranked as one of the best expositions of our present knowledge of specific therapeutics of tuberculosis.

LEGAL PRINCIPLES OF PUBLIC HEALTH ADMINISTRATION. By HENRY BIXBY HEMENWAY, A.M., M.D., formerly Health Officer of the City of Kalamazoo, Mich.; Secretary Kalamazoo Board of United States Examining Surgeons; Acting Professor of Preventive Medicine, College of Physicians and Surgeons, Chicago; author of a considerable number of articles on topics relating to preventive medicine or governmental problems. With an Introduction by JOHN HENRY WIGMORE, Professor of Law in the Northwestern University; Commissioner on Uniform States Laws, etc. Chicago: T. H. Flood & Co., 1914.

THE author of this timely volume is a remarkable instance of a medical practitioner versed in the law. His varied experience in public-health work has familiarized him with the legal aspects of preventive medicine, and he is thus particularly fitted to set forth the guiding principles that must decide the application of our governmental ideas to the facts of science in this field. Modern science has vastly enlarged the scope of modern law, and the question has come up whether the old and settled principles of the law will serve to deal with new conditions. We have reached a period when readjustment is demanded between the law and medical science. It is with the idea of assisting science and law to this better initial understanding that the author of this work discusses the relationship of public health to the body politic, the underlying principles of government, and the relation of the executive, the judiciary, and the police power to public-health administration. He describes "due process of law," "nuisance," and public-health powers and limitations, national, state, and municipal. He discusses the standing of the health officer in relation to the law, liabilities, and the legal remedies. In addition there are chapters on vital statistics, quarantine, medical licenses, water supplies, sewage and garbage disposal, pure-food and drug regulations, school inspection, and eugenics.

The book is clear, practical, well balanced, and should prove of great value at a time when many states are rushing into much ill-advised legislation on public-health questions. Although the legal part of the text may seem rather rudimentary to the lawyer and the medical portions somewhat trite to the sanitarian, yet every lawyer, judge, and health officer should read and ponder every chapter. The author admirably fulfills his purpose of finding a common meeting-ground for the legal and medical professions.

THE CARE OF THE SICK ROOM. By ELBRIDGE GERRY CUTLER, M.D., Cambridge: Harvard University Press, 1914.

THESE lectures were delivered at the Medical School of Harvard University and are edited by Dr. Bradford, Dr. Ernest, and Dr. Cannon. The little book will serve as aid for the nurse and family of a chronic invalid whose room has to be prepared in town or country.

THE QUESTION OF ALCOHOL. By EDWARD HUNTINGTON, WILLIAMS, M.D., formerly Associate Professor of Pathology, State University of Iowa; Assistant Physician in the New York State Hospital Service. Price, 75 cents. New York: The Goodhue Company, 1914.

THE author remarks that this pamphlet is the result of an investigation on the alcohol question undertaken for THE MEDICAL RECORD. Its tone is generally impartial and judicious, and the author's freedom from fanaticism may be seen from his advocacy of a club as substitute for the saloon in which it may perhaps be necessary to serve malted beverages as well as "soft drinks." The good results of such tempered methods have been seen in the Continental café system, where gross drunkenness is certainly less common than in the Anglo-Saxon countries.

THOMAS SHORTT (Principal Medical Officer in St. Helena). With Biographies of Some Other Medical Men Associated with the Case of Napoleon from 1815 to 1821. By ARNOLD CHAPLIN, M.D., (Author of "The Illness and Death of Napoleon."). With two portraits. Price, 2 shillings. London: Stanley Paul & Co., 1914.

THESE biographies all dwell on the fact of the concealment by the authorities that Napoleon really died from enlarged liver due to the St. Helena climate. Shortt fell into disgrace with Sir Hudson Lowe for expressing views unfavorable to the salubrity of the climate, James Roche Verling was dismissed because he stated that Count Montholon's illness was due to a pain in the liver and to an intermittent fever, and Alexander Baxter and Archibald Arnott received their M.D. degrees at Edinburgh later on from theses on "De Febre Remittente." In view of these curious facts, Barry O'Meara's report that Sir Hudson Rowe remarked that it would be better for Europe if Napoleon died no longer seems a calumny.

DISSECTION METHODS AND GUIDES. By DAVID G. METHENY, M.D., L.R.C.P., L.R.C.S. (Edin.), L.F.P.S. (Glas.) Associate in Anatomy and for some time senior demonstrator in the Daniel Baugh Institute, the department of Anatomy and Biology, Jefferson Medical College, Philadelphia. Octavo volume of 131 pages; illustrated; cloth, $1.25 net. Philadelphia and London: W. B. Saunders Company, 1914.

THIS book is a manual of local dissections in which both the external structures and viscera are dealt with. As it is intended for actual use in the dissecting room but 12 (schematic) illustrations are incorporated in the work. The small compass of the text is due to the fact that only the steps of dissection are described, with such regional anatomy as is comprehended in their results. Some of the regions involved are natural, some are artificial. All dissections are meant to be so carried out that no mutilation or waste results; they may, in fact, do double duty after preservation. Much of the dissection, especially that which results from exposing and isolating certain structures, must enter into the foundation of operative surgery.

CONTRIBUTIONS FROM THE THIRD DIVISION, NEUROLOGICAL INSTITUTE of New York, June, 1914.

THE contributions are fifteen in number and comprise papers and addresses most of which have already appeared in various medical journals. Both theoretical and practical topics are discussed. The attending physician of the Third Division is Dr. Pearce Bailey and seven of the articles are either by him individually or in collaboration with a colleague or assistant. The collection is chiefly of interest to the neurologist.

FOCAL SYMPTOMS IN GENERAL PARALYSIS. By C. MACFIE CAMPBELL, M.D., B.Sc., Associate Professor of Psychiatry, Johns Hopkins University, Baltimore. Price, $1.25 net. New York, Leipzig, London, Paris: G. E. Stechert & Co., 1914.

THIS is the author's thesis presented in July, 1911, to the University of Edinburgh for the degree of M.D. In it is taken the extreme view that, "In the discussion of the main issues, cases of general paralysis reported before 1900 should be used with the greatest reserve, even although the statement is made that the diagnosis was confirmed by post-mortem examination." Also, "One must accept with reserve purely clinical observations even if recent, especially if they do not include the examination of the cerebrospinal fluid; to publish as cases of general paralysis cases of atypical course, whether influenced by therapeutic measures or not, without an adequate examination of the cerebrospinal fluid indicates a want of realization of the difficulties of differential diagnosis." The author goes on to state that among the cases of general paralysis with atypical features and considerable diagnostic difficulties those presenting focal symptoms form a large group, and he subdivides them as follows: First, those cases of general paralysis with focal symptoms on the basis of vascular disorders; second, those on the basis of localized severity of the general paralysis process; third, cases of general paralysis with focal symptoms of traumatic origin; fourth, cases without clinico-anatomical correlation.

The bulk of the thesis is made up of carefully prepared histories of nineteen cases studied according to recent scientific methods. There are twelve photographs and microphotographs of pathological preparations. The clinical observations were made in the service of the Psychiatric Institute of the New York State Hospitals, and the autopsy studies and technical work were done in the laboratory of the institute. The monograph is very conservative and creditable. The writer acknowledges valuable assistance by his confrères of the laboratory.

NERVOUS AND MENTAL DISEASES. By ARCHIBALD CHURCH, M.D., Professor of Nervous and Mental Diseases in the Northwestern University Medical School, Chicago; Late Professor of Neurology in the Chicago Polyclinic; Neurologist to St. Luke's, Wesley and Mercy Hospitals; Consulting Neurologist for the Michael Reese Hospital, etc.; and FREDERICK PETERSON, M.D., ex-President of the New York State Commission in Lunacy; Formerly Professor of Psychiatry, Columbia University; Consulting Alienist, Bellevue Hospital; Manager of the Craig Colony for Epileptics, at Smyrna, New York; ex-President of the New York Neurological Society. With 350 illustrations. Eighth Edition, Thoroughly Revised. Price, $5.00 net. Philadelphia and London: W. B. Saunders Company, 1915.

THE popularity of this book, aside from its merits, may be considerably due to its convenience. It is unusual to find the correlated branches of medicine, neurology and psychiatry, each discussed by a separate writer, appearing in one and the same volume. Reviews of previous editions have already appeared in the MEDICAL RECORD. In the preface of this edition, it is stated that revisions have been made in the section on Nervous Diseases to the extent of 114 interpolations and over 200 minor alterations. The chief additions noted comprise Bárány's researches concerning vertigo and the vestibular apparatus; late important discoveries in relation to syphilis and the nervous system; new investigations of the spinal fluid; recent studies of infantile paralysis and the relationship of the glands of internal secretion to nervous disorders. There is no mention of revision of the section on Mental Diseases. Six hundred and seventy-six of the nine hundred and forty pages of the book are taken up by the neurological part. The style of both authors is clear and concise. The illustrations are numerous and good and the book is a valuable text book for the general practitioner.

PATHOLOGICAL TECHNIQUE. A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By FRANK BURR MALLORY, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School; Pathologist to the Boston City Hospital; and JAMES HOMER WRIGHT, A.M., M.D., S.D., Pathologist to the Massachusetts General Hospital; Assistant Professor of Pathology, Harvard University Medical School. Sixth edition, revised and enlarged, with 174 illustrations. Price, $3.00. Philadelphia and London: W. B. Saunders Company, 1915.

THE sixth edition of this well known work has been improved by the inclusion of a number of the more recent methods, especially those for staining parasites in tissues, and of a number of new cuts, all of the same admirable quality which has characterized this exceedingly useful laboratory guide. It has been, and will probably long remain, the standard work on pathological technique.

Society Reports.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Annual Meeting, Held January 18, 1915.

THE PRESIDENT, DR. THOMAS S. SOUTHWORTH, IN THE CHAIR.

Election of Officers.—The following officers were elected: *Vice-President,* Dr. Edward E. Cornwall; *Corresponding Secretary,* Dr. Frank C. Raynor; *Treasurer,* Dr. Isaac Hartshorne; *Chairman for the Borough of the Bronx,* Dr. Nathan B. Van Etten; *Member of the Council,* Dr. Frank H. Daniels.

The Tuberculosis of Migrants.—Dr. CHARLES E. WOODRUFF, Lieutenant-Colonel Medical Corps, U. S. A., retired, in this paper said that for the explanation of the ethnic phenomena of tuberculosis death rates it was immaterial whether we accepted the view that infantile infection is harbored throughout life or that the individual succeeds in overcoming this, to be later reinfected. The facts were better explained by considering that some always harbor their latent lesions, which spread with greater or less rapidity according to the damage sustained from the climate; but we might also consider that they have become susceptible to reinfection. His attention was first directed to this matter in 1899 by the appalling rapidity of tuberculosis among our soldiers in the Philippines, where there was a climate which was ideal according to the theory prevalent at that time, and still held by many physicians. The temperature was equable, there was a maximum of sunshine, and everyone lived outdoors. An order was issued to send cases home by the first boat, as a delay of a single month in getting to a cooler, darker climate would be fatal. The patients would get well if sent home in the early stages, or even after bacilli were found in the sputum. To explain the matter we had to go back to the basic principle of biology, the law of adaptation to environment. While the characteristics of plants and animals were found to be evolved by the survival of the fittest variations, for a long time man was excepted from this universal law because he was not immediately killed after migration to an unfit climate. If the damage were slight, a type might survive for many generations, or even centuries. If variations appeared which were of survival value, these would survive while the rest perished and in this way many localized types had been evolved after migration from the cradle of the race. A recent discovery of great importance was that adaptation to the environment must be much more exact than had been thought necessary for permanent survival. A type evolved in one environment must, then, always be more or less injured in any other, and the greater the difference between the two, the greater would be the mortality rate, age for age, and the shorter the average age as compared with the same type in its place of origin. It was quite evident that tall men who migrate to lands of small stature should suffer more from tuberculosis than the short migrants. He had frequently noticed this among Americans in the Philippines, and he had also found that stout and muscular men, particularly athletes who exposed themselves to the sun, would occasionally develop tuberculosis. The native or adjusted physique was frail, and the small American brunettes did not furnish many cases of the disease. Blonds were particularly harmed in all light climates where the heat was above the critical temperature for long periods. Such were out of adjustment, and the course of tuberculosis was apt to be exceedingly rapid in them, as he had observed in the Philippines. In the Phipps Institute, of Philadelphia, the third annual report showed that of 725 consumptives, 371 had light eyes; and this in a city population notoriously brunette. In the Agnes Memorial Sanatorium in Denver there were, according to its report, 152 blonds to 44 brunettes. The Hebrews of New York and Boston had lower tuberculous rates than any other racial element of the population, yet they showed the universal phenomenon of elimination of the lightest, many of whom were perfectly adjusted to the darker and cooler cities of Europe. The race was notoriously dark, with only a few blonds, yet Rosenberg had reported that at the Montefiore sanatorium there were 417 light types and 733 dark, the "light" class including all variations from the prevailing brunetteness of the race. Moreover, cases in the few real blonds among them were said to be rapid, hemorrhagic and incurable, while those in patients of the ordinary complexion were slow, mild and curable. On the other hand, Shrubsall reported the greater tuberculosis mortality of the brunettes in those places in northern Europe where the blonds were the adjusted types; and this was more marked the blonder the population, and therefore the greater the unfitness of brunettes. In all parts of the United States the blonds were the unadjusted, and, while few statistics were available, it had been proved conclusively that blonds furnish more than their share of cases of tuberculosis, and are more difficult to cure. This phenomenon was more marked in the South, where also there were the highest tuberculosis rates in the country. The twelfth census showed that the death-rates from the diseases of the various races in the United States are approximately proportionate to their blondness. The climate of Ireland differed markedly from that of any part of this country except the extreme northwest coast. There had never been any selection of those fit for the extremes of heat, cold, light, darkness, or dryness met with here, and as a result some types of Irishmen who had been evolved as the fittest for Ireland were proving the unfittest for America. According to the census mentioned, the general death-rate and the death-rates from tuberculosis and alcoholism, for all over fifteen years of age in the registration area, were higher for those having Irish-born mothers than for any other division of the white population; while in New York City in 1906 the Irish death-rate from consumption was 476 per 100,000, or almost exactly double that for all classes. Italians, being from similar latitudes, had only a slightly higher rate than the average, in spite of their well known poverty and unhygienic and insanitary habits. Having referred to various other races, the speaker said that the tuberculosis mortality for each nationality varied little from year to year in New York. This was not temporary and accidental, but a permanent vital phenomenon, constantly eliminating the unfit among the newcomers. In a few generations, however, the survivors should show marked differences in the way of lessened mortality. Phthisiographers had once lauded climate as an essential in treatment, but the numerous failures in "good" climates and success in "bad" had caused some to change to the equally erroneous opposite extreme that no particular climate was needed for any case. In spite of this, a few still talked of the ideal climate with a maximum of sunshine; yet Dr. J. E. Stubbert mentioned that in his wanderings for the ideal climate he met with a place in China where the sun shone for five minutes in twenty-eight days, and intimated that he improved there. Each climate on earth was ideal for the type adjusted to it by ages of survival of the fittest, and harmful for every other type. Our eastern climates killed the tuberculous negro, but he got well if properly treated outdoors in hot, sunny places; while a tuberculous European promptly died outdoors in Central Africa. The practical point was that we must study the kind of man the disease had got, as well as the kind of disease the man had got. We could not send every case to the same place. Southern California was like Southern Italy, and it was reported that the Mediterranean type of man (the short brunette) furnished a higher proportion of cures there than any other. On the other hand, physicians of the rainy northwest coast had stated that an Italian who had progressed to the point of having bacilli in his sputum had never been known to recover there. It was to be greatly regretted that the reports by managers of sanatoriums did not go into this matter more fully, and describe the type of physique with which they had the most success. Rollier was the only one who had done this, and he had stated that his sun-baths injured the blonds who would not tan—a thing which might have been predicted. It was equally safe to predict that bulky patients as a rule would do better in cold climates, and the thin and frail in warm; while high altitude races should not be sent to the lowlands.

Dr. MAURICE FISHBERG said he thought Dr. Woodruff's contention that particular attention must be paid to the complexion as influencing the adaptability of the individual to certain climates required further confirmation. If we analyzed the conditions at the two sanatoriums mentioned, it would be found that the Agnes Memorial derived most of its clientèle from Americans of the middle class, who were mostly blonds. As to the Phipps Institute, it was not stated whether it was the hospital proper or the dispensary department which was referred to. If it were the former, the pre-

ponderance of blonds would be accounted for by the large number of Americans treated. All over the world it had been observed that tuberculosis went hand in hand with the time a people had been exposed to the disease. In remote South Sea Islands, where it had been previously unknown, tuberculosis became established and made havoc among the population after the whites came and brought the disease with them. The same had been true in the Philippines. Peoples which had been exposed for a long time to tuberculosis adapted themselves, not only to the country, but to the disease. Thus, the Jews, among whom, as had been remarked, the mortality from the disease was small, had been exposed to tuberculosis for two thousand years. The disease was always very fatal when implanted on virgin soil. The Italians, being almost all brunettes, should, according to Dr. Woodruff, be comparatively exempt; yet it was a fact that of the Italians returning from this country to their native land, from one-fourth to one-third were the subjects of tuberculosis. In Sicily, which had formerly been comparatively free from the disease, tuberculosis had in the last ten years become prevalent in consequence of the return of tuberculous emigrants from the United States and South America. So, while a great deal might be said concerning the matter of complexion, there were many other factors to be taken into consideration. This problem of tuberculosis was really a sociological one.

Dr. Woodruff said he hoped the impression had not been gained from his remarks that the physical type was of more importance than other causes in the production of tuberculosis. As he had endeavored to point out, it was only one of a thousand factors. Still, it was one which we must take into consideration in studying this subject. It was a fact that in slavery days tuberculosis had been very rare among the negroes of the South. This was because they were well taken care of, just as highly-prized domestic animals were, by their masters, to whom their death would have been an economic loss. As soon as they were free, however, and had to shift for themselves, tuberculosis began to start up among them. Many persons had got the idea that the disease was peculiarly fatal to negroes, but this was not the case; for it had been demonstrated that under proper conditions it was just as curable as among whites. If the point raised by Dr. Fishberg were true, he could not for his part understand why in all the days of slavery the blacks should not have been more subject to tuberculosis, since they were in constant association with white people among whom the disease was more or less prevalent. Of all the tuberculosis curves which he had obtained in Paris, that of Ireland was the only one which went up. The disease had gone on increasing for twenty or thirty years, but about eight or ten years ago it began to decline, just as typhoid fever, the curve of which was parallel, did. Hoffman had stated that the good results noted from the campaign against tuberculosis were really due to the diminution of the diseases causing it. We knew that during the prolonged political agitation in Ireland widespread poverty and distress had prevailed, conditions favorable to the development of tuberculosis; but of late there had been increasing prosperity in the country, and in consequence the disease had steadily waned.

Treatment and Prophylaxis of Whooping Cough, Based on the Bordet-Gengou Etiology.—Dr. Paul Luttinger read this paper, reporting work which was part of an extensive investigation on the etiology, diagnosis and treatment of pertussis undertaken by the Bureau of Laboratories of the City Health Department in collaboration with some private practitioners. During the spring and summer of 1913 the Bordet-Gengou bacillus was found, at the City Research Laboratory, in the sputum of whooping cough patients with enough constancy to warrant the preliminary experimental trial by the Department of Health of the vaccine treatment of the disease. Although Bordet himself had not reported any success with specific therapy, there were several American clinicians who had obtained encouraging results with small doses of commercial pertussis vaccine. The speaker described the types of vaccine and the method employed in preparing the vaccines, and stated that the eight varieties made use of appeared, with one exception, to be about equally potent. The vaccines were given subcutaneously with an ordinary hypodermic syringe. The skin over the biceps was first rubbed with a piece of cotton soaked in alcohol, and if the needle had been sterilized there was no danger of infection. To infants, large doses might be given in the gluteal region. At the beginning an initial dose of 50,000,000 was given, and the dose was doubled every three or four days. Later, the initial dose was increased to 250,000,000, and the dose was doubled every other day, provided there was no reaction. For the purpose of prophylaxis three doses were given at intervals of three days, and these were respectively of 500 millions, one billion, and two billions. In nearly 3,000 injections given he had not observed a single severe reaction; it was well, however, to warn the parent against a possible local or slight general reaction. The preliminary series of cases numbered 107, in addition to 25 treated prophylactically, but the histories were complete in only 45. Of these patients, 60 per cent. had stopped whooping within one month. If Holt's figure of 30 days as the average duration of the paroxysmal stage were adopted, it would have to be conceded that these cases were only slightly, if at all, benefited by the vaccine treatment. It was a fact, however, that at St. Joseph's Orphan Asylum, where a portion of the cases were treated, some patients who had been given the ordinary whooping cough mixtures had been whooping for from 45 to 180 days, and in an epidemiological investigation made in the spring of 1914, it was found in the borough of Manhattan that the average duration of the whoop was two months. Thus, by comparison, some beneficial effect might be ascribed to the vaccine. The prophylactic cases were all at the asylum, and in none of them was the disease contracted except in that of a child who received one injection and refused to have any more. This experiment, however, lost a good deal of its significance on account of lack of information as to the exact time of exposure, and it could also be assumed that probably a certain proportion of the children were immune to the disease. In the summer of 1914 the Health Department, in order to secure more uniform views upon the subject, as well as more abundant material for bacteriological investigation, organized its whooping-cough clinic. Of the 376 cases treated at the clinic from August 10 to December 31, only a fraction were available for comparative study. Of all cases treated coming in with the diagnosis of pertussis, 17.5 per cent. were negative, this diagnosis proving upon further examination to be erroneous. The diagnosis of the discase was made on the evidence of the whoop with vomiting, and in doubtful cases this was confirmed by the isolation of the Bordet-Gengou bacillus from the sputum. A negative sputum, however, did not exclude pertussis. On account of other Gram-negative bacilli frequently found, one could not diagnosticate the disease from the bacterioscopic picture alone. The sputum must be planted on a special blood-agar-glycerin-potato medium, and other organisms having the same morphological and staining characteristics excluded. The complement-fixation test had not so far proved of any practical value in the diagnosis of pertussis for therapeutic indications. In over 100 cases studied at the Research Laboratory positive complement fixation was found in about 50 per cent., and not earlier than the fourth day of the paroxysmal stage—a time when anyone could make the diagnosis if it depended on the whoop. These negative cases were probably responsible for the extremes of opinion regarding vaccine treatment held by private physicians treating a limited number of cases. A child with a non-specific cough with regurgitation, which was magnified by an anxious mother into paroxysmal attacks with vomiting, was apt to improve "miraculously" after the second dose of vaccine, while one with a severe bronchitis simulating whooping-cough would of course wholly fail to respond to the treatment. There were 20 doubtful cases, and from the table, showing both vaccine and drug treatment, no definite conclusion as to the superiority of one over the other could be drawn. It was possible that some of these doubtful cases were abortive forms of the disease. Of 76 cases treated with drugs, only 35 had been tabulated, as in the others the whoop had at the time they came for treatment already lasted longer than in the average case. A basis for comparison with the vaccine cases had to be found, and, somewhat arbitrarily, 21 days was selected as the longest duration which would admit of comparative study. In the cases of less than three weeks' duration treated with drugs the average for the paroxysmal stage of the disease was found to be 40 days. In most of them antipyrine and sodium bromide were given, with an orange flower syrup as the vehicle. Of 138 cases treated with vaccines, 115 came under observation within the first three weeks of the paroxysmal stage. The average duration was 25

days, and this figure could have been much reduced if certain cases had been excluded: such, for instance, as that of a child with low resistance who had coughed for 84 days before the whoop commenced. It was brought to the clinic on the 21st day of the paroxysmal stage, and it whooped for 111 days; being finally discharged with an occasional whoop. On the whole, the vaccine treatment appeared to have shortened the paroxysmal stage, as compared with the drug treatment, by over two weeks; and of more significance was the prompt amelioration which had resulted in nearly all instances. In some cases, however, especially when a moderate reaction followed the first injection, a slight aggravation occurred during the first one or two days. In the cases treated with antipyrine, which showed, first, a decrease in the number but not the severity of the paroxysms, vomiting was apt to continue until or after the whoop stopped; both were apt to return as soon as the medicine was withdrawn or on the least provocation due to a new "cold," gastro-intestinal trouble, etc. Such relapses were rare in cases treated with vaccine. In only a few instances were more than three injections given. As a rule the mother would refuse further "needle treatment" as soon as there was a marked amelioration in the character and number of the paroxysms. Among the vaccine cases, four developed pneumonia, and three of these made perfect recoveries. The fourth contracted pneumonia after it had drifted away from the clinic, and died in a hospital. The only other fatality occurred in an infant with marasmus, which died six weeks after the treatment, from intestinal complications and pneumonia. Of 34 prophylactic cases tabulated, only 9 could be called strictly prophylactic (exposed to pertussis, but showing as yet no symptoms of the disease). The others had either a plain cough or a mildly paroxysmal one with vomiting, and to them the treatment was given with a view to aborting the disease, rather than preventing an infection which seemed to be already present. The 9 gave histories of exposure from one to fourteen days, and to date (from two to four months after immunization), all had remained without any symptoms. Of the remaining 25 cases, 19 patients stopped coughing during or soon after the treatment. In the other five the vaccine was not successful in aborting the disease, and one of these was the marasmus child who died. The following conclusions might be drawn from this work: 1. Pertussis stock vaccines, as prepared by the Bureau of Laboratories, seem to have a prophylactic value when given in a high dosage. 2. In the treatment of pertussis they seem to have shortened the duration and severity of the paroxysmal stage. 3. Further experiments, with the view of obtaining more effective vaccines and a closer cooperation of the profession in public health education, may help in the eradication of pertussis, this scourge of childhood which yearly kills ten thousand American children.

Dr. E. Mather Sill said that his experience with the vaccine had been limited to between sixty and seventy cases. In the matter of prophylaxis he believed that it would be of greatest value. As a prophylactic he had employed it in only ten cases, but none of these children, although exposed, developed the disease. In treating whooping cough with it he had not, in the beginning, paid so much attention to the age of the child as to the frequency and severity of the paroxysms. His dosage, in the majority of instances, was from 50,000,000 to 100,000,000; so that the young infants received a proportionately larger dose than older children, and it seemed to him that he obtained better results in these cases. The average time for a cure in his cases, after vaccine treatment was begun, had been from three to four weeks. He did not consider the vaccine a specific for the disease, but did believe that it was a great addition to our armamentarium in its treatment; in many cases diminishing the severity of the paroxysms and shortening the course of the disease to a greater extent than had hitherto been possible with drugs.

Dr. Alfred F. Hess spoke of the great advantages he had had personally in observing the effects of the vaccine, both therapeutic and prophylactic, from the fact that this occurred in an endemic in an infant asylum. He was thus enabled to have complete control of the cases to the end. Another advantage was that, in all probability, all the cases were due to the same type of bacillus. In the third place, no other medication was employed, while the conditions as to food, care, etc., were the same for all the children. Fourth, it was possible to know just when the disease began. In all, 85 children were treated. The treatment was commenced very early—sometimes on the second or third day—and two or three doses, of from 100,000,000 to 200,000,000, were usually given. Four different vaccines were employed, one of them autogenous, and it was not observed that the vaccine appreciably lessened the paroxysms either in number or violence. Of the 400 children in the institution, 244 had the vaccine administered to them prophylactically—in every instance before there was any sign of an attack—and 20 of them developed the disease. This seemed a fair result, though by no means as good as was ordinarily met with in antityphoid vaccination. From his experience in this epidemic the conclusion at which he had arrived was that pertussis vaccine is of no curative value, but is of some value as a prophylactic.

Dr. W. Morgan Hartshorn gave a *résumé* of the cases treated at the Roosevelt out-patient clinic, and stated that because of the unsatisfactory results observed the use of the vaccine had now been given up there. Up to the present it had seemed to him, he said, that the vaccine was not of much service except as a prophylactic. It had not as yet been proved that the Bordet-Gengou bacillus was positively the causative agent in pertussis, and there were various other microorganisms which might perhaps be concerned in its etiology. The Bordet-Gengou vaccine was uncertain, although with an autogenous vaccine we might combat the causative organisms, whatever these might be. The cases he had treated medically were always well, or nearly well, inside the six weeks limit which had been fixed upon at the clinic.

Dr. Luttinger said it could not be expected that results could be obtained from a vaccine equal to those from a serum such as diphtheria antitoxin. Still, he believed that the reason why some of the speakers had not secured better results was because they had not given larger doses. At the whooping-cough clinic it was customary to begin with a dose of 250,000,000, and in many instances with as much as 500,000,000. Therefore the results obtained appeared to depend somewhat on the size of the dose. As to Dr. Hess's cases, it ought perhaps to be taken into consideration that the children in infant asylums do not, as a rule, have as much resistance as others—not forming antibodies as readily. All that he had claimed was that the vaccine treatment gives better results than drug treatment, and it seemed to him that the results which had now been obtained at the clinic had shown that the vaccine favorably modifies the paroxysms, shortens the duration of the attack, and diminishes the mortality of the disease.

Pathological Society of Philadelphia.

At a stated meeting held May 13 Dr. Alfred Gordon presented a specimen of "Hydromyelia." The patient had been a young woman, 22 years old, in whom hydrocephalus had been observed since the age of 12. On post-mortem examination all of the cavities of the brain as well as the central canal of the spinal cord were found to be enormously distended.

Dr. George W. Outerbridge presented a specimen of "Adenoma Hidradenoides Vulvae," illustrated by means of lantern slides.

Drs. John A. Kolmer and Emery Marvel presented a specimen of "Multiple Intestinal Polyps, with Intussuception of the Small Intestine." The patient had complained of a good deal of abdominal pain and obstinate constipation, and with the development of symptoms of intestinal obstruction operation was performed and a segment of bowel removed.

Dr. John A. Kolmer presented a communication entitled "A Method of Transmitting Trypanosomes, with a Note on the Numerical Relationship of Trypanosomes to Infection." The number of trypanosomes was counted in a cubic millimeter of blood obtained from the tails of rats inoculated with trypanosomes by way of the peritoneum and by this means known grades of infection could be set up. It was found that the larger the number of trypanosomes to induce infection, the shorter was the period of incubation.

Dr. George W. Outerbridge presented a communication entitled "Non-teratomatous Bone-formation in the Human Ovary," illustrated by lantern slides. He had gained the impression from the literature that the occurrence of bone in the human ovary apart from such growths as dermoid cysts and teratomata was exceedingly rare, but observations directed especially toward this point seemed to show that the reverse condition may prevail, inasmuch as the examination of the ovary for ossification is not commonly made. He had

found such a condition present in not less than seven cases in the course of two years.

Dr. JOHN A. KOLMER, Miss MARY TRIST, and Dr. GEORGE A. HEIST presented a communication entitled "Complement Fixation in Intestinal Parasitism." It was found that in the presence of intestinal parasites the blood contained amboceptors and immune bodies with respect to preparations made from the respective parasites.

Dr. ROBERT A. KEILTY and Mr. F. E. PACKER presented a communication entitled "Experimental Studies on the Diffusibility and Bacterial Inhibitory Qualities of Various Antiseptics." The investigation was undertaken to determine the antiseptic activity of various drugs and their efficacy in the presence of wound infections. The most useful combination was found experimentally to consist of thymol and tricresol, 20 per cent., mixed with castor oil, white wax, and spermaceti.

Dr. G. K. STROBE read a paper entitled "Meckel's Diverticulum: A Resumé and Report of Four Cases of Acute Diverticulitis," with demonstration of specimens. He described the several varieties of diverticulum and the complications to which they may give rise, as well as the difficulty of differentiation of these especially from appendicitis, for which usually they are mistaken, the actual condition being discovered at operation.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF MEDICAL EXAMINERS OF GEORGIA.

Atlanta, October, 1914.

ANATOMY.

1. Give origin and distribution of the facial nerve.
2. Describe in detail the humerus.
3. Give origin and insertion of the sartorius muscle.
4. Describe the palmar arch.
5. Describe the gall-bladder and give its relations.
6. Describe the popliteal space.
7. Describe the patella.
8. What is the function of the third cranial nerve?
9. Describe the prostate glands.
10. Where are the Peyer's glands situated?

PHYSIOLOGY.

1. Give the physiological composition of the blood and the function of each part.
2. Where are the red blood cells formed? Where the white blood cells?
3. From what do the new tissue cells originate in the process of repair?
4. What causes the (a) first sound of the heart? The (b) second sound? Locate the point of maximum intensity of each.
5. Give the distribution of the secretory fibers of the facial nerve.
6. How does the acidity of gastric digestion control the passage of food from stomach to intestine?
7. Describe the influence of hydrochloric acid on the pancreatic activity.
8. Give in detail the digestion of fat, stating the channel of absorption.
9. What proven function has the pituitary gland?
10. What effect has atmospheric pressure on respiration?

CHEMISTRY.

1. Name the elements constituting the chlorine group, also its symbol, atomic and molecular weights.
2. What are the symbol, atomic weights, and valence of bismuth and its physical properties?
3. Explain the terms anhydrous, deliquescent, and efflorescent.
4. What is the difference between calcium chloride and chloride of lime?
5. With what substance is calomel liable to be contaminated and how may this impurity be detected?
6. Of what four elements are organic compounds principally composed and name them?
7. What is an alkaloid and into what two classes are they divided?
8. What are the characteristics of the acidulous elements?
9. Describe the prominent symptoms of poisoning by digitalis and what treatment should be adopted.
10. What relation does apomorphine bear to morphine and how is it produced?

BACTERIOLOGY.

1. What is the relation of bacteria to disease?
2. What is the effect of temperature upon the growth and destruction of bacteria?
3. On what theory is tetanus antitoxin administered?
4. Describe in detail the bacterial findings in puerperal septicemia.
5. Give technique of the Widal test.
6. Describe the microscopic blood findings in a case of pernicious anemia.
7. Give most accurate method of determining the opsonic power of the blood.
8. Give average number of bacteria in each leucocyte.
9. Describe the best method of examination (microscopic) of sputum for the presence of tubercle bacilli.
10. What disease conditions are excited by gonococci?

ANSWERS.

ANATOMY.

1. The *seventh or facial nerve* has its superficial origin in the upper end of the medulla oblongata, in the groove between the olivary and restiform bodies. It passes "forward and outward to enter the internal auditory meatus; it lies upon a groove on the auditory nerve, with portio intermedia of Wrisberg between, and at the bottom of the meatus it enters the aqueductus Fallopii, along which it runs first outward between cochlea and vestibule as far as hiatus Fallopii; then backward in internal wall of tympanum, just above fenestra ovalis, at the turn presenting a swelling, the geniculate ganglion; and finally it passes downward, to emerge from the bone at the stylomastoid foramen; it then passes outward and forward in the parotid, dividing behind the ramus of the jaw into temporo-facial and cervico-facial branches, which further subdivide and intercommunicate, forming the pes anserinus."—(*Aids to Anatomy.*)

It *supplies* the muscles of expression in the face, the muscles of the external ear, the Platysma, Buccinator, Stylohyoid, and the posterior belly of the Digastric.

2. "The HUMERUS, or arm-bone, the largest and longest bone of the upper extremity, consists of a shaft, head, neck, greater and lesser tuberosities, and lower extremity.

The *shaft*, cylindrical above, flattened and prismoid below, becomes twisted in the middle, and presents: A rough triangular surface about the middle of its outer surface for insertion of the deltoid muscle, and a musculo-spiral groove for the musculo-spiral nerve and superior profunda artery, on each side of which arise the external and internal heads of the triceps muscle

The *upper extremity* presents—the head, forming nearly a sphere, projecting upward, backward, and inward, articulating with the glenoid cavity; the anatomical neck, immediately beneath, is slightly grooved for the attachment of the capsular ligament; greater tuberosity, external to the head and lesser tuberosity, with three facets from before backward for attachment of supraspinatus, infraspinatus, and teres minor muscles; lesser tuberosity, smaller but more prominent than greater, is anterior to head, for the subscapular muscle; bicipital groove, passes downward and inward between the two tuberosities and lodges the long tendon of biceps; the anterior bicipital ridge, bounds the groove in front and receives insertion of pectoralis major muscle; the posterior bicipital ridge receives the latissimus dorsi and teres major; the surgical neck, including the head, neck, and both tuberosities; a rough impression near the center of the inner border for the coraco-brachialis muscle; nutrient canal, below and toward the lower end.

The *lower extremity* presents from within outward the following: Internal condyloid ridge, extending upward from the condyle; internal condyle, more prominent than external, gives origin to the flexors and pronator radii teres; epitrochlea, an eminence separating the trochlea from the internal condyle; trochlea, a pulley-like articulating surface for greater sigmoid cavity of ulna; coronoid fossa, a small depression bounding the trochlea in front, and receiving the coronoid of the ulna in flexion; olecranon fossa, a larger depression behind, and receiving the olecranon process of ulna in extension; supra-trochlear foramen, sometimes formed by perforation of one fossa into the other; radial head, or capitellum, a smooth, rounded eminence articulating with cup-like depression on head of radius; external condyle, less prominent, gives origin to the extensors and supinators; external condyloid ridge, extending upward on the shaft from the condyle.

It *articulates* with three bones—scapula, radius, and ulna.

Its *muscular attachments* are twenty-five—subscapularis, supraspinatus, infraspinatus, teres major and minor, pectoralis majo., latissimus dorsi, deltoid, coracobrachialis, brachialis anticus, triceps, pronators and flexors to inner condyle, pronator radii teres, flexor carpi radialis, palmaris longus, flexor sublimus digitorum, flexor carpi ulnaris, supinators and extensors to outer condyle, supinator longus, extensor carpi radialis longior and brevior, extensor communis digitorum, extensor minimi digiti, extensor carpi ulnaris, anconeus and subanconeous, supinator brevis." (Young's *Handbook of Anatomy.*)

3. Sartorius. *Origin,* from anterior superior spine of ilium; *insertion,* into inner surface of upper part of shaft of tibia, behind the anterior tubercle.

4. The *superficial palmar arch* is formed by the ulnar artery, and is completed by the ulnar artery anastomosing with a branch of the radial (superficial volar or princeps pollicis). It gives off the four digital branches.

The surface marking is a line drawn transversely across the palm from a point where the web of the thumb joins the palm.

The *deep palmar arch* is formed by the radial artery, and is completed by the radial artery anastomosing with a deep branch of the ulnar. Its branches are the palmar interosseous, perforating, and palmar recurrent arteries.

The surface marking is a line drawn transversely across the palm, one-half inch nearer the wrist than the superficial arch.

5. The *gall-bladder* is a conical bag placed in a fossa on the under surface of the right lobe of the liver. Its upper surface is attached to the liver, and its fundus and posterior surfaces are invested by peritoneum reflected from the adjacent surface of the liver. The body is in relation in front with the liver, and behind with the first part of the duodenum, the pylorus, and the hepatic flexure of colon. The fundus is in contact with the parietes opposite the ninth right costal cartilage. It is about four inches long, and holds about one ounce. Its duct passes from the neck of the gall-bladder downward, backward, and to the left to join the hepatic duct.

6. The Popliteal Space is *bounded: Above, and externally* by the Biceps; *above, and internally* by the Semimembranosus and Semitendinosus; *below, and externally* by the Plantaris and external head of the Gastrocnemius; *below, and internally* by the inner head of the Grastrocnemius. *Contents:* Popliteal vessels with branches, external saphenous vein, external and internal popliteal nerves, small sciatic nerve, lymphatic glands, and loose areolar tissue.

7. The *patella* is a flat, triangular bone situated in front of the knee-joint; it is said to be a sesamoid bone developed in the tendon of the quadriceps extensor. Its anterior surface is convex and shows perforations for nutrient vessels; it is separated from the skin by a bursa. Its posterior surface is smooth and oval-shaped, and has two facets separated by a vertical ridge; these facets articulate with the two condyles of the femur. The superior border gives attachment to the rectus and crureus; the lateral borders give attachment to the vastus externus and vastus internus. The apex gives attachment to the ligamentum patellæ. The anterior surface is covered by the tendon of the quadriceps extensor, which is continuous below with the ligamentum patellæ.

It serves to protect the front of the knee-joint, and it increases the leverage of the quadriceps extensor muscle, by making it work at a greater angle.

8. The *third cranial nerve* is the motor nerve for the following muscles of the eye: Superior rectus, inferior rectus, internal rectus, levator palpebræ superioris, and inferior oblique.

9. *Prostate gland* is about 1½ x ¾ x ½ inches, and weighs about three-quarters of an ounce. It resembles a chestnut in size and form. It is situated at the neck of the bladder, and surrounds the first part of the urethra. It consists of fibromuscular (unstriated) tissue with imbedded follicular pouches, the whole enclosed in a firm fibrous capsule, continuous in front with the triangular ligament, and behind with the posterior layer of the deep perineal fascia. *Arteries* are from the vesical, hemorrhoidal and internal pudic.

Relations of prostate. *Anteriorly:* Symphysis pubis, anterior ligaments of bladder, branches of dorsal vein of penis. *Posteriorly:* Rectum. *Laterally:* Levator ani. *Base:* Surrounds neck of bladder, seminal vesicles, and vasa deferentia. The *apex* rests on triangular ligament.

10. *Peyer's glands* are situated in the ileum, with a few in the jejunum, and occasionally in the duodenum.

Physiology.

1. The physiological composition of the blood is: Plasma, red corpuscles, white corpuscles, and platelets.

The *function of the red blood corpuscles* is to carry oxygen from the lungs to the tissues.

The *function of the white blood corpuscles* is:—(1) to serve as a protection to the body from the incursions of pathogenic microorganisms; (2) they take some part in the process of the coagulation of the blood; (3) they aid in the absorption of fats and peptones from the intestine, and (4) they help to maintain the proper proteid content of the blood plasma.

The *function of the platelets* is not determined; it is possible that they take some part in the coagulation of the blood. In number they vary from about 200,000 to more than 500,000 in each cubic millimeter of blood.

Plasma conveys nutriment to the tissue; it holds in solution the carbon dioxide and water which it receives from the tissues, and takes them to be eliminated by the lungs, kidneys, and skin; it also holds in solution urea and other nitrogenous substances that are taken to and excreted by the liver or kidneys.

2. The *red blood cells are formed* in bone marrow; in fetal life they are formed in "blood islands," and in spleen and liver.

White blood corpuscles are formed in the spleen, lymph glands, and lymphoid tissue; also from other white cells by direct cell-division in the blood stream; the eosinophiles may be derived from the bone marrow.

3. "True regeneration may occur in bone, tendon, nerves, and striped muscle. . . . Exudation of plasma from the neighboring blood vessels occurs, and its fibrinogen is converted into fibrin, so glueing the edges of the wound together. Leucocytes are poured out and infiltrate the wound, absorbing any blood clot present. These are followed by fibroblasts (connective-tissue cells), which take their place. New capillaries form by budding out from adjacent ones, and vascularize the new tissue. Fibrous tissue is formed by intercellular exudation from the fibroblasts and so the fibrocicatricial union is complete, for at the same time epithelium is spreading over the narrow surface line."—(*Aids to Surgery.*)

4. There are two normal heart sounds which follow in quick succession, and are succeeded by a pause. The first, or systolic, sound is dull and somewhat prolonged, the second, or diastolic, sound is sharper and shorter. The sounds may be expressed by the syllables *lubb—dup.*

The first sound is heard best at the apex beat in the fifth left intercostal space; the second sound is heard best over the second right costal cartilage.

The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

5. The secretory fibers of the facial nerve are distributed (by the chorda tympani) to the submaxillary, and sublingual glands.

6. "After an ordinary mixed meal the pylorus usually opens for the first time about half an hour after digestion begins, and some of the acid chyme passes into the duodenum. The action of this muscular ring is intermittent, and the explanation of its alternate openings and closings may be briefly summed up in the phrase used by Cannon: "The acid control of the pylorus." It is necessary that the food should be retained in the stomach until it is acid; otherwise it would not, on reaching the duodenum, give rise to the formation of secretin, the chemical stimulus for the flow of pancreatic juice, and bile. He has found that acid on the gastric side of the pyloric sphincter opens it, and acid in the duodenum closes it. As soon therefore as the chyme is neutralized by the alkaline juices of the duodenum there is no longer any hindrance to the action of the acid chyme in the pyloric end of the stomach in opening the door which was temporarily closed by acid on its duodenal side. This action does not occur if a ring is cut through the muscular coat immediately beyond the pylorus, and so the effect from the duodenum is a local reflex action mediated like the movements of the small intestine by the plexus of Auerbach."—(*Halliburton's Physiology.*)

7. The acid in the gastric juice, when it reaches the duodenum, causes the production of secretin; this latter is absorbed by the blood and carried to the pancreas, where it incites pancreatic activity.

8. *Digestion of fats.* In the stomach, the gastric juice dissolves the connective tissue binding the fat cells together, and sets free the fat, which passes into the duodenum. Here the steapsin of the pancreatic juice (aided by the secretions) splits up the fats into glycerin and fatty acids.

Absorption of fat. "Fat is not absorbed as fat, but as glycerin and fatty acid or soap. It is generally accepted that the fatty acid set free in the intestine is dissolved by the bile salts, and in this way, together with the glycerin, is absorbed by the columnar cells, but that during absorption a lipase which is contained in the columnar cells re-synthesizes, by reverse action, the glycerin and fatty acid. In this way minute fat particles are found near the bases of the columnar cells, and these may be demonstrated by staining with a 1 per cent. solution of osmic acid. The fat globules are further taken up from the columnar cells by some of the lymphocytes, which are capable of exhibiting ameboid movements, and which are found in the lymphoid tissue between the columnar cells and the central lacteal. The fat is then deposited in the central lacteal by these ameboid cells, and in this way it gets into the general lacteal stream, and thence into the thoracic duct. The bile salts, which have been absorbed by the columnar cells, in all probability get into the portal vein radical, and in this way are taken back to the liver to be excreted again in the bile. After a fatty meal minute globules of fat may be demonstrated in the blood plasma of an animal; but they disappear rapidly, possibly existing in a soluble and invisible form absorbed to the blood proteins before they are deposited in the fat depots of the body."

9. *Function of the pituitary gland:*—"The *anterior* lobe is concerned with the process of growth, hypertrophy leading to overgrowth of the skeleton, and partial removal to failure of development of the body as a whole and of the sexual glands. Extracts of the *posterior* lobe, when injected into an animal, have a direct action on plain muscle all over the body; they cause constriction of the arterioles and a rise of blood pressure, contraction of the muscular coats of the digestive tract and of the bronchioles, and contraction of the uterus. The extracts also produce an increased flow of urine, which was at first attributed to the presence of a substance having a specific effect upon the renal cells; it is probable, however, that the diuretic effect is merely an indirect result of the more rapid flow of blood through the kidney which follows the injection of the extract. Extracts of the posterior lobe increase the secretion of milk, and after the injection a larger amount of milk is formed by the animal in the course of twenty-four hours." (Bainbridge and Menzies' *Essentials of Physiology.*)

10. Effect of atmospheric pressure on respiration. "*Effect of lowered pressure:*—When a person ascends from near sea level to a height of 5,000 to 10,000 feet or more, he is apt to suffer from symptoms which are generally described as mountain sickness: these symptoms are headache, mental confusion, blueness of the lips, and nausea or vomiting. They may occur when the individual ascends to this height in a train, and are therefore not due to muscular exercise, although they may become more severe when exercise is taken. They are caused entirely by lack of oxygen. With increasing altitude the barometric pressure, and therefore the partial pressure of oxygen in the atmosphere and in the alveolar air, gradually fall; and when the alveolar pressure of oxygen falls to about 60 mm. Hg. the symptoms just described make their appearance. Similar symptoms are produced in animals and in man, when they are placed in closed chambers and the barometric pressure is gradually reduced. If the individual remains at a high altitude, the symptoms pass off in the course of a day or two, and after a time exercise may be taken without their recurrence. The adaptation of the body to the altered conditions is brought about by changes in both the circulatory and respiratory systems. In the first place the lack of oxygen leads to the passage into the blood of lactic acid, which stimulates the respiratory center; and the breathing becomes deeper, with the result that the partial pressure of carbonic acid in the alveoli decreases and that of oxygen rises. At a high altitude, when the alveolar oxygen pressure is low, even a small rise in the partial pressure of oxygen appreciably increases the extent to which hemoglobin can be saturated with oxygen as the blood passes through the lungs. . . . Secondly, a more gradual compensatory process takes place in persons who remain at a high altitude for a long period. The number of red corpuscles and the percentage of hemoglobin in the blood are increased, and the oxygen-carrying capacity becomes much greater.

The *effect of raised pressure.*—Men engaged in the building of bridges and tunnels are often compelled to work in caissons, which are filled with compressed air to prevent the inrush of water. They suffer no inconvenience, and the respiratory movements are not affected while they are in the caisson, even though the pressure may be three or four atmospheres. Under this pressure, however, the blood dissolves an increased amount of oxygen and nitrogen, and when a man leaves the caisson, and the pressure to which the blood and tissue fluids are exposed is reduced to one atmosphere, most of the nitrogen, previously in solution, is evolved as bubbles, which may obstruct the flow of blood along the blood-vessels or through the heart. The symptoms caused by this obstruction, and known as caisson disease are very varied, and include paralysis, severe abdominal pain, and collapse. The disease is prevented by allowing the man to pass from the caisson into a special air chamber, in which the pressure is gradually lowered to that of the atmosphere so as to prevent any sudden evolution of nitrogen." (Bainbridge and Menzies' *Essentials of Physiology.*)

CHEMISTRY.

1. *The chlorine group:*—

ELEMENT	SYMBOL	ATOMIC WEIGHT	MOLECULAR WEIGHT
Fluorine	F.	19	38
Chlorine	Cl.	35.5	71
Bromine	Br.	80	160
Iodine	I.	127	254

2. Bismuth. *Symbol,* Bi; *atomic weight,* 208.5; *valence,* 3; *physical properties:*—A hard, brittle, crystalline solid; usually contaminated with arsenic; combines directly with chlorine, bromine, and iodine; is only slightly oxidized in cold air; it dissolves in hot sulphuric and nitric acids, becoming, respectively, a sulphate and nitrate.

3. An *anhydrous* substance is one that contains no water. A *deliquescent* substance is one that has a tendency to absorb moisture from the air. An *efflorescent* substance is one that, if exposed to the air, loses its water of crystallization and falls to powder.

4. *Calcium chloride* is $CaCl_2$. *Chloride of lime* is either $CaCl_2 + Ca(ClO)_2$, or $CaCl(OCl)$.

5. Calomel is liable to be contaminated with corrosive sublimate; the presence of the latter may be detected by the formation of a black stain upon a bright copper surface immersed in the calomel, moistened with alcohol.

6. Organic compounds are chiefly composed of carbon, hydrogen, oxygen, and nitrogen.

7. An *alkaloid* is an organic, nitrogenized, basic substance, capable of combining with acids to make salts in the same way that ammonia does. Alkaloids are divided into two classes: (1) Volatile and (2) fixed.

8. The acidulous elements do not form salts with the oxyacids, and their hydrates are acids, and their oxides unite with water to form acids.

9. *Symptoms of poisoning by digitalis:* "Nausea, and occasionally vomiting. Sometimes colic and diarrhea. After two or three hours, marked diminution in the frequency of the pulse, which may fall to 40 or even 25. Dyspnea, attended by a sense of oppression in the chest and coldness of the extremities. Headache, vertigo, and tendency to sleep. Usually attacks of syncope occur, provoked sometimes by the slightest movement of the patient. Death is generally by syncope, sometimes after several hours of coma succeeded by convulsions. *Treatment:* The patient must be kept strictly in the recumbent position. The stomach should be washed out with infusion of tea by the stomach tube. Stimulants should be given."—(Witthaus' *Essentials of Chemistry.*)

10. *Apomorphine* is morphine minus water. It is produced by heating morphine with hydrochloric acid to 150° C., under pressure.

BACTERIOLOGY.

1. To *prove that bacteria cause disease* it is essential: (1) That the microorganism be found in the tissues, blood, or secretions of a person or animal sick or dead of the disease; (2) the microorganism must be isolated and cultivated from these same sources; it must also be

grown for several generations in artificial culture media; (3) the pure cultures, when thus obtained, must, on inoculation into a healthy and susceptible animal, produce the diseases in question, and (4) the same microorganisms must again be found in the tissues, blood, or secretions of the inoculated animal. These are called the rules or postulates of Koch.

2. *Effect of temperature upon bacteria:* As a rule bacteria will rarely grow below 16° C. and above 40° C. A few will grow at a temperature between 60° and 70° C. and are called thermophilic. Most bacteria are killed by temperatures above 60° to 75° C., but their spores can resist boiling water for some minutes, though killed by dry heat if exposed to 150° C. for an hour or to 175° C. for ten minutes. Cold inhibits the growth of, but does not destroy, bacteria; immersion in freezing mixtures kills many bacteria; but some bacteria and spores are capable of resisting intense cold. Bacteria usually grow best at room temperature; many of the pathogenic bacteria grow best at body temperature and some at a temperature a little above that of the body.

3. *How* antitoxin produces immunity and effects cure is not known, but *theories* deduced from observed facts are as follows: "As the various pathogenic bacteria produce the causative toxins of their respective diseases, so the organic cells of the body, reacting under the stimulus of the poisons thus introduced, immediately proceed to elaborate defensive bodies, which if produced in sufficient quantity will neutralize the effects of the toxins. Residual antibodies remaining in the blood after recovery render the animal immune for a time against the disease. The immunizing and curative effects obtained by the injection of the blood serum of an immunized animal into the circulation of another animal are due either to direct chemical neutralization of the toxins themselves by the antibodies so introduced (Behring, Kitasato), or to a particular influence exerted by the antibodies upon the living cells of the organism which, being affected in two opposite directions, remain neutral to the disease (Buchner). Some authorities hold that these results are due to the conjoint action of leucytic and chemical forces. Ehrlich's sidechain theory assumes that every toxin contains toxophore molecules having direct toxic action, and haptophore molecules which combine the toxophores with a similar combining group of molecules in the tissue cell of the attacked organism. The tissue cell molecules being destroyed by the toxophores, a rapid and profuse regeneration of similar molecules occurs in side chains, and these molecules overgrowing are carried into the circulation, becoming the antitoxin, which acts by combining with the haptophores of newly-arrived toxin, using up their combining power before they can reach the tissue cells."—(Potter's *Materia Medica*, etc.)

4. The *bacterial findings in puerperal septicemia* include the *Streptococcus pyogenes, Staphylococcus pyogenes, gonococcus, Bacillus coli communis, Bacillus diphtheriæ Bacillus ærogenes capsulatus, and Bacillus typhosus.*

5. *The Widal reaction:* "Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses of clumps, and cease their rapid movement inside of twenty minutes."—(From Thayer's *Pathology.*)

6. The *microscopic blood findings in pernicious anemia:* Diminution in the number of red blood corpuscles (this may be excessive, as low as 500,000 per cubic millimeter); the hemoglobin is also diminished, but not so markedly as the number of red cells; normoblasts, megaloblasts, microcytes, and macrocytes may be found; crenation and poikilocytosis may be observed; there is no leucocytosis.

7. To *determine the opsonic power of the blood:* "For this estimation it is necessary first to prepare a quantity of living human leucocytes from some indifferent source (either the patient or some normal individual), from which the plasma has been completely removed. This is done by receiving the blood, as it exudes from a needle puncture, into a weak solution of sodium citrate, centrifugalizing the mixture thoroughly, pipetting off the citrated plasma, adding normal saline solution to the deposited mass of red cells and leucocytes, mixing thoroughly and again centrifugalizing. A repetition of this "washing" with normal saline and the subsequent removal of the supernatant fluid leaves a sufficient quantity of leucocytes and cells entirely freed from the fluid (which possibly contained excess of opsonin) in which they were originally suspended. Next a small quantity of blood to be tested is collected in a small pipette and allowed to clot, and the serum is separated. Similarly the serum from the normal individual or "control" is prepared. Finally a homogeneous suspension of the test-bacterium is prepared by emulsifying some of the bacterial growth in distilled water and carefully centrifugalizing, in order to throw down any possible clumps or masses of microorganisms. By means of a suitable measuring pipette, equal quantities of washed cells, of bacterial emulsion and of the patient's serum are taken up and thoroughly mixed, and the mixture incubated at body temperature for fifteen minutes. At the end of this time, after preliminary manipulations to ensure that there is thorough incorporation of the mixture, blood-films are spread there—from on an ordinary glass slide, fixed, and stained. A second mixture, in which the normal serum is substituted for the patient's serum, is prepared in an identical manner. The two slides are examined microscopically, and the number of bacteria taken up and ingested by the first fifty consecutive polymorphonuclear leucocytes encountered in each film is noted. The ratio between the resulting sums is then expressed in the form of a fraction, of which the total contents of the fifty cells mixed with the patient's serum forms the numerator, and that of those with the normal serum the denominator. This fraction is, however, usually expressed as a percentage of unity—which is represented by the normal serum. Thus, supposing 150 bacteria were counted in fifty cells of the preparation made from the patient's serum, and 100 in a similar number in the preparation from the normal control, the index would be represented by $\frac{150}{100}$ or 1.5. If, however, the specimens chosen had given the figures 60 and 90 respectively, the fraction would have been $\frac{60}{90} = 0.66$."—(Bosanquet and Eyre's *Serums, Vaccines and Toxins.*)

8. Three or four bacteria to a leucocyte would be a fair average.

9. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

10. *Diseased conditions excited by the gonococci:* Gonorrhea, ophthalmia neonatorum, arthritis, tenosynovitis, perichondritis, subcutaneous abscess, intramuscular abscess, salpingitis, pelvic peritonitis, adenitis, pleuritis, endocarditis, septicemia, acute cystitis, chronic cystitis, pyonephrosis, and diffuse peritonitis.—(From McFarland's *Bacteriology.*)

(*To be continued.*)

Infection of Middle Ear with Vincent's Organisms.—J. Adam reports four cases of this condition, three of which came under his observation during a period of six months. He believes that this type of infection is more common than has been supposed. The condition for which one is apt to mistake it is diphtheria. The disease is chronic marked by the presence of a foul-smelling and profuse discharge, masses of profuse and readily bleeding granulations in the more pronounced cases, erosion of the external parts of the ear, slight tendency to the formation of membrane, and slight glandular involvement. There is not much disturbance of the general health and there is no pyrexia. —*British Journal of Children's Diseases.*

Medical Record

A Weekly Journal of Medicine and Surgery

Vol. 87, No. 26.
Whole No. 2329.

NEW YORK, JUNE 26, 1915.

$5.00 Per Annum.
Single Copies, 15c.

Original Articles.

RECENT ADVANCES IN DERMATOLOGY AND SYPHILOGRAPHY.

BY CHARLES MALLORY WILLIAMS, A.B., PH.B., M.D.,

NEW YORK.

PROFESSOR OF DERMATOLOGY, UNIVERSITY OF VERMONT.

SOME of the best of the recent work in dermatology has been devoted to the study of psoriasis, but so far with very meager results. Schamberg[28, 29] has recently published a number of very interesting articles upon this disease, examining particularly the evidence in favor of its bacterial origin. He found no organism constantly present, but a considerable number present now in one case and now in another. Preparing antigens from psoriatic scales, and from cultures of the various organisms found, he attempted complement fixation with the serum of psoriatic patients, and failed in all cases. He examined also the bactericidal power of chrysarobin, pyrogallic acid, and arsenic—drugs of known value in psoriasis—and found it very slight, while calomel in suspension showed decided germicidal qualities, but was without effect on psoriasis. As far as these experiments go, they are in opposition to the theory of the parasitic origin of the disease. Another part of his work, however, shows more positive results. A number of patients with well developed psoriasis were kept in private rooms at the Polyclinic Hospital, where all their food was carefully analyzed and measured, and analyses made also of the daily discharge of feces and urine, and of the scales produced by the eruption. He concludes that these patients store nitrogen with extraordinary ease—that even on a very low protein diet, the discharge of nitrogen is less than the intake, and that a very low protein diet has a distinct and remarkably beneficial effect on the course of the disease. The patients were given no local treatment whatever, but improved wonderfully, the eruption almost disappearing when the diet was made sufficiently poor in nitrogen. In some of them a high nitrogen diet was given for a short period, to try the effect, and the eruption regularly grew worse. To get good results the diet must be *very* poor in nitrogen—about 4-5 g. a day—and must be followed for several weeks. After improvement was well established he found it possible to increase the amount of nitrogen without causing a relapse. The diet called for by this treatment is hardly sufficient for a man at hard work—even the patients living quietly in hospital were often hungry, but were willing to stand the discomfort because of the very evident improvement. In ordinary practice it would be difficult to maintain so strict a regimen, but it is possible to approach it, at least, and the results are good. Indeed, Schamberg was able to do this with some of his dispensary cases, and Bulkley's boiled rice diet is but a variant of the same method. Of course, this treatment does not prevent relapses, and it tells us little of the true nature of the disease, but it is often very useful in practice. Its effects are most evident in the worst cases, where large areas of skin are involved; while in the mild types with only a few scattered lesions, the improvement to be expected is but slight.

The most recent proposal for the treatment of psoriasis is the injection of autogenous serum. Gottheil[15], Hilario[17], and Howard Fox[14], in this country, have each reported series of cases, and claim very good results. The technique is very simple. Under antiseptic precautions, 40 to 200 c.c. of blood is drawn from a vein in the arm into a sterile container, and allowed to clot. The serum is then separated, either by allowing the blood to stand, or by centrifuging, and the clear serum is injected into a vein. Usually, the operator injects all the serum he recovers, but some observers state that the results are as good with small amounts as with large. With a high speed electric centrifuge, the whole operation can be finished in an hour. If more convenient, the clotted blood may be kept in an ice box, and the serum injected 24 or 48 hours after it is drawn. The whole operation must be conducted under the strictest antiseptic precautions, but a strong reddish color in the serum, due to a few red corpuscles, does not unfit it for use. As a rule, six to ten injections are made at weekly intervals. In a few cases, the psoriatic patches disappear under the serum treatment alone, but generally they do not do so: the advantage claimed for the treatment is that after its use patches will yield to a 2 per cent. chrysarobin ointment, which previously had been rebellious to all treatment, even the most energetic. The method is still on trial, and it is by no means certain that it will do more than can be accomplished by careful diet with vigorous application of strong ointment. As pointed out by Wise[33], the vigor of the rubbing seems to be an essential feature of the local treatment of psoriasis, and the physician should see that it is thoroughly carried out. The rationale of the serum treatment is still an entire mystery. The only change in the blood, as far as known, is the removal of the corpuscles and the fibrinogen, and at present there is no known explanation of how this affects the skin, or other organs. There seems to be some change, by virtue of which the reaction of the skin to certain drugs and other substances is altered; more than that we cannot say. The most probable field of usefulness lies among those cases which are very extensive, and resistent to all other methods.

The treatment with autogenous serum has been used in other diseases also, and with very encouraging results. The cases selected have been, as a rule, those in which itching is a marked feature; cases in which the skin seems to be abnormally irritable; such as general pruritus, chronic eczema, urticaria,

and prurigo. Another class that is often improved is the pemphigus group, including dermatitis, herpetiformis. One of the most recent articles is by the late Arthur Swann[42], recording the successful treatment of a case of chronic and very rebellious urticaria with serum from the patient's brother. Spiethoff[43] who has done a great deal of work in this line, claims that the results with the patient's own serum are as good as those with the serum of another, and of course the use of autoserum avoids the risk of conveying disease. Bruck[5] claims equally good results from the injection of normal salt solution, but later reports are contradictory.

Tinea cruris, or eczema marginatum, has received attention lately, and the disease is probably much more common than is generally supposed. It involves usually the region of the crotch, and may appear also in the axillæ, between the toes, and rarely between the fingers. It is very probable that many cases formerly called eczema of the toes, and which proved very resistant to treatment, were really caused by this epidermophyton inguinale. The organism, unlike most of the tineas, does not attack the hair, but thrives in the deeper layers of the epidermis. Warmth and moisture seem to favor its growth. The recognition of the micelia and spores with the microscope is usually easy, but may be very difficult. Treatment is very satisfactory, but as the organism is usually deep in the epidermis, and as it leads to a proliferation of horny cells which protect it from external applications, treatment must be very thorough, and tincture of iodine may be inefficient. A very good preparation recommended by Hartzell[18] is an ointment containing 3 per cent. of salicylic acid and 5 per cent. of benzoic acid, to be rubbed in thoroughly. Montgomery[26] recommends thorough softening and removal of the superficial epidermis, and then rubbing with an ointment containing 5 per cent. of chrysarobin in lanolin and vaseline.

The treatment of various dermatoses by vaccines is still a subject for discussion, and reports are very variable. Naturally, the favorable results get into print; the failures go unrecorded. In acne, the vaccines seem to be beneficial in some cases, especially those in which there is deep suppuration, but, nevertheless, they should not be relied upon to the exclusion of other measures. Nothing can take the place of careful local treatment—removing comedoes as they appear, opening pustules, keeping the scalp clear of infection. In furunculosis the results are often excellent, but the dosage must be carefully watched, as too large or too frequent doses are apt to make the disease worse. All forms of cutaneous tuberculosis are improved by tuberculin, the dosage being so regulated as never to produce a reaction, and the cases carefully selected, since a complicating pulmonary tuberculosis with fever is usually aggravated by this treatment. Towle[44] has devised a new method of vaccine therapy, applying the material in ointment form, and claims results as good as those obtained by injection, but his work needs confirmation.

But after all, the most important advances have been in the study of syphilis, advances so great that our whole conception of the disease has been revolutionized in the past ten years. The *Spirochæta pallida* of Schaudinn and Hoffman has been definitely established as the causative organism, but of its life history we have learned almost nothing. A number of papers have been published, describing complete life cycles, resting stages, etc., but until these have been confirmed by other observers judgment must be suspended. Noguchi[29] was the first to succeed in cultivating the spirochæta in vitro. He found it difficult to get his first generation to grow in artificial media, but once it was started, transplants were fairly easy to get, and spirochætæ grown under these conditions proved pathogenic to rabbits. He has thus fulfilled all the conditions required to prove the pathogenicity of the organism, and his work has been confirmed by others. In none of his cultures did he observe any material alteration of the organism. Important as this work is, it would lose half its value, without the discovery that the rabbit, one of the commonest of laboratory animals, is susceptible to syphilis, and gives the investigator the opportunity to obtain pure cultures in vivo, and to test the infectiousness of various tissues. Monkeys have been used in this work ever since the epoch making experiments of Metchnikoff[24] and Roux, but they are expensive and difficult to handle, and progress was therefore slow. Bertarelli[3], however, succeeded in inoculating the anterior chamber of rabbits' eyes, carrying the strain through a series of rabbits, and then inoculating an ape from the last of the series. Later[45], it was found that the testicle of the rabbit was an even better culture medium, and they could be inoculated also on the eyelid, and by intravenous injection, the organism being recovered in all cases. After inoculation there is a period of incubation, corresponding roughly to that in man, in which no lesions are observed. Then an infiltration appears in the infected part, and later secondary lesions may appear, resembling the papular syphilide. The disease is usually self-limited—at least the lesions disappear spontaneously, although this disappearance is more rapid under the influence of salvarsan. After the lesions have disappeared, relapses may occur. It is interesting to note that at least one case has been observed[16] in which a male rabbit, inoculated in the testicle with blood from a patient with paresis, developed an ulcer on the prepuce, and infected two females in mating, the spirochætæ being found in all the lesions.

Our conception of the course of the disease has been clarified in several ways. In the first place, we now know that the poison is spread throughout the system long before the appearance of the secondary eruption, even before the appearance of the chancre as is shown by the appearance of a positive Wassermann reaction, in some cases, on the day the primary lesion was first observed, and in the majority of cases by the end of the third week. Hartwell[17] inoculated rabbits with defibrinated blood from seven patients with primary syphilis, and obtained positive results in three. As further evidence of this rapid distribution of the poison, Audry[1] and Lavan report a case in the fourth week after the appearance of a lesion on the penis, in which the blood showed a positive Wassermann reaction, the spinal fluid was under increased tension, and contained an increased number of cells, and the administration of salvarsan was followed by meningeal symptoms lasting a week, but which did not recur under further treatment. Wile[51] and Stokes made careful neurological and serological studies of six cases of primary syphilis, from one to six weeks after the appearance of the chancre and before any eruption had developed. General adenopathy was discoverable in only two of the six cases. The Wassermann re-

action in the blood was positive in five—and by accident not performed in the sixth—and all six showed some involvement of the nervous system. The headaches which often mark the onset of the secondary period are undoubtedly due to the presence of spirochætæ in the central nervous system; and I have myself observed in the past year at least four cases in which disturbed hearing was a prominent symptom at this time. Beck[7] reports that in 80 per cent. of cases of secondary syphilis examined by him, in which no salvarsan had been given, and in spite of normal hearing, there was a distinct shortening of the period of bone conduction.

It has always been recognized that the poison is distributed throughout the system in the secondary period, but we are only beginning to realize the frequency with which vital organs are attacked. Warthin[47] reports finding the spirochæta in all of fifty hearts from patients with hereditary syphilis, and in the hearts of about half of a series of one hundred and fifty patients in whom there was a suspicion of acquired syphilis. He believes the localization in the heart to be more frequent than that in the liver, and he found the spirochætæ in hearts in great numbers when they were not to be found elsewhere in the body.

Of equal importance with this wide and rapid distribution of the spirochæta is its persistence. There are authentic records[62] of the transmission of syphilis twenty years and more after infection, the spirochæta has been found in the brain of paretics, in the spinal cord of tabetics, and in the hearts of old syphilitics many years after infection, and inoculations with blood and with tissue at a very late period have been successful. Graves[16] succeeded in inoculating one rabbit with the blood of a taboparetic who had been infected eighteen years before, and another with blood from a paretic infected fourteen years before. Levaditi[23] also inoculated a rabbit with the blood of a paretic who had been infected fifteen years before. Noguchi[30] inoculated rabbits with an emulsion of the brain of patients recently dead of paresis. In view of these facts we must revise our views of the duration of the period during which the disease may cause clinical symptoms, and during which there is danger, even though slight, of its spread to others. The possibility of transmission ends only with the death of the last spirochæta; until that happens the disease may at any time enter upon a new period of activity, and a fresh lesion may develop upon a mucous or a cutaneous surface, whence the organism may be carried to a new host.

It is now possible to make a positive diagnosis of syphilis from the first appearance of the chancre by the detection of spirochætæ in fluid obtained from it. The simplest and quickest method is by examination of the fresh specimen with dark field illumination, and in ordinary cases the diagnosis can be made in a few minutes. The enormous importance of this lies in the fact that it enables us to begin treatment at once.

The Wassermann reaction is still the most useful laboratory test at our disposal for constitutional syphilis. It may appear as soon as the chancre, but in the majority of cases not till the third or fourth week, and in a few it does not become positive till much later. It is not certain how long it may remain, but apparently for life, in some cases. It is important to notice, however, that it varies from time to time, even in untreated cases[7], an occasional negative reaction appearing between positive ones. After the ingestion of alcohol—about 1½ pint of beer or 6 oz. of whiskey—the reaction is regularly negative for from one to three days[10]. It is also important to remember that about 5 per cent. of cases having active secondary symptoms give a negative reaction, even if the test be repeated. A single negative reaction, therefore, has very little diagnostic value.

It is commonly stated that an interval of two weeks should be allowed to elapse after stopping mercurial treatment, before taking blood for the test. As far as I have learned, there is no experimental proof of this requirement. Nelson[27] states that of fifty patients undergoing energetic treatment with mercury for seven weeks, the serum reaction has not changed in a single case. I have had a similar experience myself, with patients receiving an injection of 2 grains of salicylate of mercury once a week for several weeks, and Craig[9] states that even "prolonged treatment with mercurials does not cause the reaction to disappear permanently," and prints statistics to prove it. He adds, to be sure, that "in many cases, if the drug is being taken at the time of the examination, the test will be negative," but he cites no instances to support the statement.

Treatment with salvarsan, even a single dose, will in many cases convert a positive reaction into a negative one, especially if the drug be administered early in the course of the disease, but the change is not immediate, like that observed after the administration of alcohol. It is more gradual, occurring usually about two to four weeks after treatment, and is probably to be explained by the gradual elimination of the substances responsible for it, while no more are produced, as the spirochætæ have been destroyed. It often happens, however, that a reaction which has become negative under treatment will later become positive again, so that a series of negative reactions over a considerable period of time is necessary before it is safe to assume that the disease is extinguished. And even this is not enough. There may be in the body a colony of spirochætæ so inactive, or so shut in, that they give no symptoms, clinical or serological, for the time being. In such cases, a dose of salvarsan will usually be followed within forty-eight hours by a positive Wassermann reaction, though the change may be delayed for a week. This provocative injection of salvarsan is now recognized as essential before any case can be discharged as cured.

In all estimates of the value of the Wassermann reaction, the technique used must be considered. Reports from different laboratories may show marked divergences. Thus Revaut[35] sent the blood of syphilitics to three different laboratories in Paris, and the results were in entire accord in only 61 per cent. of the cases. In 3 per cent. all three reports were different, while in the remaining 36 per cent. one report differed from the other two, usually because one report was doubtful and the other either single plus or negative. About the only conclusion to be drawn from these statistics, however, is that some laboratories use more delicate antigens than others: in the strongly positive cases, as a rule, all agree, and the clinician is coming to lay stress only on the strong reactions, all others being considered more or less doubtful.

The occurrence of positive reactions in other diseases than syphilis has aroused a good deal of dis-

cussion, and the question is not yet settled. Ravaut, in the paper quoted above, found the reaction very variable in non-syphilitic cases, the different laboratories giving different results, and the reaction changing rapidly in the same patient. In fourteen such cases treated with salvarsan, the reaction became positive in five, turning quickly negative again. He cites a case of large and inflamed tonsils in which the report of the reaction was positive from two laboratories, negative from a third, and partially positive from a fourth. Nicolas and Gaté[25] report sixty-three cases, in which very careful examination and anamnesis failed to show any trace of syphilis, yet twenty-four—*i.e.* 39 per cent.—gave a positive reaction. It is to be noted, however, that in fifty-one of these sixty-three cases the reaction was performed twice at intervals of eight to 15 days, and in only three was the reaction positive both times. Craig[5] states that out of 1957 patients diagnosed as suffering from some other disease than syphilis, only eleven, or 0.56 per cent., gave a strongly positive result. Four of these eleven were suffering from malarial fever, and the reaction disappeared with the subsidence of the fever. In three cases the diagnosis was tuberculosis, but all three recovered under specific treatment, and in two of them a history of syphilitic infection was afterward obtained. The reaction is regularly positive in yaws, relapsing fever, leprosy, and the febrile stage of certain malarial infections. It is often positive in acidosis, carcinoma, pemphigus, septic conditions, tuberculosis, trypanosomosiasis, and there are other diseases also which occasionally give slight reactions. It is evident, therefore, that in the diagnosis of syphilis the weak reactions are of little value, and even the strong ones must be interpreted in connection with the history and clinical signs.

As a guide to treatment, a positive diagnosis being once established, the weak reactions are almost as important as the strong ones, and the aim of all therapy is to extinguish all symptoms, serological as well as clinical. As long as the reaction is positive, even to a slight degree, there are presumably living spirochætæ in the body, and there is the possibility that they will multiply and later produce symptoms. The first sign of relapse, in latent syphilis, is usually the development of a positive Wassermann reaction.

Noguchi's[12 21 22 31 42 46] luetin test has not yet come into general use, on account of the great care necessary in preparing the reagent. Now that a preparation is on the market, we may expect a rapid spread in its use. The reagent is a suspension of killed spirochætæ grown on artificial media, and sterile on artificial media, and when inoculated into animals. In performing the test, 0.07 c.c. of the reagent is injected into, not under, the skin. There may be a slight erythema, which soon subsides. In positive cases, a papule appears at the point of injection, usually in 24 to 48 hours, though its appearance may be delayed a few days, and gradually increases in size for four or five days. At the end of that time, the papule may recede, or go on to form a pustule, which soon dries to a crust, and heals, leaving a small scar. It is well to inject a little sterile salt solution at another point, when making the test. It is not uncommon for this control injection also to cause the development of a papule, on account of the susceptibility to trauma of syphilitic skin, but the reaction is seldom as intense or as lasting as that caused by luetin. Practically all observers agree that the test is negative in primary and in untreated secondary cases, and unreliable throughout the early stages of the disease. In the later stages, however, the majority of cases react, and the test is then probably at least as delicate as the Wassermann, some cases with a negative Wassermann giving a positive luetin, and vice versa. There are not yet enough statistics to give percentages. Certain European observers have reported positive results in non-syphilitic cases, but others, and practically all American observers, believe that the test is absolutely specific. It is a valuable addition to our means of diagnosis, especially as it is most serviceable at a time when the Wassermann reaction often fails.

The best method for treating syphilis is still unsettled, but certain ideas are gradually coming into general acceptance. In the first place, all authorities agree that treatment must be started at the earliest possible moment. If treatment is begun wihin a week or two of the appearance of the chancre, and is thoroughly carried out, we may reasonably expect a cure in from 80 to 90 per cent. of the cases, whereas later in the disease a radical cure is difficult, and often impossible, to obtain. The standard of cure adopted by the United States Army is rigorous, but nothing less is satisfactory, and it is probably sufficient. It is as follows[33]: "One year without treatment, without any suspicious clinical signs, with several negative Wassermann reactions and no positive ones, and with a negative provocative Wassermann reaction and luetin test at the end of the year." "An examination of the spinal fluid should also be made, if possible." To attain this, vigorous treatment is necessary. It is best to begin with mercury, preferably an injection, or if this is not available, with a week of inunctions, and then to give salvarsan or neosalvarsan, beginning with a small dose. If mercury is given first, the resistance of the body is increased, and a certain number of spirochætæ are destroyed, so that the first dose of salvarsan is seldom followed by a reaction. The use of salvarsan should then be continued for four to six weeks, and mercury should be administered, either between the doses of salvarsan, or for six weeks following it. So far all authorities agree. Up to the present time, the habit has been to give the salvarsan once a week, but the tendency is growing to give smaller doses twice or thrice a week, and this probably is the better way, as the drug is eliminated rapidly, and very little is left in the system after 48 hours. Scholtz[40] gives salvarsan twice a day for two days—agout 1.0 g. in all—and then mercury for four or five weeks. He claims 90 to 100 per cent. cures in primary syphilis, and 80 to 90 per cent. cures in early secondary cases. After an initial course like that outlined above, the use of the active drugs is suspended for a month or six weeks, during which time iodide of potassium, or sulphur, or both may be used. A Wassermann reaction is then taken and the treatment repeated, to the full extent if the result is positive, but shortened if the result is negative. After another six weeks interval the Wassermann reaction is again taken, and if it be positive, the whole course must be repeated. If, on the other hand, the Wassermann reaction has been negative ever since the first course, the chances are that a radical cure has been obtained. Nevertheless, it is safer to give another short course. In the secondary period the chances of a radical cure are not so good, but the attempt should be made.

In latent and in tertiary syphilis the problem is more difficult, and there is no general agreement as to what had best be done. Vigorous treatment will remove all cutaneous lesions, and will relieve many symptoms of visceral involvement, if such exist, but in a large proportion of cases the Wassermann reaction remains positive in spite of all that we can do. Of course, such cases should remain under treatment, but there is no agreement as to how intense this should be, or how much salvarsan should be used.

Since tabes and paresis have been shown to be true syphilitic diseases, there has been a notable increase in the efforts to cure them. Treatment administered in the ordinary way was shown to be inefficient, or to produce, at most, merely temporary improvement. It seems as if the spirochaetae in the central nervous system, particularly when growing in the nerve tissue itself, were almost beyond the reach of drugs circulating in the blood. For this reason, attempts were made to reach them by direct injection of neosalvarsan into the spinal canal,[34, 45, 49, 50] but the doses used were too large, and were, in many cases, very irritating. Then Swift[44] and Ellis advised their method of using salvarsanized serum. The patient first receives intravenously a full dose of salvarsan, and an hour later, 50 to 60 c.c. of blood is drawn, and the serum separated by clotting, or centrifuging, or both. The clear serum so obtained is heated at 56°C. for half an hour, cooled, and then injected at body temperature, either pure, or diluted with salt solution. The dose of serum is 10 to 20 c.c. After injection, the foot of the bed is kept elevated. The injection is often followed by a temporary increase in the severity of the symptoms, after which there is usually some improvement. From eight to ten such treatments are given at intervals of two weeks. In order to be able to give an exact amount of salvarsan, Ogilvy[32] modified this technique by first drawing and centrifuging blood and adding to the serum a definite amount of salvarsan in solution—usually 0.25 to 0.5 mg., heating at 37°C. for 45 minutes, then at 56°C. for 30 minutes, cooling and injecting at once. He claims that the method is more efficient than that of Swift and Ellis, and equally well borne. Other workers have returned to the direct injection of neosalvarsan, using very small doses, and report good results. It is quite too early to decide which method is best. By any of them it is possible to bring about considerable improvement in most cases of tabes and in some cases of early paresis, and to check the disease in some few instances. The effects in paresis are in general not so good as those in tabes, and of course there is no chance, in either, of restoring any nervous tissue that has once been destroyed. Curiously enough, reports are now being published[15, 20, 36, 37] of equally good results from the use of salvarsan by the intravenous method only, given in small and repeated doses, and in conjunction with mercury, so that it is by no means certain that the intraspinous method will maintain itself. The most important thing in the treatment of nervous, as of all forms of syphilis, is to begin early, and to keep it up. Byrnes[6] of Johns Hopkins reports the administration intraspinously of blood serum containing 1/50 to 1/25 of a grain of $HgCl_2$ in solution; and claims marked improvement in cases of tabes, better than that obtained with salvarsanized serum, and with less reaction.

Since the introduction of the Wassermann test, the evidence has become almost overwhelming, that the mother of a syphilitic infant is herself always syphilitic. The cases in which the mother shows a negative reaction, and no signs or history of the disease, past or present, are so few that they may be safely ascribed to errors of observation. Colles' law is explained: the mother cannot acquire syphilis, because she already has it. There is still some discussion about the possibility of a purely paternal origin of congenital syphilis, but the weight of opinion is increasingly against that supposition, which was required only to explain those cases in which the mother seemed to remain healthy; if she is really infected, why assume a roundabout course through the fetus? The absence of a chancre proves nothing, as it is found in only about 37 per cent of recently infected women, in any case. It is hardly conceivable that an ovum infected at the time of impregnation should ever develop, and we now know that the spirochæta will not live on egg albumen alone, but requires differentiated cells, which are not present in the ovum. Boardman[4] has published a very good summary of the whole subject of congenital syphilis. On the basis of his own observations, as well as a careful study of the literature, he concludes that abortion in the first three months is very rarely due to syphilis; and that miscarriages from the fourth to seventh month are rarely due to syphilis; if the fetus is born alive. On the other hand, syphilis is a frequent cause of miscarriage, when the fetus is dead, and a very frequent cause of premature birth. It is highly probable, therefore, that the infection of the fetus occurs in the later months of pregnancy.

There have always been exceptions to Profeta's law, that the child of a syphilitic mother, though apparently healthy, is immune to the disease. *A priori*, there is no reason to suppose that a woman in whom the disease is latent must necessarily infect her offspring, though she does so in at least 80 per cent. of the cases and probably in nearly all. In fresh, untreated cases, the infection of the fetus is practically invariable. This is true also of cases in which the mother receives her infection during the first five months of pregnancy; while if the mother is infected after the sixth month, the fetus usually escapes contamination. It is probably this last group of cases which has furnished the greatest number of exceptions to Profeta's law.

The most important part of the treatment of congenital syphilis is the treatment of the mother, especially during her pregnancy. Mercurial treatment before pregnancy is of little use in saving the child, while active treatment with this drug before and during pregnancy will secure a very high percentage of healthy children[25]. The treatment with salvarsan and mercury gives even better results, but it must be begun early, and must be energetic. If the fetus is already infected, it is doubtful if treatment of the mother will be of much benefit.

All children born of syphilitic parents should be regarded with suspicion, and should be treated energetically with salvarsan and mercury. Many who are apparently healthy at birth give a positive Warsermann reaction, and others develop a positive Wassermann and other symptoms after a few weeks, and these get the best chance of life if treatment is begun at once.

The recent improvements in the methods of recognizing syphilis, both in life and post mortem, have given us an entirely new conception of the frequency of its occurrence, of the multiplicity of its

lesions, and of the difficulty of eradicating it. At the same time, we should beware of taking too pessimistic a view of the situation. Many a man, in the past, has lived out his life with no reminder of the plague that once afflicted him, and our methods of combating the disease are now better than ever they were before. If we are perhaps less confident of obtaining a radical cure in old cases, we can promise them at least a better chance than they used to have, and in recent infections the chances of eradicating the disease are enormously multiplied.

REFERENCES.

1. Audry & Lavan: "Sur les méningites préroseoliques," *Ann. de D. et de S.*, 1914, p. 29.
2. Beck: "1st konstitutionelle Syphilis vom Ohr aus zu diagnostizieren," *Münch, med. Woch.*, Dec. 16, 1913, p. 2778.
3. Bertarelli: "Ueber die Transmission der Syphilis auf das Kaninchen," *Centralbl. f. Bakt.*, 1 Abt., 1906, Vol. XLI, p. 320.
4. Boardman: "Syphilitic Heredity and Congenital Syphilis," *Jour. Cut. Dis.*, August, 1914, p. 545.
5. Bruck: "Ueber die Anwendung von Anderlass und Kochsalzinfusion bei der Behandlung von Hautkrankheiten," *Berlin. klin. Woch.*, January 16, 1911, p. 108.
6. Byrnes: "The Intradural Administration of Mercurialized Serum in the Treatment of Cerebrospinal Syphilis," *Jour. A. M. A.*, December 19, 1914, p. 2182.
7. Craig: "Variations in the Strength of the Wassermann Reaction in Untreated Syphilitic Infections, *Jour. A. M. A.*, April 18, 1914, p. 1232.
8. Craig & Nichols: "Studies of Syphilis," *Bull.* No. 3, War Dept., Office of Surgeon-General, p. 36.
9. ——*Ibid.*, p. 48.
10. ——*Ibid.*, p. 51.
11. ——*Ibid.*, p. 131.
12. Desneux: "Syphilis et cuti-réaction," *Ann. et Bull. des Soc. méd. et nat. de Brux*, January, 1914, p. 14.
13. Dreyfus: "3 Jahre Salvarsan bei Lues des Zentralnervensystems und bei Tabes," *Münch. med. Woch.*, March 10, 1914, p. 525.
14. Fox, Howard: "Autogenous Serum in the Treatment of Psoriasis," *Jour. A. M. A.*, December 19, 1914, p. 2190.
15. Gottheil & Satenstein: "The Autoserum Treatment in Dermatology," *Jour. A. M. A.*, October 3, 1914, p. 1190.
16. Graves: "Can Rabbits be Infected with Syphilis Directly from the Blood of General Paretics?" *Jour. A. M. A.*, October 25, 1913, p. 1504.
17. Hartwell: "The Isolation of Spirochæta Pallida from the Blood in Syphilis," *Jour. A. M. A.*, July 11, 1914, p. 142.
18. Hartzell: "Eczematoid Ringworm, Particularly of the Hands and Feet, *Am. J. Med. Sc.*, January, 1915, p. 96.
19. Hilario: "A Contribution to the Autoserotherapy of Certain Diseases of the Skin," *Jour. Cut. Dis.*, November, 1914, p. 780.
20. Iwaschenoff: "Salvarsantherapie und Lues des Zentralnervensystems," *Münch. med. Woch.*, March 10, 1914, p. 530.
21. Keppler & Herzberg: "Die diagnostische Bedeutung des Luetins unter besonderer Berücksichtigung der dem Chirurgen zufallenden Erkrankungsformen," *Deutsch. Zeitsch. f. Chirg.*, August, 1914, p. 440.
22. Kilgore: "The Luetin Cutaneous Reaction for Syphilis," *Jour. A. M. A.*, April 18, 1914, p. 1236.
23. Levaditi: "Présence du tréponème dans le sang des Paralytiques Généraux," *Compt. rend. de l'Acad. des. Sc.*, November 10, 1913, p. 864
24. Metchnikoff & Roux: "Etudes Expérimentales sur la Syphilis," *Ann. de l'Inst. Pasteur*, November 25, 1905, p. 673.
25. Meyer: "Klinische und Experimentelle Untersuchungen über die Wirkung des Salvarsans auf die kongenitale Syphilis des Fötus bei Behandlung der Mutter," *Münch. med. Woch.*, 1914, Vol. LXI, p. 1801.
26. Montgomery & Culver: "Eczema Marginatum of the Toes," *Jour. A. M. A.*, April 4, 1914, p. 1076.
27. Nelson: *Jour. A. M. A.*, January 23, 1915, p. 360.
28. Nicolas & Gaté: "La reaction de Wassermann positive: a-t-elle une valeur absolue?" *Ann. de D. et de S.*, April 1914, p. 193.
29. Noguchi: "A Method for the Pure Cultivation of Pathogenic Treponema Pallidum," *Jour. Exp. Med.*, 1911, Vol. XIV, No. 2.
30. —"The Transmission of Treponema Pallidum from the Brains of Paretics to Rabbits," *Jour. A. M. A.*, July 12, 1913, p. 85.
31. —"Practical Application of the Luetin Test," *N. Y. Med. Jour.*, August 22, 1914.
32. Ogilvie: "The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength," *Jour. A. M. A.*, November 28, 1914, p. 1936.
33. Pusey & Stillians: "Noguchi's Luetin Test for Syphilis," *Jour. Cut. Dis.*, August, 1914, p. 560.
34. Ravaut: "Les Injections Intrarhachidiennes de Néosalvarsan dans le Traitement de la Syphilis Nerveuse," *Bull. et Mem. de la Soc. Méd. des Hôp. de Paris*, December 5, 1913, p. 752.
35. —"Les erreurs d'interprétation de la reaction de Wassermann," *Ann. de D. et de S.*, May, 1914, p. 295.
36. Runge: "Salvarsanbehandlung der Progressiven Paralyse," *Deutsche med. Woch.*, 1914, Vol. XL, p. 998.
37. Sachs, Strauss & Kaliski: "Modern Methods of Treatment of Syphilis of the Nervous System," *Amer. Jour. Med. Sc.*, November, 1914, p. 693.
38. Schamberg, Kolmer & Ringer: "Research Studies in Psoriasis," *Jour. Cut. Dis.*, October and November, 1913, p. 698 and 799.
39. Schamberg, Kolmer & Raiziss: "A Study of the Germicidal Activity of Chrysarobin and Certain Other Medicaments Used in Psoriasis," *Jour. Cut. Dis.*, January, 1915.
40. Scholtz & Riebes: "Uber die Heilung der Syphilis durch die kombinierte Salvarsan-Quecksilberbehandlung, *Deutsche med. Woch.*, July 24, 1913, p. 1441.
41. Spiethoff: "Zur Methode der Eigenblutbehandlung," *Med. Klinik.*, January 10, 1915, p. 38.
42. Swann: "Human Serum in Urticaria, *Jour. A. M. A.*, February 27, 1915, p. 737.
43. Swift & Ellis: "The Direct Treatment of Syphilitic Diseases of the Central Nervous System," *N. Y. Med. Jour.*, 1912, p. 53.
44. Towle: "External Vaccine Therapy," *Jour. Cut. Dis.*, November, 1914, p. 770.
45. Uhlenhuth & Mulzer: "Atlas der experimentellen Kaninchensyphilis," *Springer*, Berlin, 1914.
46. Vedder & Borden: "A Comparison of the Wassermann and Luetin Reactions in 744 Individuals," *Jour. A. M. A.*, November 14, 1914, p. 1750.
47. Warthin: "Primary Tissue Lesions of the Heart Produced by *Spirochæta Pallida*," *Amer. Jour. Med. Sc.*, May, 1914, p. 667.
48. Wechselmann: "Ueber intralumbale Injektionen von Neosalvarsan," *Deutsche med. Woch.*, 1912, Vol. XXXVIII, p. 1446.
49. Wile: "The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System" *Jour. A. M. A.*, April 11, 1914, p. 1165.
50. ——*Ibid.*, July 11, 1914, p. 137.
51. Wile & Stokes: "Involvement of the Nervous System during the Primary Stage of Syphilis," *Jour. A. M. A.*, March 20, 1915, p. 979.
52. Williams: "The Contagiousness of Gumma," MEDICAL RECORD, July 14, 1906.
53. Wise: "Note on the Management of Inveterate Psoriasis," *Therap. Gazette*, Sept. 15, 1914.

48 EAST FORTY-NINTH STREET.

THE EFFECTS OF RADIOACTIVITY UPON NASOPHARYNGEAL FIBROMA.*

BY D. BRYSON DELAVAN, M.D.,

NEW YORK.

AT the end of more than a decade since my last articles upon the treatment of nasopharyngeal fibroma, I again wish to direct attention to this subject. It has seemed well to review it from time to time, in the hope that the value of improved methods might be studied and their superiority, if any, clearly stated. The spark drawn from the clouds by the kite of Franklin could not have conveyed even to his fertile imagination an appreciation of the pos-

*Read before the Thirty-seventh Annual Congress of the American Laryngological Association, Niagara Falls, June 1, 1915.

sibilities of applied electricity, since the full import and value of any great scientific discovery is something which cannot be at once realized. Year by year in medicine old methods are supplanted, not alone by new and original ones adapted especially to the particular object in hand, but often by the application to them of principles already understood and utilized in other directions. This has been particularly true in the department of radiology, which, has been already tested in many ways, and is constantly finding new fields in which to exercise its usefulness.

The value of radiology in the treatment of fibroma in various parts of the body, especially the uterus, has already been somewhat extensively exploited. Of its application in the treatment of fibroma of the nasopharynx, however, nothing, so far as I am aware, has up to this date been said. It has seemed desirable, therefore, to bring this subject to notice in the hope that the method may be given fair consideration and trial. Its success would mean the ending of a dark chapter of surgery.

By nasopharyngeal fibroma is meant that rare form of growth which, composed mainly of connective tissue and highly vascular, usually takes its origin from the basilar process of the occipital bone, extending downward into the retronasal space, occluding the natural passages, creating pressure upon the parts in its vicinity, and in many cases giving rise to more or less frequent and abundant hemorrhages. The period of the greatest activity of its development is about the time of adolescence. Following this, the tendency to its enlargement diminishes and, in fortunate cases, if enough time be allowed and the conditions due to the presence of the tumor be not too urgent, it may gradually disappear. Such a result, however, is unusual. In nearly every instance the conditions arising from the presence of the growth are so serious as urgently to demand relief. This has been recognized for many generations, and a great number of methods of treatment for it have been devised.

Heretofore, three varieties of treatment have been presented: (1) Removal of the growth after preliminary operation done for the removal of obstructing parts. (2) Removal through the natural passages by avulsion or with the cold snare, and (3) The reduction of the size and of the vascularity of the tumor by electrolysis or by the injection of various chemicals, followed by the removal of the mass thus reduced by means of the galvanocaustic loop.

Of these methods, the first is illogical, unsurgical and, as statistics abundantly prove, deadly. Shock from the preliminary operation is severe; nemorrhage profuse, and recurrence common. In spite of this, it gained the support of the most eminent surgeons of almost two centuries, and even to-day still has its adherents. The second method is a vast improvement upon the first, but is nevertheless liable to provoke serious hemorrhage and shock and to be followed by recurrence of the growth. The third procedure is by far the best, as it is followed neither by shock, hemorrhage, nor the deformity resulting from the extensive removal of important parts. On the other hand, however, the application of the electrolytic needles is a tedious process and sometimes is attended with considerable pain.

While the application of the needles and the manipulation of the galvanocaustic écraseur require much experience and skill, nevertheless a statistical comparison of the three divisions of treatment above referred to leaves no doubt as to which is to be preferred. Thus, of 27 cases removed after severe preliminary operation in which the end results were stated, 59.25 per cent. were cured and 25.9 per cent. died. Of 41 cases removed through the natural passages by avulsion or the cold snare, 95 per cent. were cured, 5 per cent. died. Of 66 cases treated through the natural passages by electrical methods, 100 per cent. were cured.

For several years past much attention has been given to the treatment of uterine and other tumors of the order of the fibromata or myxomata by means of the *x*-ray and of radium. Many cases have been experimented upon, and a sufficient number have been recorded to make it possible to begin to draw conclusions as to definite results. Both in the United States and in Europe the method has gained strong advocates, and if in some instances the enthusiasm of these may seem unduly sanguine, even the most conservative must admit that the success attained renders the method at least worthy of the respectful consideration of the gynecologist; while the similarity of type between the uterine and the pharyngeal growth at once challenges the interest of the laryngologist in the new method of treatment.

Thus, among its advocates in this country may be mentioned Abbe,[2] Kelly,[3] Tousey, Frank and Stern, and in Europe, Krönig, Gauss, Bumm, Wernekro, and Doderlein, all of whom report favorably upon it and recommend it. Pfahler[5] reports of 20 cases, 16 cured or 80 per cent.; Kohler[6] reports of 80 cases, tumor reduced in size, 30 per cent.; Mohr[7] collected 669 cases, cured 56.2 per cent., improved 17.9 per cent., cured and improved (no details) 13 per cent., and not cured 11 per cent. In Mohr's collection of cases the tumor actually disappeared in only 5.3 per cent. These were mainly cases of uterine fibromata, presumably of considerable size and somewhat remotely situated. Fibromata of the nasopharyngeal region are, however, relatively very much smaller and much more directly accessible.

The success of the radium treatment in nasopharyngeal fibroma would not necessarily depend upon the absolute disappearance of the growth. It is a well recognized fact that nasopharyngeal fibroma, unlike other new growths, manifests its greatest activity during the years of adolescence and early youth. Toward the approach of the eighteenth year the tendency to its development steadily decreases. During this period the growth may diminish spontaneously and finally disappear. If, therefore, the size of the tumor can be controlled during the earlier years and until the period of its activity has been passed, nature herself will often intervene and by her own processes render artificial interference unnecessary.

The most hopeful cases seem to be those of slow development occurring in older rather than in younger patients. But even in the case of rapidly growing tumors in patients far removed from the period of retrogression, the success attained by the use of radium in other types of fibroma would hold out strong hope for its usefulness in these. There is reason for believing, moreover, that the effect of the radium upon the growths is active and profound, and that more may reasonably be expected from its use than a moderate reduction in their size.

To Dr. Robert Abbe of New York belongs the

credit of being the pioneer in the use of radium in the United States. For its application to various organs of the body he has originated many ingenious devices, none more so than the one intended for use in the nasal and nasopharyngeal regions. A description of this will be found interesting. In the application of the radium, two objects are to be gained: First, the parts to be treated must be exposed to the rays, and, second, the healthy surrounding structures must be protected from them. It is not necessary that the radium should be introduced actually into the substance of the tumor. All that is required is the exposure to the rays of the surface of the growth, since the blood vessels of the tumor are more abundant near to its surface, and the rays penetrate at least a quarter of an inch, so that the treatment is entirely effective in accomplishing the desired result of profoundly affecting the circulation and thus causing by degrees the reduction of the size of the growth. In order to carry the radium to the desired part, Dr. Abbe uses the following simple methods:

A tube of celluloid, about 3/16 of an inch in diameter and with one end closed like the end of an ordinary test-tube, is cut to the proper length. In the bottom of the section of tube is put the radium. Upon it is packed a bit of cotton or gauze, to keep it in place. The end of a handle made of stout wire is thrust into the tube, and the tube is secured to the handle by a wrapping of adhesive plaster. For the protection of the normal parts, a piece of thin sheet lead, of proper size and shape, is adjusted to the outside of the tube and retained in place by a sufficient wrapping of India rubber gauze, the side covered by the lead being directed away from the tumor.

In using this device one of the nasal cavities of the patient is first locally anesthetized and the radium carrier, properly lubricated, is then passed backward through it until the radium is brought into proper relation with the growth. Proper regulation of the strength of the radium and of the duration of the exposure will prevent injury to the surrounding healthy parts. In a case of Dr. Cornelius Coakley's now under treatment in New York one application of radium has already produced remarkable results.

Should the radium treatment of nasopharyngeal fibroma prove as effective as it promises, and as we already have good reason to hope that it may, we shall be able to congratulate ourselves and the world that the unhappy record of surgical failure made in the past in the treatment of this disease will have been closed.

Incidentally, again, another leaf will have been added to the wreath of fame which so justly covers the brow of Madame Curie.

REFERENCES.

1. *Transactions American Laryngological Association*, Vol. XXIII, 1901; Vol. XXV, 1903.
2. Abbe: MEDICAL RECORD, March 6, 1915.
3. Kelly: *Jour. Amer. Med. Ass'n*, August 22, 1914.
4. Frank and Stern: N. Y. Obstetrical Society, May meeting, 1915.
5. Pfahler: *Fortsch. a. d. Geb. d. Roentgen*, 1913, page 13.
6. Kohler: *Surg. Gynecol. and Obstet.*, May, 1913, page 422.
7. Mohr: *Fortsch a. d. Geb. d. Roentgen*. 1913, page 105.

40 EAST FORTY-FIRST STREET.

THE PRESENT STATUS OF THE DIAGNOSIS OF CANCER OF THE STOMACH.

BY WILLIAM J. MALLORY, A.M., M.D.,

WASHINGTON, D. C.

INSTRUCTOR IN MEDICINE IN THE GEORGE WASHINGTON UNIVERSITY, DEPARTMENT OF MEDICINE, AND ATTENDING PHYSICIAN TO THE OUT-PATIENT DEPARTMENT OF THE UNIVERSITY HOSPITAL.

THE profession should take a less pessimistic view of this subject than it does at present. One eminent physician states that "the search for an early symptom of cancer is nothing more than a beautiful dream";[1] and another writes that "no symptom or symptoms seem sufficient by which to make a diagnosis of cancer."[2]

There are several good reasons why a more optimistic spirit should govern us. It is true that many cases escape recognition till palliative treatment only is possible, but it is equally true that, with the methods of diagnosis in use during the preceding five or ten years, cancer of the gastrointestinal tract from mouth to anus, has been recognized early enough for one-fourth of the cases to be permanently cured, while the number of five-year cures varies from 10 to 50 per cent.[3]

During recent years, the cooperative work of physicians, surgeons, and pathologists has thrown additional light on the early symptomatology of cancer, a number of useful tests have been evolved, which, if not specific are at least of additional aid in the early recognition of cancer, and lastly, surgical procedure has been improved to such an extent that the prospect of the prolongation of life, or even of permanent cure of this disease is better now than ever before. It is therefore reasonable to suppose that a more general familiarity with the early symptoms of gastric cancer, and a more universal, diligent and prompt application of all those tests which have been found to be of diagnostic value, will lead to the recognition of the disease early enough for surgical treatment to be permanently curative in an increasing number of cases.

In the discussion of the early diagnosis of cancer the terms "precancerous disease" and "precancerous stage" are often used. In this connection we should distinguish between the effort to recognize the precancerous *disease* (such as chronic ulcer), which is an easy clinical problem, and the effort to recognize the precancerous *stage* in the ulcer itself which is a problem in pathology.

It is now well recognized that a very large number of chronic ulcers of the stomach develop into cancer. In 79.5 per cent. of cases of cancer examined the pathological evidence was good or fair that ulcer was the first cause.[4] The ulcers which develop into cancer pass through a stage to which the term "precarcinoma" or "precancer" may be applied. This term refers to the microscopic changes in the tissue cells, and their relation to each other, which immediately precedes cancer, and should not be utilized to simply indicate chronic inflammation.[5]

One observer, after studying 684 specimens states that the clinical history, gastric analysis, *x*-ray and serum examinations cannot positively differentiate between chronic gastric ulcer and cancer, especially those without pyloric obstruction.[6] And whenever the clinician feels positive of the clinical diagnosis of chronic gastric ulcer, he should consider that cancer cannot be ruled out by our present methods of clinical investigation. In

the light of such evidence as this no time should be wasted trying to make a refined diagnosis, but the chronic ulcer should be nicely and completely excised. The place for such tissue is in a pathological museum, not in the stomach of our patient.

Graham[2] states that, "In developing histories from those suffering from cancer, we have found them to fall into three classes: first, those in whom the disease seemed to appear suddenly during the enjoyment of perfect health; second, those in whom an attack or attacks in earlier years are definitely stated, and who for years have been well until sudden grave symptoms (as in Class 1) threaten, and third, those who for years have had typical attacks of chronic gastric ulcer.

"In the first and second cases we may find tumor, advanced lesions, and symptoms of previous chronicity suddenly and very acutely developed. We may find those patients whose only complaint is a diffident, weak feeling, and who are chiefly concerned because an epigastric tumor has been discovered. Others complain of languor, weakness, loss of appetite and emaciation, and on physical examination nothing is revealed. The test meal is of value here. We feel sure that, however great the difficulties here met with in reaching a diagnosis, they are less than in Class 3, where ulcer has been present for years. Some patients are weak, emaciated and cachectic when ulcer is the only lesion, but tumors of the stomach are usually cancer (95 per cent.).

"The face of a patient suffering from cancer of the stomach has certain morbid characteristics. Palor is often most noticeable about the eyes, nose and mouth. Wasting, too, shows here, giving a pinched, wrinkled look. The expression is one of stolidity; there is intense conviction of impending danger, and while the patient is intent, as though eager to read your opinion, the expression is not so much pained as hopeless, calm and dejected."[7]

In 85 per cent. of cases the appetite is impaired, and in many instances there is a marked revulsion against meat. Thirst is greatly increased in cases accompanied by obstruction. Pain in cancer is quite a common symptom, though less often noted than in ulcer, but when present it is less acute, more continuous, is described as a dull, strange, depressing ache, and is usually immediately intensified by taking even the simplest food or drink, such as water or milk. Vomiting is often an important symptom, and is of course earlier and more voluminous when the tumor is situated at the pylorus, and causes obstruction. It is usually preceded by pressure, pain, nausea, and salivation, and is followed by temporary alleviation. It often differs from the vomiting of ulcer, occurring immediately after the ingestion of bland fluids.

The above symptoms, or even a few of them should arouse the greatest suspicion, and lead to the application of every test that will yield additional information, for although there is now no specific test, any more than there is a pathognomonic symptom, it is only by a painstaking application of such tests as we have, and a careful evaluation of the information so obtained, together with the clinical symptoms, that we may hope to increase the number of early diagnoses and reduce the present high mortality.

The careful physical examination for the presence of a tumor, although often giving negative results, should never be neglected, for in a few instances of favorable situation for palpation it is an early sign, and since 95 per cent. of tumors of the stomach are cancer, their recognition is of the greatest importance.

The numerous tests which are applied for the recognition of cancer of the stomach fall in two great classes: first, those having as their purpose the demonstration of significant changes in the function of the stomach itself, and second, those for the detection of alterations in the body fluids or secretions. In the latter class belongs the so-called specific or biological test for cancer in general, without reference to the particular organ involved.

The most marked change in the secretory function of the stomach is the deficiency of hydrochloric acid, or the absence of free hydrochloric acid from the gastric juice, as observed by van den Velden as long ago as 1879. While this is a valuable symptom, and was present in 77.5 per cent. of Boas's cases, it is no more characteristic of cancer than hyperacidity is characteristic of ulcer. Free hydrochloric acid or even hyperacidity is more commonly found when the growth involves the pyloric region, and absent when the fundus is involved.

In 125 cases Boas found free hydrochloric acid present 18 times in pylorus carcinoma, and only 4 times in fundus carcinoma. He considers this due to the fact that pyloric cancer usually remains circumscribed longer, while cancer of the fundus spreads more rapidly in all directions and soon produces extensive changes in the secretory glands of the stomach. It should be added that cancer of the pylorus probably is more commonly secondary to ulcer, and an account of its situation produces marked symptoms earlier in its development, than cancer in other situations does. In my judgment, a deficiency in hydrochloric acid, especially if it develops gradually, is of greater diagnostic value than its total absence. For when cancer of the stomach has progressed far enough to produce total absence of hydrochloric acid, there is no difficulty in distinguishing it from other conditions of anacidity, such as true achylia gastrica, neuroses and reflex disturbances such as occur in association with chronic appendicitis and gall-bladder disease.

There is not always a simultaneous loss of gastric ferments. Although this is not of diagnostic value, Glässner has used the fact that both pepsin and rennet are produced in the fundus, and pepsin only in the pyloric part of the stomach, to determine the location of the growth.

The presence of lactic acid in the stomach is a sign of great importance. It occurs, according to the different observers, in from 75 to 95 per cent. of cases. The condition favoring its development are absence of hydrochloric acid and stagnation of food in the stomach. It is therefore found in nonmalignant disease also, but the importance of the presence of lactic acid is further emphasized by the fact that 84 per cent. of gastric diseases accompanied by lactic acid fermentation are cancers. The absence of lactic acid nautrally does not exclude cancer.

The diagnostic value of blood in the gastric contents is very great. It is manifest in from 36 to 40 per cent. of cases, and the presence of occult blood is noted in from 70 to 100 per cent. by different observers, the variability being probably due to the particular method of examination used.

The great importance of occult blood is not limited to its presence in the stomach contents, but is greatly increased by the fact that it is even more frequently found in the feces, and furthermore, to

its *constant* presence in a given case. For while occult blood may appear in the stool in a great variety of diseases, it is apt to be variable; that is, present for a few days and then absent for a few days or longer, while in malignant disease of the stomach the bleeding is apt to be moderate in amount, but when once begun, continuous. This fact is of value in distinguishing cancer from the disease which most closely resembles it, that is, chronic gastric ulcer.

The Solomon test, which consists of an examination for an increased amount of soluble albumin and increased nitrogen in the wash-water after irrigating the empty stomach, has been applied clinically by a large number of observers, and is considered by Boas to be of value in differentiating cancer from chronic gastritis, while simple ulcer and non-ulcerated cancer cannot be distinguished by this method.

The glycyl-tryptophan test of Neubauer and Fischer, is based upon the observation of Abderhalden that cancerous tissue contains a ferment which digests (splits up) protein to a point far beyond the peptone stage. Neubauer and Fischer believed that in the peptid glycyl-tryptophan they had found a substance which was split into glycyl and tryptophan only by the juice of the carcinomatous stomach. If the tryptophan is present in the gastric contents, it is recognized by a rose-red color on the addition of bromine water or bromine vapor. Since serum, blood, pancreatic juice or a large amount of hydrochloric acid interferes with the test and the ferment looked for is present only in ulcerating cancer, its value is limited. Still Smithies[8] reports the test positive in 40 per cent. of 566 cases of cancer of the stomach.

In the Wolf-Junghans test the presence of a relatively large amount of soluble albumin with a low pepsin and hydrochloric acid value, is supposed to be more or less characteristic of cancer of the stomach.[9]

The presence of the Oppler-Boas bacillus is very common in cancer of the stomach, but occurs in non-malignant disease in acid-free stagnating gastric contents. The infusoria, trichomona and megastoma have been noted in malignant disease, and, with other signs and symptoms, are significant but not characteristic.

Fluid removed from the fasting stomach and water used in irrigation should always be examined for pus, blood, and fragments of tissue. The latter may be of great value when examined microscopically.

Schutz[10] considers groups of large round cells with large refractive nuclei very significant, while Simon and Caussad,[11] two French observers, claim that a microscopic examination of the detached cells obtained by irrigating the stomach with normal saline solution gives great aid in diagnosis. Such findings, must, however, assume a position of secondary importance when we recall that it is the relation of the cells to the surrounding tissue which constitutes malignancy, rather than the character of the individual cell.

In the anemia and cachexia of cancer, nothing specific is to be found. The anemia is of the secondary type, but is sometimes so extreme as to resemble pernicious anemia, and may be mistaken for it if a complete examination of the blood is not made.

Schneyer's[12] observation that the digestive leucocytosis is often absent in cancer of the stomach should be noted in studying the blood.

The urine of patients suffering with cancer has been studied in the hope of finding some change which would aid in the recognition of cancer of the internal organs. Ury and Lilienthal[13] found albumose present in two-thirds of cancer cases, and although this varied from time to time in the same patient, the repeated presence of a marked reaction for albumose in the urine should be considered as speaking in favor of the existence of cancer.

The absence of traces of pepsin from the urine was noted by Fuld and Hirayama,[14] but other investigators consider that, at most, the absence of pepsin from the urine is indicative of cancer rather than simple achylia. The increased amount of neutral sulphur found in the urine by Solomon and Saxl[15] was believed to be peculiar to malignant disease of some internal organ, but subsequent wider application of the reaction showed it to be present in other diseases and sometimes absent in cancer.

The so-called hemo-urochrome reaction,[16] obtained by boiling urine with hydrochloric acid and then shaking with ether, was shown by Butterfield[17] to be simply a test for urinary indican, and without diagnostic significance of cancer.

An early attempt was made by Kelling to develop a specific test based upon biological principles. He assumed that cancer cells were foreign or exogenous protein introduced into the system from without. The test as recently applied is based upon hemolysis, and by his improved method he obtained positive results in 90 per cent. of cases examined.[18] His method did not produce uniform results in other hands.

The method of Briger and Trebing,[19] based upon the increased antitryptic action of the blood-serum of cancer patients, seems to have been tried and discarded as inapplicable.

The meiostagmin reaction of Ascoli[20] depends upon a reduction of the surface tension of the diluted serum, which occurs when serum of cancer patients is treated with antigen prepared from malignant tumors. The change is indicated by an increased number of drops in a given quantity of serum, and is measured by an instrument called a stalagmometer. Roosen and Blumenthal[21] report this test positive in 96 per cent. of cases of cancer, but unfortunately, also positive in some other conditions which one might wish to distinguish from cancer, namely, pregnancy and chronic inflammations.

Piorkowski quite recently[22] worked with a polyvalent enzyme emulsion obtained by saponification of cancer tissue from various sources, and found that this precipitated the serum of cancer patients in 99 per cent. of cases.

Of all such serological or biological tests, the one generally known as the abderhalden dyalization method has attracted most attention. It has been applied clinically by a great number of laboratory workers, with varying results, and resulting conflicting reports.

It should be remembered that originally he did not claim the reaction to be specific. It seemed improbable that it would be, but subsequent experiments seemed to indicate that it was, and at that stage he left its further demonstration with pathological cases to clinicians. The question of its specificity is still unsettled, but the fact remains of a positive ferment in the serum, following the parental ingestion of a foreign protein, and the digestion of placental tissue by the serum of pregnant women.[23] The reports by the various workers on its

clinical value are as conflicting as the theoretical discussion, and one receives the impression that, as it has been applied, it is not specific, but like most other laboratory examinations, is of value when taken in conjunction with laboratory and clinical findings.

One unfavorable report noted is from Leitch, of the Cancer Hospital in London.[24] He examined 100 cases, and found of 51 cancer cases, 28 or 55 per cent. positive, and of 49 non-cancer cases, 18 or 37 per cent. positive, and he therefore considers it of no diagnostic value in his experience. Frankel[25] obtained such conflicting results that he considered the method not useful clinically.

On the other hand, Schawlow[26] reported more favorable results. Of 100 cases, making more than a thousand examinations, in 40 cases of cancer of the stomach there was only 7.5 per cent. of failure. He therefore considers that this method gives a higher number of successes than any other at present known, and therefore of great clinical value. Levin[27] applied the method in the study of cases of cancer and tuberculosis, and the analysis of the findings, in his opinion, show that while the test is most frequently positive in cancer, it cannot be considered actually specific.

Blanch Forster,[28] working in the medical clinic of the University of Tubingen, thinks the method clinically appplicable and of value in differential diagnosis. The positive reaction alone, however, is not sufficient to make a diagnosis, but the whole clinical picture must be considered, and the Abderhalden reaction used as one method of examination. Frasiani[29] obtained a positive reaction in 96 per cent. of cancer cases, and negative results in 65 per cent. of non-cancerous cases, and states that the reaction, while not specific, is clinically valuable. Smithies[8] studied 566 cases of cancer in which the diagnosis was confirmed operatively and pathologically, and noted the presence of symptoms and signs in the following percentages:

	Per Cent.
Coffee-ground vomit present	15
Delayed vomiting	40
Glycyl-tryptophan positive	40
Presenting persistent early symptoms of chronic ulcer	41.8
Hemolytic test positive	47
Dyspeptic (chronic ulcer) symptoms	60
Delayed emptying of stomach	66⅔
Abdominal tumor or ridge	75
Occult blood (benzidin or guaiac test)	77
Periodicity	81
Wolf-Junghaus test positive in	86-90
Oppler-Boas bacilli present	83.8

The value of the radiographic examination of the stomach for the diagnosis of cancer is based on the fact that it will reveal the size, shape, position, mobility and peristaltic movements.

Now, while cancer in the course of its development produces changes in one or more of the abovementioned features of the stomach, which may be detected by radiography, the value of this method of examination is limited to a certain extent by the following facts: The above-mentioned facts are not demonstrable until the disease has already involved the stomach to a considerable degree. While the changes produced by cancer have their peculiar characteristics, there are other lesions producing similar changes, sometimes hard to be distinguished. Chronic gastric ulcer is the most common of these, and syphilitic lesion, though rare, cannot be ignored, for it may produce a radiographic picture indistinguishable from that of cancer. In such a case, the Wassermann examination and the result of specific treatment is the specific test.

Despite these facts there are many instances in which the radiographic examination will furnish decisive data, and it should therefore be employed in all suspicious cases.

From this brief review it is apparent that while the early diagnosis of cancer of the stomach offers very great difficulties there have been recent commendable improvements, both in methods and in results. Present facts seem to indicate that immediate increased accuracy in the early recognition of this disease is to be hoped for, not from any single laboratory test or method of clinical examination, but by a more faithful and diligent study of suspicious cases by all methods at our command. While there are many diseases to be considered in the differential diagnosis, the greatest practical difficulty is presented by chronic gastric ulcer. This should not be allowed to pass as "chronic indigestion" and be treated as such indefinitely by medical means, but should be recognized for what it is, and excised in that interesting stage of development when it would furnish material for debate among pathologists, and not be allowed to remain as a menace to the life of the patient and a reproach to the physician.

REFERENCES.

1. Boas, I.: Diagnostic und Therapie der Magenkrankheiten. Ed. 6, Geo. Thieme, Leipzig, 1911, p. 564.
2. Graham, Christopher: Differential Diagnosis of Diseases Causing Gastric Disturbance. Collected papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1910, pp. 39-44.
3. Rodman, Wm. L.: Cancer and Precancerous Conditions. *Annals of Surgery*, Phila., 1914, LIX, pp. 47-64.
4. Graham, Christopher: Gastric Ulcer and Cancer. Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1905-1909, pp. 50-57.
5. MacCarty, Wm. C.: Precancerous Conditions. *Jour. Iowa State Med. Soc.*, 1914, IV, pp. 1-11.
6. MacCarty, Wm. C. and Brodus, A. C.: Chronic Gastric Ulcer and Its Relation to Carcinoma. Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1913, pp. 160-179.
7. Graham, Christopher: Cancer of the Stomach. Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1905-1909, pp. 111-123.
8. Smithies, Frank: The Significance of Gastric Ulcer with Respect to Gastric Cancer. Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1913, pp. 74-92.
9. Wolf, W., und Junghans, P.: Ueber die quantitative Bestimmung gelöster Eiweisstoffe im Mageninhalt. *Berlin klin. Wochenschrift*, 1911, No. 22, pp. 978-980.
10. Schütz, Emil.: Untersuchungen über den Magenschleim. *Archiv. f. Verdauung*, 1905, XI, pp. 397-417.
11. Simon, P., et Caussad, L.: Le Cyto-diagnostic du Cancer de l'estomac. *Presse Médicale*, Paris, 1914, XXII, pp. 265-272.
12. Schneyer, J.: Das Verhalten der Verdanungsleukocytose bei Ulcus Rotundum und Carcinoma Ventriculi. *Zeitschrift für klin. Med.*, 1895, XXVII, pp. 475-491.
13. Ury, H., und Lilienthal, E.: Über Albumosurie bei Magendarmerkrankungen, special Carcinom. Archiv. für Verdauungs-Krankheiten, 1905, XI, pp. 72-83.
14. Fuld, E., und Hirayama, K.: Uber den Nachweis der Magenfermente im Urin und uber ihre diagnostische Bedeutung. *Berl. klin. Wochenschr.*, 1910, XLVII, pp. 1062-1065.
15. Solomon, H., und Saxl, D.: Eine Schwefelreaction in Harne Krebskranker. *Deutsche med. Wochenschr.*, Leipzig, 1912, XXXVIII, pp. 53-55.
16. Davis, T. G.: Hema-Uro-Chrome: A New Laboratory Test for Cancer and Sarcoma, also a Method of Separating Bile Acids and Pigment, with the Application of Torquay's Test, Indican Being Obtained If Present. A Preliminary Report. *Am. Jour. Med. Sc.*, 1913, CXLV, pp. 857-865.
17. Butterfield, E. E.: On the So-called Hemo-Urochrome Test for Cancer. Proc. N. Y. Path. Soc., 1914, XIV, pp. 34-36.
18. Kelling, G.: Blutserumuntersuchungen bei Karzi-

nomatösen mit neuer verbesserten Methode. *Wein. klin. Wochenschr.*, 1914, XXVII, pp. 927-931.

19. Brieger, L., und Trebing, Joh.: Weitere Untersuchungen über die Antitryptische Kraft des Menschlichen Blutserums, imbesondere bei Krebskranken. *Berlin klin. Wochnschr.*, 1908, XLV., pp. 1349-1351.

20. Ascoli, M., und Izar, G.: Die Meiostagminreaction bei bösartigen Geschwulsten. *Münch. med. Wochnschr.*, 1910, LVII, pp. 403-405.

21. Roosen, R., und Bloomenthal, N.: Erfahrungen mit der Meiostagminreaction. *Deutsche med. Wochnschr.*, 1914, XL, pp. 588.

22. Piorkowski: Zur Sicherung der Carzinomdiagnoses. *Berlin klin. Wochnschr.*, 1914, LI, pp. 254-255.

23. Abderhalden, E.: Notizen über die Verwertbarkeit des Dialysierverfahrens bei klinischen und biologischen Fragestillungen. *Münch. med. Wochnschr.*, 1914, LXI, pp. 233-238.

24. Leitch, Archibald: The Serum Diagnosis of Pregnancy and Cancer. *Brit. Med. Jour.*, London, 1914, II, pp. 330-335.

25. Frankel, Ernst.: Weitere Untersuchungen mit der Abderhalden Reaction bei Karzinom und Tuberculose. *Deutsche med. Wochnschr.*, 1914, XL, pp. 589-590.

26. Schawlow, A.: Beiträge zur serologischen Früdiagnose des Karzinoms vermittelst des Abderhaldenschen Dialysierverfahrens. *Münch. med. Wochnschr.*, 1914, LXI, pp. 1386-1390.

27. Levin, I.: The Value of the Abderhalden Test for Cancer. *New York Med. Jour.*, 1914, C. pp. 621-623.

28. Forster, Blanch: Klinische Ergebnisse mit den Abderhaldensechen Dialysierverfahren. *Med. klin.*, Berlin, 1914, X, pp. 772-774.

29. Fasiani, G. M.: Ueber die Abderhaldenschen Fermentreaction bei Karzinom. *Wien klin. Wochnschr.*, 1914, XXVII, pp. 267-269.

1720 Connecticut Avenue.

PROGRESS IN THE USE OF STANDARD SALVARSANIZED SERUM INTRASPINALLY.

A SECOND REPORT ON THE STATUS OF FIFTEEN CASES.

By HANSON S. OGILVIE, M.D.,

NEW YORK,

CHIEF OF CLINIC, THIRD DIVISION, THE NEUROLOGICAL INSTITUTE.

In a former paper* I described a method of preparing *in vitro* a salvarsanized serum of standard strength suitable for administration intraspinally in syphilitic disorders of the central nervous system and reported fifteen cases which had been treated with the preparation. The value of this article was practically limited to the description of the technique elvolved, since at that time the cases had only been under observation for a few months and consequently no attempt was made to draw conclusions regarding the permanency of either the clinical or biological improvements noted. The employment of this serum in a large number of cases over a period of eighteen months has shown that it is a safe and practical procedure when the proper care is exercised in its preparation and administration. Diseases of this kind, however, must be observed over a considerable period before the efficacy of the curative agent, or the manner of its administration, can be established, and I therefore determined to supplement my first, or preliminary, paper with a further report on the status of fifteen cases originally reported. Fortunately I have been able to follow all of these cases clinically, and with the exception of two, I have obtained records of analyses of the blood and cerebrospinal fluid from time to time.

*"The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength; Report of Cases." (Amer. Med. Assn., 1914, LXIII, 1936-1941.) Read before the American Association of Immunologists at Atlantic City, June 22, 1914.

The series consisted of seven cases of tabes, six of paresis (two of tabo-paresis), one of cerebrospinal syphilis, and one of syphilitic myelitis. Those cases that still showed serological evidences of the disease when the data for the first paper was collected have been treated consistently, while those that were negative at that time have simply been kept under observation and treated only when there were clinical or laboratory evidences suggestive of a renewed activity of the specific process. The technique as originally described has not been changed in any particular. The strength of the serum employed, and the frequency of administration, have been determined by the character of the case under treatment, the physical condition of the patient, and the degree of resistance offered.

For purposes of comparison the following reports will give the laboratory findings last noted in the article referred to above, as well as these most recently obtained.

Case No. 1. Tabes. Man. Aged 41.		
May 29, 1914	Cerebrospinal Fluid	Blood
	Wass. ++in 1.0 and 0.8 c.c. −below*	−
	Cells None	
	Glob. None	
May 15, 1915		April 21, 1915
	Wass. Negative in all titrations	−
	Cells 2 per cu. mm.	
	Glob. None	

*++=Complete inhibition.
−=Complete hemolysis.

He had four intraspinal treatments between these dates, no salvarsan by vein, no mercury, and no potassium iodide. He has retained all of the clinical improvement noted in June, 1914, and in addition thereto his legs have gained materially in strength. He shows a slight tendency to sway when attempting to turn suddenly, but otherwise his gait and station are only very faintly impaired.

Case II. Tabes. Man. Aged 41.		
June 6, 1914	Cerebrospinal Fluid	Blood
	Wass. ± in 1.0 c.c. −Below	−
	Cells None	
	Glob. ±, 0.2 c.c. (very faint).	
March 11, 1915		Jan. 28, 1915
	Wass. Negative in all titrations.	−
	Cells None	
	Glob. ±, 0.2 c.c. (very faint).	

Between these dates he had three intraspinal treatments. Clinically his condition is markedly improved over what it was in June, 1914. There has been no indication of a return of any of his subjective symptoms. He has gained eight pounds in weight (making a total of eighteen pounds since treatment was first instituted in December, 1913), and can be on his feet the greater part of an entire day without undue fatigue. The improvement in the pupillary light reflex, noted nine months ago, remains as definite as at that time. The deep reflexes and other physical signs are unchanged.

Case III. Tabes. Man. Aged 54.		
May 23, 1914	Cerebrospinal Fluid	Blood
	Wass. ++ in 1.0, 0.8, 0.6, 0.4 c.c. −Below.	Not made
	Cells 4 per cu mm.	
	Glob. +, 0.2 c.c. (slight excess).	
Feb. 9, 1915		
	Wass. Negative in all titrations.	−
	Cells 2 per cu. mm.	
	Glob. ±, 0.2 c.c. (faint excess).	

During this time he had eight intraspinal treatments of 0.25 mg. each, eight treatments of salvarsan by vein, and mercury intramuscularly. The only symptoms that have persisted in this case are the paresthesia and tingling in the lower extremities, and the slight bladder weakness. The latter, however, is much less marked than when treatment was started and on several occasions has disappeared entirely for three to four weeks. There is pronounced improvement in the strength of his legs. He has gained eleven pounds in weight.

Case IV. Tabes. Postman. Aged 23.		
June 9, 1914	Cerebrospinal Fluid	Blood
	Wass. Negative in all titrations.	−
	Cells None	
	Glob. ±, 0.2 c.c. (very faint excess).	
March 11, 1915		Dec. 21, 1914
	Wass. Negative in all titrations.	−
	Cells None.	
	Glob. ±, 0.2 c.c. (very faint excess).	

The patient received one intraspinal treatment when

fluid was withdrawn for the last analysis. He had had no salvarsan by vein and no mercury in any form. After the examination June 1, 1914, and until January, 1915, he gained steadily in walking, but during the past two and a half months he has shown no further improvement. He has never had a return of the tabetic pains however, his bladder gives him practically no trouble and he can walk the length of thirty to forty city blocks with the aid of a light cane. (A note made on his condition in Feb. 1914, before treatment was started, read "He is unable to walk more than twenty feet without assistance.") He has gained six pounds in weight and his general health is good. The improvement in the pupillary light reflex, noted ten months ago, has not been evident for the past four months. At the present time his pupils are about 2 mm. in diameter, round, and fixed to both light and accommodation. The deep reflexes and other physical signs are unchanged.

Case V. Tabes. Man. Aged 50.

		Cerebrospinal Fluid	Blood
May 21, 1914	Wass.	Negative in all titrations.	++
	Cells	5 per cu. mm.	
	Glob.	+, 0.2 c.c.	
April 6, 1915	Wass.	Negative in all titrations.	++
	Cells	None.	
	Glob.	±, 0.2 c.c. (faint excess).	

There was no intraspinal treatment administered between the above dates. He had six intravenous treatments of salvarsan, but was unable to take mercury in any form. The clinical improvement in this case has been more striking than in any of the foregoing, considering the age of the patient and the fact that he was addicted to the excessive use of alcohol for more than twenty years prior to the onset of his trouble. He has been absolutely free from pain during the past nine months and has gained steadily in weight and strength. With the aid of a cane he walks from three to four miles each day that the weather permits. There has been no change in the objective manifestations of the disease.

Case VI. Tabes. Man. Aged 39.

		Cerebrospinal Fluid	Blood
May 9, 1914	Wass.	++ in 1.0 and 0.8 c.c. −Below.	+
	Cells	4 per cu. mm.	(50% inhib.)
	Glob.	Normal content.	
March 27, 1915	Wass.	Negative in all titrations.	+
	Cells	2 per cu. mm.	(50% inhib.)
	Glob.	Normal.	

This case was very resistive to treatment. Between the above dates he had eight intraspinal treatments of 0.25 mg. each, ten intravenous treatments of salvarsan and thirty intramuscular injections of mercury. He had one severe attack of root pain in November, 1914, and two very mild ones during December. For three and a half months he has been entirely free from pain and has gained very markedly in strength. He has not had a return of bladder trouble which was a prominent symptom before treatment was instituted. Objectively there is marked diminution in the extent of sensory disturbances noted at the original examination.

Case VII. Paresis. Man. Aged 46.

		Cerebrospinal Fluid	Blood
June 12, 1914	Wass.	+ (50%) in 1.0 c.c. −Below.	−
	Cells	14 per cu. mm.	
	Glob.	±, 0.2 c.c.	
March 20, 1915	Wass.	Negative in all titrations.	Dec. 1, 1914 −
	Cells	None.	
	Glob.	Normal content.	

This case is perhaps the most interesting of the entire series. When treatment was started in April, 1914, he presented every symptom and sign of an advanced paretic and had been confined to an institution for the insane for more than two years. He reacted badly to both intraspinal and intravenous treatment, and after he had had four of the former and five of the latter it was considered unwise to proceed, owing to his weakened physical condition, and because his mental condition was apparently growing worse. After an interval of two months he was able to resume his treatments and showed signs of marked improvement both physically and mentally. He had nine intraspinal treatments. Eight months ago he was paroled in the custody of his wife and for this length of time it has been practically impossible to detect the slightest evidence of his psychosis. He is bright and alert, has the normal retentive power and shows no trace of the marked speech defect that was strikingly evident at the original examination and during the earlier part of his treatment.

Case VIII. Paresis. Man. Aged 35.

		Cerebrospinal Fluid	Blood
June 2, 1914	Wass.	+ + in 1.0, 0.8 and 0.6 c.c. Below	−
	Cells	None.	
	Glob.	±, 0.2 c.c. (faint excess).	
April 9, 1915	Wass.	Negative in all titrations.	April 16, 1915 −
	Cells	None.	
	Glob.	Normal content.	

During the interval between the above dates this patient received eleven intraspinal and thirteen intravenous treatments. (The latter were made necessary because there was a return of the blood Wassermann in August, 1914.) For more than twelve months he has been actively engaged in business and during this time he has exhibited no clinical manifestations of the disease of any kind whatsoever. The improvement in the pupillary light reflex, noted in June, 1914, is still apparent. The other objective phenomena are unchanged.

Case IX. Paresis. Man Aged 46.

It has been impractical to secure a serological status on this patient since April 14, 1914. At that time the spinal fluid Wassermann was negative, contained no cells, and no excess of globulin. Clinically, however, the change in his condition noted in May, 1914, has persisted without relapse until the present time. He is quiet and tractable and willingly co-operates with his physicians and attendants, a condition quite opposite from the one he was in when treatment was instituted. (Although treatment in this case was followed promptly by improvement it could not wholly be attributed thereto, since the change was of a character not infrequently seen in the ordinary course of the disease; *i.e.* from a wildly maniacal to a quiet passive state.)

Case X. Taboparesis. Woman. Aged 46.

		Cerebrospinal Fluid	Blood
May 17, 1914	Wass.	++ in 1.0 c.c. −Below.	−
	Cells	None.	
	Glob.	+, 0.2 c.c. (moderate excess).	
March 24, 1915	Wass.	Negative in all titrations.	−
	Cells	None.	
	Glob.	Normal content.	

This patient had one intraspinal treatment between these dates with salvarsan intravenously. She was discharged from the sanitarium nine months ago. Her mental condition, although not perfect, is better than it has been for five years, according to statements of members of her family. The marked emotional disturbances, delusions, and obsessions, which characterized her condition at the time treatment was instituted in August, 1913, completely disappeared twelve months ago and have shown no tendency to return. She is bright and cheerful, has a good memory, and shows no speech or emotional defect of any kind. Unfortunately the reaction she suffered after an intraspinal treatment in May, 1914, has caused a spastic condition of her lower extremities. This represents the only severe and permanent reaction that I have observed in more than twelve hundred treatments. In this instance it was probably due to an irritation of the roots in the lower extremity of the dural sac, caused in part by the excessive arsenical content of the serum employed, and in part, by post-operative mismanagement of the patient. It is also possible that there was a sudden intensification of the specific process in the cord resembling the Herxheimer reaction.

Case XI. Paresis. Man. Aged 44.

		Cerebrospinal Fluid	Blood
May 18, 1914	Wass.	++ in 1.0, 0.8, 0.6 and ± in 0.4.	−
	Cells	3 per cu. mm. −In 0.2 c.c.	
	Glob.	Normal content.	
April 21, 1915	Wass.	++ in 1.0, 0.8, and 0.6 c.c. −Below.	April 14, 1915 −
	Cells	2 per cu. mm.	
	Glob	Normal content.	

He had ten intraspinal treatments, ten intravenous, and thirty-four intra-muscular injections of mercury. Six months ago this patient developed an intercurrent disease which interfered with his treatment for over eight weeks. In the latter part of this interval he had one epileptoid seizure, similar to, although much milder than, those from which he suffered before the institution of treatment sixteen months ago. With the exception of this attack he has exhibited no clinical manifestations of the disease during this period. Mentally his condition is as good, and in many respects better, than it was when recorded in May, 1914. His speech,

retentive power, emotional tone, and insight are without defect. It will be noted that the serological picture in the spinal fluid is practically the same as in May, 1914, although it has fluctuated up and down during the past year.

Case XII. Taboparesis. Woman. Aged 33.		
June 12, 1914	Cerebrospinal Fluid	Blood
	Wass. ++ in 1.0, 0.8 and 0.6 c.c. – Below.	++
	Cells 3 per cu. mm.	
	Glob. +, 0.2 c.c. (moderate excess).	
Nov. 3, 1914		
	Wass. ++ in 1.0, 0.8 and + in 0.6 c.c. – Below.	++
	Cells None.	
	Glob. +, 0.2 c.c. (moderate excess).	

During this interim she received fourteen intraspinal and sixteen intravenous treatments. Although prior to September, 1914, there had been steady improvement in her condition, she failed utterly to respond either clinically or serologically after that time and began to grow worse. All treatment was discontinued. When the last analyses were made (Nov. 3, 1914) she was completely disoriented for time, place, and person. Delusions of grandeur were very marked. She had but little control over her extremities and her optic discs were becoming rapidly atrophic.

Case XIII. Spinal Syphilis. Man. Aged 46.		
May 15, 1914	Cerebrospinal Fluid	Blood
	Wass. ++ in 1.0 c.c. – Below.	
	Cells 3 per cu. mm.	
	Glob. +, 0.2 c.c.	
April 9, 1915		
	Wass. Negative in all titrations.	–
	Cells 2 per cu. mm.	
	Glob. ±, 0.2 c.c. (faint excess).	

Three intraspinal treatments were given. No salvarsan by vein and no mercury. The only evidence of the disease at this time, either subjective or objective, is a moderate degree of hyperactivity of the deep reflexes of the lower extremities. The sensory phenomena have entirely disappeared. The patient is on his feet ten to twelve hours each day.

Case XIV. Cerebrospinal Syphilis. Man. Aged 36.		
June 12, 1914	Cerebrospinal Fluid	Blood
	Wass. Negative in all titrations.	± (25°° inhib.)
	Cells None.	
	Glob. +, 0.2 c.c. (moderate excess).	
March 27, 1915		April 16, 1915
	Wass. Negative in all titrations.	–
	Cells None.	
	Glob. +, 0.2 c.c.	

This case has not received treatment of any kind. He has steadily gained in every respect since the examination recorded in June, 1914. His legs are stronger. The sensory changes have entirely disappeared. There is a moderate degree of bladder insufficiency when it is distended, but ordinarily he experiences no difficulty in retaining and voiding his urine.

Case XV. Tabes. Man. Aged 47.		
May 20, 1914	Cerebrospinal Fluid	Blood
	Wass. ++ in 1.0, 0.8, 0.6, 0.4 and 0.2 c.c.	Not made
	Cells 40 per cu. mm.	
	Glob. ±, 0.2 c.c. (faint excess).	
July 28, 1914		
	Wass. ++ in 1.0, 0.8, 0.6 and – below.	Not made
	Cells 16 per cu. mm.	
	Glob. ±, 0.2 c.c. (faint excess).	

One intraspinal and one intravenous treatment were given between these dates. It has been impossible to obtain a more recent serological status. Four weeks ago the patient reported that he had not had a return of the attacks of abdominal distress which constituted his chief complaint at the original examination.

Summary.—Out of the fifteen cases thirteen show a complete disappearance of all subjective manifestations, with improvement in the objective signs in one way or another, for an average period of one year, while one showed moderate improvement only, and one failed utterly to respond to treatment. Of the total number eleven cases (6 tabes; 3 paresis; 1 syphilitic myelitis; 1 cerebrospinal syphilis) show spinal fluids negative to the Wassermann reaction in all titrations, with normal cell and globulin contents; two remain positive, and in two recent analyses could not be secured. Ten cases (4 tabes, 4 paresis, 1 syphilitic myelitis, 1 cerebrospinal syphilis) show negative Wassermann reactions in the blood; three remain positive, and in two recent analyses could not be secured.

As to the value of the treatment when systematically and judiciously employed, further comment seems unnecessary. To those familiar with the resistive and tenacious character of these diseases it will at once be evident, from a study of this and other reports, that the intraspinal method offers far more in the way of therapeutic possibilities than the use of mercury and salvarsan intravenously alone. That the latter are of the greatest importance is readily conceded, but I have seen but few instances, probably less than 2 per cent. of my cases, in which their employment alone, even when given with heroic intensity, has accomplished a complete eradication of the laboratory evidences of syphilis in the spinal fluid. No matter how striking the clinical improvement may be the treatment has been inadequate unless this has been accomplished.

As in the treatment of all other disease processes the success attainable is largely dependant upon the promptness with which the infection is recognized, and the discretion exercised in employing curative agents or other measures to combat it. In neurological syphilis the field of greatest opportunity lies in instituting treatment in the *predestructive* stage. With this end in view the spinal fluid should be subjected to a rigid examination in every case presenting indefinite or transitory symptoms referable to the central nervous system, whether the patient gives a history of syphilis or not and regardless of the existence of a negative Wassermann reaction in the blood. Once recognized, of equal importance is the manner of treatment. Every case must be carefully studied as a separate problem, and numerous factors, besides the mere presence of a specific infection, must be considered.

The preparation of the serum consists of much more than simply adding salvarsan to it, as has frequently been assumed. Each step in the technique has definite scientific reasons back of it and it should not be intrusted to any one unable or incompetent to give the painstaking attention necessary in handling a drug, which, although possessed of great curative properties under certain conditions, is nevertheless highly toxic and therefore dangerous under irregular slipshod laboratory methods.

105 West Seventy-Second Street.

GLUTEAL MYOSITIS—A CONDITION NOT HERETOFORE DESCRIBED.

By NORMAN SHARPE, M.D.,

AND

PERCY WILLARD ROBERTS, M.D.,

NEW YORK.

There have recently come to our attention a number of cases of inflammatory reaction in a certain group of the muscles of the hip, namely, the glutei and the tensor fasciæ femoris, which is characterized by pain, tenderness, and stiffness in the entire group or parts of it, and by disability more or less severe, and in all of them the true condition had been overlooked in previous examinations.

These cases, because of constant errors of diagnosis, merit close study and careful interpretation.

Inflammation of muscle is, of course, a well recognized condition. Stockman[1] in 1904 described a form of muscular inflammation accompanied by hyperplasia of the connective tissue, tendon sheaths

and the nerve sheaths. It was characterized by pain, stiffness and the development of hard nodules in the affected muscles or in their tendinous expansions or attachments. At times instead of nodules he found a doughy induration of the affected muscles which was easily palpable. Stockman called the condition a chronic rheumatism of the muscles, and gave as the causes: acute rheumatism, influenza, gonorrheal arthritis, sore throat, and the exposure to cold and wet. In other words, he held it was due to a toxin. He did not believe that gout or errors of diet were causative factors.

Knowles[2] reported a case of nodular fibromyositis in a woman following a severe attack of malaria. The tender nodules were found in the lumbar aponeurosis over the sacrum. Heat and massage cleared up the pain, but did not remove the nodules.

Gowers[3] speaks of a chronic inflammation of the lumbar and hip muscles which he calls a myalgia due to "fibrositis," a condition of hyperplasia of the fibrous tissue of the affected muscles. He says this inflammation may spread to the nerve sheath and give rise to a sciatica. Contrary to Stockman, he finds these inflammations in those who inherit a gouty diathesis. This inflammation Gowers speaks of as involving the tendinous structure over the sacrum rather than the muscles of the hip.

Telling[4] has also described fibromyositis, the essential morbid process of which he says "is an inflammatory exudation into the fibrous tissues in almost any situation in which fibrous tissue is found." This exudation, which varies from a slight doughy induration to the formation of definite hard nodules, leads to swelling and thickening of the affected area and is accompanied by pain. Telling found these indurations and nodules in the lumbar region, retrocolli and temporal muscles (causing indurative headache), and also in the pectoral and abdominal muscles. He considers the condition a chronic "rheumatism" of the muscles, and gives as causes, influenza, cold and wet, gastrointestinal disturbances, and constipation—in short, a toxemia. After the indurations are once formed a fresh attack is brought on by violent exertion, cold and wet, or acute indigestion.

Petren,[5] in an article on "Sciatica and Morbus Coxæ Senilis," mentions some cases in which the symptoms were those of a rheumatic sciatica, but the only tender points found were over the gluteus medius muscle. He gives two possible explanations of this condition: (1) That the symptoms were due to a myositis of the gluteus medius followed by compression of the nerve, or (2) that the inflammation may have extended from the muscle to the nerve sheath. As to the cause of the tenderness in the gluteus medius he is not definite, but does not exclude neuritis of the superior gluteal nerve, as in his cases the tender point corresponded to the position of the nerve as it passes through the great sciatic notch under the posterior border of the gluteus medius. Petren evidently considered the muscle inflammation as a part of the sciatica or as a possible cause of the sciatica, and did not regard the myositis as an independent condition.

Luff[6] uses the term "fibrositis" to cover various inflammations, such as muscular rheumatism, lumbago and Dupuytren's contractures, and says that this condition of inflammatory hyperplasia of the tendons and muscles is not a sequel of acute rheumatism and has nothing to do with that disease. Also, as opposed to Gowers, he believes it has no relation to gout, but at times is due to a "self-generated systemic poison owing to the inability of the gastrointestinal tract to deal properly with the various articles introduced into it." Other causes he gives are exposure to cold, damp or wet, local injuries, as sudden and severe strain, tonsillitis, pharyngitis, and influenza.

Yawger[7] has described a form of myositis in the gluteal region which, he says, is "rheumatic" in origin or due to autointoxication. He places this rheumatic myositis as occupying part of the gluteus medius muscle with perhaps slight involvement of the gluteus maximus and minimus. From here the symptoms may spread to the sciatic nerve, due to compression by the inflamed muscle, or to a direct inflammation of the nerve sheath from the muscle.

Knapp[8] describes a form of myositis traumatica occurring in the muscles of the neck, the lumbar or gluteal region, in which the pain comes on at night. This is due, he says, to prolonged extension or hyperextension of the muscle caused by faulty posture in bed, or by sagging of the bed. He says it is not a systemic nor constitutional condition, nor due to infection. If the pain is in the neck, it is due to faulty arrangement of the pillows, and if in the back, or gluteal region, is due to a sagging bedspring. He cured his patients by making them sleep on the floor or on a firm bed, or by proper arrangement of the pillows.

The type of myositis that we are reporting differs from those cited above in several particulars.

1. It is sharply localized, being usually limited to the gluteus medius and tensor fasciæ femoris, and sometimes involving the gluteus minimus and the gluteus maximus to a slight extent. The pain and tenderness is circumscribed with no involvement of other muscles of the body.

2. In none of our cases did we find any induration. Although all of them were examined repeatedly by both of us, we did not find the soft "doughy" exudation, the brawny subcutaneous induration, or the nodular masses so emphasized by other writers. Compared with the same tissues of the opposite side, the affected muscles felt normal, except for occasional tension and the presence of pain and tenderness. It is true that in several of our cases palpation disclosed prominences in the body of the muscle that might easily be mistaken for inflammatory indurations. However, these could be made to disappear by pressure of the fingers and were due to temporary spasm of the muscle fibers.

3. None of the causes given by the writers quoted, with the possible exception of autointoxication from gastrointestinal disturbances, seems to have been operative in our cases. Least of all does "rheumatism" seem to be a factor. It is scarcely conceivable that an attack of muscular rheumatism will confine itself to a small group of muscles without demonstrating its presence elsewhere in the body. Influenza, tonsillitis, pharyngitis and gout were excluded by the histories of the cases, and we do not think the toxins of these diseases have a predilection for the gluteal region. Many of the cases showed evidences of gastrointestinal indigestion, such as coated tongue, dry, reddened throat, and constipation. The etiology will be further elaborated in the discussion of the cases.

As the condition is not fatal, but merely more or less disabling, the points for consideration are diagnosis and treatment. In the majority of our cases the trouble was of some weeks' or months'

standing, and a correct diagnosis had not been made. The patients had gone from doctor to doctor and from hospital to hospital without relief. The constant pain and soreness had reduced many of them to a state of semi-invalidism. The diagnoses which were given them included muscular rheumatism, sacroiliac joint trouble, lumbago, coxitis and sciatica. They had been strapped with adhesive plaster, cauterized, blistered, treated with galvanism or static sparks, baked, dosed with aspirin and salicylates, with little or no improvement. Scarcely a case escaped the diagnosis of "sciatica" at one time or another. In hospital records the diagnosis of "sciatica" is frequently seen, but in our experience, which includes observation of the material of several large neurological and orthopedic clinics, sciatica, though not rare, is uncommon. In the last six months we have seen but one case of true sciatic neuritis and six cases of the milder form—the so-called sciatic neuralgia. There can be no doubt that "sciatica" is a diagnosis too often carelessly made. It should not rest merely upon the presence of pain elicited by pressure of the thumb in the popliteal space or pain on exhibition of Lesegue's sign (flexion of thigh with leg extended) as is so often the whole basis of diagnosis.

Of our cases, which number sixteen, the reports of six will be given. The remaining ten gave similar histories and symptoms, examinations showed similar conditions and their behavior under treatment was the same. All the cases were submitted to a searching neurological and orthopedic examination. Skiagraphs were made of many of them to eliminate bone or joint lesions. For sake of brevity in the cases reported only the positive findings, together with the more important of the negative findings, are given.

Case I.—J. K., age 41, tailor. Never had rheumatism. No history of trauma. In his work he constantly flexed and twisted body sideways as he stood. Sixteen years ago he had pain in left hip which lasted one year. This attack was similar to present one. For some years after his first attack he sat while at his work. Does not exercise. Came to hospital June 17, 1914, complaining of pain in left hip and back of thigh which began two months previously. Pain only on motion, which was very noticeable on turning in bed. Except for the pain, he felt well. Was told he had sciatica and was treated without improvement.

Examination: Patient has what we might call "sedentary muscles," soft and flabby. General neurological and orthopedic condition normal; tongue clear; not constipated; no tenderness over sciatic nerve; Lasègue's sign negative; no tenderness in lumbar muscles or in spine; extreme tenderness to pressure over the anterior half of gluteus medius and some over tensor fasciæ femoris; sacroiliac and hip joints normal.

Treatment: Deep and hard massage of the affected muscles three times a week for three weeks. Discharged at that time with no pain and no tenderness.

Examination in November, 1914, five months later, showed no return of symptoms and no tenderness in muscles.

Case II.—S. H., age 39, tinsmith. No rheumatism nor trauma; gonorrhea twelve years previously. Had similar pain fourteen years ago in right hip which lasted for ten months. Had no pain in leg. His work requires much stooping and bending. Six months previous to coming to hospital pain began back of right hip and gradually grew worse. Pain more acute on motion after sitting; pain also present when lying in bed if he moved; no indigestion and not constipated. Was treated for two months for sciatica.

Examination: Neurological and orthopedic condition normal and x-ray negative; Lasègue's sign negative; no tenderness over lumbar region or over spine or sciatic nerve. Extreme tenderness to pressure over the right gluteus medius and maximus; the tender area extended from just below the iliac crest (the origin of the muscles) almost to their insertion in the femur. No indurations or nodules found.

Treatment: Deep massage (kneading) of the affected muscles. Patient could come only twice a week for treatment. Massage begun October 20, 1914.

Discharged two months later, December 28, 1914, cured. No stiffness or tenderness. Had fifteen treatments.

Case III.—L. S., age 23. Bookkeeper. No history of rheumatism nor trauma. In his work he frequently lifts and moves heavy books. No indigestion; not constipated. Six months before coming to hospital pain began back of right hip and rapidly grew worse. Was treated six months for sciatica; had aspirin, baking, electricity, etc. No improvement.

Examination: Slightly built man with poor muscular development; general neurological and orthopedic condition normal; no tenderness over sciatic nerve; Lasègue's sign present; but pain is referred to gluteal muscles; extreme tenderness to slight pressure over gluteus medius and minimus, x-ray showed the bony pelvis normal. Sacroiliac joint normal, no tenderness over spine or sacrum, and none in the lumbar region, or over the point of exit of the superior gluteal nerve.

Treatment: On account of extreme soreness a plaster-of-Paris spica was applied from waist to knee and worn for three weeks. Slight pain the last week of wearing cast and for five days following its removal, during which time massage was given. Some pain after five days, but with massage it gradually disappeared. Was under treatment from October 23 to December 14, 1914, the first eighteen days of which time he wore the cast. Massage was begun November 10 and his further history was one of gradual improvement until he was discharged in December, cured with no pain or tenderness. Eighteen treatments in all were given.

Case IV.—M. D., age 45. Waiter. No history of rheumatism nor trauma. Has had flat feet for years and wears arch supports. He lifts and carries on his left arm heavy piles of dishes constantly. No indigestion or constipation. Two weeks before coming to hospital, while in good health, he had pain back of left hip which gradually grew worse and confined him to bed. The case was diagnosed first as "rheumatism," then sacroiliac joint subluxation, then sciatica. Was kept in bed two weeks, but no improvement. Had no pain in bed unless he moved. Pain keeps him from working.

Examination: Heavily built male, with flabby or sedentary muscles. General neurological and orthopedic condition normal, except for the flat feet which metal arches adequately support. Slight tenderness over posterior muscles of left thigh, but none over sciatic nerve or over great sciatic notch. Extreme tenderness over tensor fasciæ femoris and gluteus medius. The x-ray showed bony pelvis normal. No tenderness in the sacrum or lumbar region, nor over the superior gluteal nerve.

Treatment: Deep massage of the affected muscles begun November 2, 1914. Had twelve treatments in all. Gradual improvement. Against advice stopped treatment December 5, 1914, to go to work. No pain and but little tenderness in these muscles. Not entirely cured.

Case V.—E. S., age 46; saleswoman. Came to clinic June 2, 1914. No rheumatism or trauma. One ovary removed three years ago. Menopause two years ago. Drank one-half pint of whisky daily for four years; none for last four months. Has coated tongue and is constipated. Seven months ago pain began back of left hip, causing limp which has persisted to the present time. One month ago pain began back of right hip and has gradually grown worse. Says she has had no weakness of legs. Pain worse on motion, and stiffness present after sitting for a time. Diagnosis of sciatica was made and she has been treated for that for last three months.

Examination: General orthopedic and neurological condition normal. No sensory changes, no drop foot, no weakness of legs, nor other signs of an alcoholic neuritis. Sacroiliac joint normal, no pain or tenderness in lumbar region or sacrum. Extreme tenderness on pressure over the gluteus medius in its upper half and the anterior part of the gluteus maximus of both sides, but much more marked in the left. No tender points over the right sciatic nerve; tenderness to pressure of the left sciatic only in the gluteal region; Lesègue's sign absent on the right side, present on the left, but pain is referred to the gluteal region only. No indurations found in the affected muscles.

Treatment: Sodium salicylate and Cascara for constipation. Deep massage (kneading) of the affected muscles begun June 2, 1914. Also applications of heat. Was under treatment six weeks. Had eighteen treatments. Discharged cured, July 17, 1914. No limp, no pain or tenderness. Seen December, 1914, six months later, still free from pain and tenderness.

Case VI.—S. D., age 34; newsdealer. No history of rheumatism or trauma. Troubled with indigestion and constipation. Ten years ago had pain in right hip which he says was similar to present trouble. Cured by hot mud baths at Odessa. Eight months ago had pain back of left hip, extending into left thigh. Cured by massage in two weeks. Three months ago had similar trouble in left hip. He stopped work and his trouble got well of itself in two weeks. Patient's work obliges him to frequently lift one hundred pound packages of newspapers. Four days before coming to us he had pain and stiffness back of left hip, extending toward the anterior spine of the ilium. This pain has gradually become worse and causes him to limp. Was told he had muscular rheumatism.

Examination: Patient rather well built, but muscles flabby; tongue coated and throat dry. General neurological and orthopedic condition normal, hip joint and sacroiliac joint normal. Pressure over sciatic nerve in middle of thigh reveals slight tenderness, but no other signs of sciatic involvement. Skiagraph shows sacralization of the fifth lumbar vertebra, but pelvis is otherwise normal. Extreme tenderness over gluteus medius and some over the gluteus maximus. Lasègue's sign positive; but pain is referred to gluteal muscles. Was treated by massage, but at end of one week tenderness was increased and gluteus medius and tensor fasciæ femoris on opposite side were also tender. There was also more tenderness over left sciatic nerve. A left spica plaster cast was applied and worn for three weeks. Was given small doses of sodium salicylate as intestinal antiseptic. Cast removed and deep massage begun November 27, 1914. Limp disappeared and cane discarded twelve days later. The masseur combined muscle stretching with the kneading. His after history is one of gradual improvement. The first week in January, five weeks after treatment was begun, he could walk three miles without pain, though he had some soreness in the affected muscles afterward.

Of the remaining ten cases some have been discharged cured, some have disappeared, and the others are still under treatment. It is somewhat difficult to keep clinic patients under observation, for as soon as their severe pains are relieved some of them disappear.

Bearing in mind the mechanics of the glutei, and especially of the medius and minimus, it will be observed that all of these patients were calling these muscles into play for unusual effort. As a group, the glutei are chiefly concerned in maintaining the trunk erect on the lower extremities or of raising it from the stooping position. The gluteus medius and minimus are important rotators of the trunk upon the hip when the leg is fixed, or of the thighs when the trunk is a fixed point. Therefore in lifting heavy weights when the body is flexed, in turning the trunk upon the thigh while bearing a heavy burden, in lifting at a lateral disadvantage or carrying weights on one side, there is placed upon the glutei a severe strain which may be sufficient to cause a myositis in a flabby muscle. It is our experience that a single strain does not give rise to this condition, but that it is a repetition of the injury to a muscle which has been overtaxed and has not recovered from its initial lameness which produces disability.

In reviewing the reports of these six cases (and the same is true of the remaining ten cases) several features appear with noticeable prominence:

1. Though in many of these patients the muscles in general were fairly well developed, yet in all of them the muscles of the limbs and lower trunk were soft and flabby, showing lack of exercise—the "sedentary" muscles.

2. The work of many of them required frequent repetition of certain movements (twisting the body or stooping, or lifting heavy weights, or carrying weights on one side) as in Cases I., III., IV. and VI.

3. About one-third of these patients gave a history of indigestion and constipation, but the majority were free from symptoms of digestive disturbances which might cause intestinal toxemia.

4. In the entire sixteen cases the diagnosis was not made in previous examinations. Sciatica was the explanation of the symptoms and treatment for sciatica, varied as it was, did not give relief.

5. Acute rheumatism was not a forerunner or a cause in any case. Careful histories of all patients were taken, though many negative points are omitted in the synopses given. In none of them were influenza, "colds," or sore throat of sufficiently recent date to be considered as a cause.

In our opinion the cause of this gluteal myositis is excessive strain placed upon muscles which are in a condition of hypotonus, or in other words, excessive use of muscles which are below par. Thus in Case IV., a waiter (who carried heavy piles of dishes on left arm) excessive use of the gluteus medius and minimus was required to hold the trunk to the left side in order to maintain balance. In Case VI. (a man who frequently lifted heavy packages of papers) the gluteus maximus was extensively used to raise the trunk and the pain later appeared on the opposite side. Of course in persons of vigorous physical habits, such strains or excessive use would have no ill effects on the muscles, but none of our patients was of this type. In two of the cases reported, Nos. V. and probably VI., and also in some of the remaining ten cases, we do not exclude autointoxication, as evidenced by coated tongue, dry throat, history of indigestion and constipation, as a predisposing factor, though it certainly was not the cause. The majority of the cases had no digestive trouble, and the other muscles were free from pain and soreness.

In three of the sixteen cases, No. VI., and two others, symptoms of sciatica later appeared. This was probably due to compression of the nerve by the inflamed muscles or to extension of the inflammation to the nerve sheath. The late development of the nerve symptoms tends to confirm this view. However, the nerve involvement was slight, although the pain was severe and extended down into the ankle and muscles of the calf. For two or three days rest in bed removed the pain, so that massage and stretching of the gluteal muscles could be resumed. In the other cases there were no symptoms of involvement of the nerve at any time.

No attempt was made to secure sections of the muscles for laboratory examination, as it has been shown that excision may cause changes in the muscular tissue secured and render study of it valueless.

Of the conditions other than sciatica to be excluded in arriving at a diagnosis of myositis are: coxitis, inflammation of the lumbosacral ligaments, osteoarthritis of spine or hip, neuritis of the superior gluetal nerve and sacroiliac joint disease. Neuritis of the gluteal nerve is determined by pressure over its point of exit from the sciatic notch under the posterior border of the gluteus medius and by the fact that neuritis rarely occurs in this nerve alone without involving other nerves of the lumbosacral plexus. Disease of the sacroiliac and hip joints may be excluded by the usual clinical tests and the *x*-ray.

Treatment.—The treatment that we have found most satisfactory for this condition is massage, deep and hard, carried out over a period of weeks. General massage is useless and ordinary massage or rubbing of the affected muscles is of little benefit. Massage must be of the kneading type and as severe as the patient can stand. In those cases where the pain and tenderness was so marked as to exclude massage, we achieved good results by enclosing the affected hip in a plaster-of-Paris spica which was worn until the acute soreness had disappeared, as in Cases Nos. III. and VI. Deep massage was then begun and could be borne without great discomfort. Those patients suffering from gastrointestinal disturbances were treated by appropriate remedies and regulation of diet. Many of these patients, owing to the pains long endured before the condition was recognized, became decidedly neurasthenic. Case No. VI. came into the clinic with a cane, limping and unable to stand erect, and with the most extreme tenderness in the affected muscles. After weeks of treatment and long after he had discarded his cane and limp could endure severe kneading of the gluteal muscles, and walked three miles daily without pain, he assured us he felt "about the same."

After all tenderness and soreness of the muscles have disappeared there will remain some stiffness, due probably to hyperplasia of the tendinous structures of the muscle. This is combated by muscle stretching and various gymnastic movements which readily suggest themselves and can be carried out by the patient in his home.

In several stubborn cases, as useful adjuvants to massage, we have employed hot baths, applications of dry heat and strong static sparks; but in the main we rely solely upon massage.

Summary.—There is a type of inflammation of the muscles of the hip, especially of the gluteus medius and tensor fasciæ femoris, and less frequently of the gluteus maximus, which has not in the past been generally recognized. These cases present certain prominent symptoms common to all of them which are more or less disabling, and they possess an especial interest by reason of their almost constant confusion with sciatica and also by the fact that treatment instituted for sciatica will not cure them.

Gluteal myositis is not "rheumatic" in origin, is not a sequel of influenza, tonsillitis, faulty posture in bed, and is not dependent on gastrointestinal disturbances. It is due to excessive strain placed upon muscles which are unfitted to bear it. The treatment is deep massage, vigorously continued until all soreness has disappeared. Of our sixteen cases, in which the condition had been present for a period varying from several days to several months, a number were cured in two to three weeks, but the majority required four to ten weeks of treatment.

The frequency of the occurrence of myositis is indicated by the fact that since concluding our observations on the sixteen cases referred to above, twelve others have come under treatment, all of which had previously gone unrecognized. So numerous have these cases become in our field of observation that we feel justified in urging the examination of all patients complaining of symptoms in the sciatic nerve, or about the sacroiliac or hip joints, for the presence of myositis of the glutei.

The foregoing is of the nature of a preliminary report which will be amplified later with deductions from a larger series of cases.

REFERENCES.

1. Stockman, R.: *Edinburgh Med. Journ.*, 1904. Vol. XV, N. S. p. 107.
2. Knowles, R.: *Lancet*, Lond., 1911. Vol. I, p. 734.
3. Gowers, Wm. R.: *Brit. Med. Journ.*, 1904. Vol. I, p. 117.
4. Telling, W. H. M.: *Lancet*, Lond., 1911. Vol. I, p. 154.
5. Petren, Karl: *Rev. of Neur. & Psych.* Edin., 1909. Vol. VII, p. 305.
6. Luff, A. P.: *Lancet*, Lond., 1910. Vol. 1, p. 712.
7. Yawger, N. S.: *Univ. Penna. Med. Bull.*, 1910-11. Vol. XXIII, p. 321.
8. Knapp, M. L.: MEDICAL RECORD, N. Y., 1912. Vol. LXXXI, p. 1137.

HISTORY OF A CASE OF JACKSONIAN EPILEPSY.*

BY VICTOR E. WATKINS,

FIRST LIEUT. MEDICAL RESERVE CORPS, U. S. ARMY, HENRY BARRACKS, CAYEY, PORTO RICO.

THE following case of Jacksonian epilepsy presents some unusual features, particularly with reference to the acute onset of the condition, the steadily increasing frequency and severity of the convulsions, and the prompt disappearance of all symptoms upon removal of the cortical irritation.

A. B., private, admitted to the Post Hospital, Key West Barracks, May 20, 1914. Family history negative. In April, 1909, he was injured on the left side of the head by the premature explosion of a blast in a coal mine at Wilkesbarre, Pa. He was rendered unconscious and taken to hospital where he was operated on for fractured skull. Was in hospital four weeks. Patient states he had two fits in one day in 1912, which he attributes to drink. Records show he was admitted to this hospital April, 1912, diagnosis, "Acute alcoholism." Present illness. Was taken suddenly with convulsions at his home outside of post about 3.00 P. M., May 19, 1914. Had been on duty in company kitchen up to noon of that day. On admission he was having frequent convulsive seizures involving corner of mouth, right side, right eyelid, right arm, and *left* leg, and then becoming general in character. There was a large depressed scar 1½ inches posterior to and 1¾ inches above the external angle of the orbit on the left side. Heart and lungs normal. Diagnosis. Jacksonian epilepsy.

Patient had not been feeling real well for three or four days prior to beginning of attack, but had continued at his duties as company cook. He went home (he is married) shortly after noon on May 19, 1914, at about 3.00 P. M. that day was taken with severe and frequent convulsive seizures.

May 20, 1914.—Partial paralysis, right side. Mental condition dull; would protrude tongue when told to do so, and would answer simple questions. Convulsions were frequent and severe and invariably took the following order: (*a*) twitching of muscles corner of mouth, right side; (*b*) twitching of right eye lid; (*c*) contraction of brow; (*d*) turning of head strongly to right; (*e*) raising of right arm above head with slight flexion of elbow; (*f*) raising of left leg with slight flexion of knee; (*g*) twitching of right thigh and leg with marked extension of right foot; (*h*) general severe convulsive movements of entire body.

There was no frothing at the mouth, no biting of tongue, and no loss of consciousness after fit, the attack ending in a deep sighing respiration and deep flushing of face. No deviation of tongue or other evidence of facial paralysis.

May 21.—Complete loss of voluntary movements on right side of body. Retention of urine; bowels constipated. Convulsions became more frequent and severe. Mental condition very dull. Would protrude tongue when asked *any* question. While he would not talk, speech was not lost as he uttered articulate words when being catheterized. Patient's general condition growing steadily worse and convulsions occurring with greater severity and more often, operation was decided upon.

May 22.—Operation at 11.30 A. M. Anesthetic, ether.

*Published by authority of the Surgeon General of the Army.

Scalp was laid back, exposing skull under old scar (see above) and skull trephined in two places ¾ inch apart over the lower part of the motor area, left side. Intervening bone removed and also small piece of bone immediately in front of anterior trephine opening. This procedure exposed a cyst about the size of a small hen's egg, located approximately at lower end of precentral gyrus. Cyst was opened and drained. Patient stood operation well and came out from anesthetic without nausea.

May 23 and 24.—The mental condition and paralysis remained about the same. Convulsions recommenced at 7.45 P. M. the day of the operation, and continued with increasing frequency. There was considerable discharge of serum from the wound during the first 24 hours.

May 25.—The convulsions were progressively more frequent and severe this morning. The regular order cited above was followed, but the face instead of being flushed at the end of the convulsion became cyanotic. They were so frequent at times as to appear to be continuous. Drainage from the wound had practically stopped, and it was believed that the cyst had refilled. The scalp flap was laid back under ether, the intention being to excise the cyst completely, but profuse and alarming hemorrhage occurring, the cyst contents were quickly but thoroughly evacuated by the finger, and the cyst cavity packed with gauze. Recovery from anesthetic uneventful. Patient had a convulsion at 10.55 A. M., and another, not very severe, at 1.20 P. M.

May 26.—Patient voided urine voluntarily this morning for the first time since admission to hospital. Slight voluntary movements of right leg. Mental condition confused, but patient talks. He developed a polyuria, voiding 3,120 c.c. in 24 hours. No abnormal constituents. Dressings saturated with serum. Had a very slight convulsion at 12.10 P. M. Bowels moved voluntarily at 3.00 P. M.

May 27.—Quite free movement of right leg, and slight movements of right arm this morning. Mental condition much improved, and patient talks intelligently, but memory for present events impaired. Polyuria continued today. Urine voided and bowels moved voluntarily. No convulsions. Dressings saturated with serum.

May 28.—General improvement in patient's condition. No convulsions today.

May 29.—Improvement continued; free use of right arm and leg. Gauze packing removed from cyst cavity, without anesthetic, no hemorrhage, but escape of large quantity of serum. No convulsions today.

May 30.—Dressings saturated with serum this morning. Polyuria not so marked. No convulsions.

May 31.—Escape of much serum into dressings. Has free use of right arm and leg, but cannot coordinate for finer movements, as writing. Mental condition good and memory returning. No convulsions. Urine normal in quantity.

The patient's condition improved rapidly from day to day, and by June 5 he had free and normal use of all his faculties, including coordination for writing and other finer movements.

The cyst cavity was kept packed with gauze until all discharge of serum ceased, when the gauze was removed and scalp wound allowed to heal. During the height of the convulsions full doses of bromide and morphine, and inhalations of chloroform and amyl nitrite were administered, but without effect either upon the force or frequency of the attacks.

Patient has no recollection of being brought to hospital. The aura in this case was the twitching of muscles at the corner of the mouth, right side, the patient stating that, at the beginning of the attack, he realized when a convulsion was coming on by this sign. He was returned to duty June 22, 1914.

Attention is invited to the following points:

1. The sudden onset of the convulsions.

2. The rapidly increasing frequency and severity of the convulsions. He had 256 convulsions from admission to hospital until secondary operation.

3. The prompt disappearance of the convulsions after thorough evacuation of cyst contents. He had a convulsion at 10.55 A. M. May 25, about five hours after operation, another slight one at 1.20 P. M., same day, and a third and last one, amounting to nothing more than a slight muscular tremor, at 12.10 P. M. the day following.

4. The rapid disappearance of the mental symptoms and of the paralysis.

5. The failure of drugs either to control or to modify the force or frequency of the convulsions.

6. The transient polyuria.

The patient has been under observation for ten months since operation, the last nine months performing all his duties as a soldier. His mental and physical condition is normal and there has been no return of the convulsions, which would seem to show that in acute cases of Jacksonian epilepsy the "epileptic habit" is not necessarily developed.

This case illustrates the fact that the motor area of the brain can adapt itself to very slowly increasing pressure without symptoms, the cyst in this case reaching considerable size before cortical irritation was manifested by convulsions.

While observation of this patient extending over a period of two years or more can only determine what the ultimate result will be, it is believed that the acuteness of the condition and the prompt and complete disappearance of the symptoms, makes a favorable prognosis justifiable.

SUGGESTION NARCOSIS.

By A. L. BECK, M.D.,

AND

A. W. HOYT, M.D.,

NEW ROCHELLE, N. Y.

THE intention of the case recorded below was to secure the nerve blocking of Crile by mental rather than material means; to reduce to a minimum the impression on the brain through the eye and ear through direct contact; to narrow the mental horizon.

The patient was a young woman, age seventeen, extremely nervous, easily upset by little things. In June, 1912, developed bronchial asthma. At that time was in poor condition physically, thin, anemic, constipated, and nervous.

The nose was first examined in October, 1912, for the purpose of determining whether or not a nasal abnormality was an etiological factor which might give rise to the asthmatic attacks. The nasal septum was seen to be markedly deviated and there was moderate enlargement of the right middle turbinate bone, with contact between it and the septum. Nasal breathing was very much impaired.

On account of poor general condition of the patient, and an unwillingness to undergo any extensive operation, it was thought best to see what could be accomplished by the simple procedure of removing the anterior third of the right middle turbinate to relieve the pressure. This was done under anesthesia with cocaine 4 per cent. and adrenalin. The operation was a trying one, owing to the weeping, sudden movements, and general lack of control of the patient. The after effects were those of extreme shock and prostration, causing much anxiety at the time. The patient was told that, although she might look for some relief, which in fact she obtained, more would have to be done to be of any permanent benefit. The patient was not seen again for sixteen months, during which time she continued having asthmatic attacks with, perhaps, diminished frequency. During this period of time, we were informed, an intranasal operation was attempted by another surgeon, but was abandoned, as the patient went into collapse during the preliminary packing.

Early in March, 1914, the patient returned to us and sought consultation, and stated that she was willing to undergo an operation, providing a general anesthetic be administered. This indicated plainly the mental attitude of fear of operation. While a submucous resection of the septum has been and is being performed under general anesthesia, it is never as smooth an operation as when done under local anesthesia with the addition of adrenalin, owing, of course, to the bleeding which occurs under general anesthesia.

Therefore, we decided to use suggestion or hypnosis, combined with the usual method of packing with a cocaine substitute and adrenalin, owing to extremely poor general condition and the obstacles to which general anesthesia give rise.

Preliminary hypnotic condition was induced March 26, 1914, with post hypnotic suggestions of good sleep at night, calm mind and freedom from anxiety about the operation to be performed two days later.

At the time of the operation, patient was hypnotized in reception room and walked to operating room; nose was packed with cotton pledgets saturated with a solution consisting of alypin 10 per cent. and adrenalin 1/8000. During the resection of the septum and removal of the remaining portion of the right middle turbinate, the patient would speak from time to time. Some of her expressions were "That stuff is running down my throat," "My throat is dry," "You can't get the bone out and I am glad," "There goes the bone and I don't care." On being told to go more deeply asleep, she replied, "I would if they would stop fussing with my nose." This "fussing" was the removal of pieces of the ethmoid plate where the anesthesia was not deep, and also the removal of the maxillary spine, where pain is often felt. The operation lasted over two hours, including preliminary packing. During this time the face had a good color, and the lips red, in fact, color was deeper than normal, pulse regular and full at 96. It seemed to us that bleeding during the operation was freer than in the usual submucous resection done under cocaine. Whether this was due to cerebral congestion from the hypnotic condition, or from the alypin, we could not determine. At the completion of the operation the patient was removed to an adjoining room and was aroused. Ten minutes later she walked to a taxicab, rode home and then walked up one flight of stairs to her bedroom; all this in a perfectly calm mental condition. Convalescence was uneventful. It appeared that the non-observance of mental impression during the operation was about what one gets under light general narcosis by ether or chloroform where the patient may cry out and complain but later denies that he knew anything of the passing event, with the advantage that the postoperative condition is infinitely better.

This case is reported that other operators, with difficult cases, may not overlook this efficient aid.

On March 17, 1915, the patient was requested to present herself at the office. She asserts that her breathing became excellent as a result of the operation, but that it was several months after the operation before she realized the great benefit to her general health. At the present time she weighs 130 pounds, has lost the pallor of the skin, has a good appetite, sleeps well, and has had no more asthmatic attacks. This has all been verified by her family physician who has been called occasionally to see other members of the family.

Hallaver found this method effective in 90 per cent. of more than three hundred cases in Strassman's gynecological clinic in Berlin for curetting, dilation of cervix, removal or retained membranes after abortion, amputation of cervix, replacing a retroflexed uterus, cauterization of carcinomata and caruncles, and many others.

In obstetrical cases this method has proved of value, "even very nervous cases lying quietly and comfortably during the painful second stage of labor, and neither then nor afterwards having any appreciation of the pain of childbirth." Combined with the initial hypodermic of the twilight sleep, this method should be ideal. The memory of pain would be annulled, shock would be avoided and duration of labor would be decreased instead of increased, with consequent benefit to the child.

Medicolegal Notes.

Malpractice—Excessive Damages.—A doctor who is called to treat an injured person cannot be held to answer for the suffering caused by the original injury, but only for the suffering caused by his own negligent acts. The original injury, in so far as the attending surgeon is concerned, is as if it were self-inflicted. All hurts requiring surgical care are presumptively painful and tormenting. In an action for malpractice in not seasonably setting a fracture of the femur it was held that it can be judicially noticed that a compound fracture of the lower limb and a fracture of the femur are painful hurts, and will occasion long suffering although treated with the best of surgical skill. It was held that the defendant was not responsible for the original injury, or an infection which prolonged the healing of the lower fracture indefinitely and which made a surgical operation upon it necessary, or for the six to twelve weeks during which the bones might have knit under the most skillful treatment had there been no infection. Commenting upon the jury's award of $7,385 the appellate court said that it was constrained to believe that the jury, in pity for the plaintiff, visited the whole consequence of her hurts and suffering upon the defendant without appreciating the demand of the law that the plaintiff bear her share of what the court called "the misfortune which angry chance threw over the unlucky parties to the action." The verdict was held to be excessive to the extent of $2,000.—Cranford vs. O'Shea, Washington Supreme Court, 145 Pac. 579.

Cause of Injury—Evidence—In an action for personal injuries caused by falling into an unprotected excavation the testimony showed a complicated, compound, comminuted fracture of the left leg between the knee and the ankle, a resulting hernia, and, on the plaintiff's theory, that one of his testicles had been driven by the accident up into his abdomen and remained there at the point of the hernia. The medical testimony showed that nothing short of an operation would put the dislocated testicle in the place nature designed for it; but there was no testimony tending to show that an operation was either necessary or advisable to protect or restore the integrity of its normal function or that its present condition was dangerous to health, inconvenient, or tended to make it functus officio. It was therefore held that an instruction on the reasonable probability or necessity of future medical service to replace it, as an element of damages, was unwarranted. The defendant's argument was that the accident did not (and could not) cause the dislocation. It rested this argument on the fact that the doctors testified they never read of or saw an incident of the kind; that the size of the usual canal excluded the idea that the testicle could be driven by force from nature's sack up and into the abdomen through this canal. The medical theory was that the progress of the testicle down had merely been arrested in the fetal stage and that it had never been in place. This testimony was negatived by the plaintiff's mother, and other witnesses testified that before the accident the plaintiff was normal in this particular and abnormal ever afterward. The court held the question to be one of fact for the jury, which found for the plaintiff.—Sang vs. St. Louis, Missouri Supreme Court, 171 S. W. 347.

Medical Record.

A Weekly Journal of Medicine and Surgery

THOMAS L. STEDMAN, A.M., M.D., Editor

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

See fourth page following reading matter for Rates of Subscription and Information for Contributors and Subscribers.

New York, June 26, 1915.

STUDIES ON HUMAN GROWTH.

There is no topic in human physiology more fascinating than that dealing with the laws of growth, a topic to which increasing attention has been paid within recent years. In view of the ease with which simple mathematical methods can be applied in the study of this subject, it is surprising that the laws of growth were not definitely formulated a long time ago. Probably this very ease has not furnished an adequate stimulus for scientific investigation.

In a study of the pre- and postnatal growth of infants, T. Brailsford Robertson (*American Journal of Physiology*, April 1, 1915) first calls attention to the varying rapidity of growth which first takes place relatively slowly, then more rapidly, and then again more slowly, as may be represented by an S-shaped curve. In fact, two or more curves of this nature may be superimposed upon one another during the entire period of growth, each curve characterizing what the author terms a growth-cycle. The extrauterine growth of the human being comprises two growth-cycles and a portion of a third which begins during intrauterine life. Read has shown that the intrauterine life of the guinea-pig consists of one whole growth-cycle and a portion of a second, which continues after birth. The junction of the two cycles represents a critical period during which death and premature delivery are more apt to occur than at any other time. Robertson sought to determine whether a similar critical period occurs in the intrauterine growth of the human infant, using for this purpose the statistical records of a maternity hospital in Adelaide, South Australia.

It was found that there is apparently no indication of more than one growth-cycle during the intrauterine growth of man subsequent to implantation of the ovum. This cycle is interrupted by birth when it is not yet half completed and culminates towards the end of the first year of postnatal life. Its magnitude is equal in the male and female, but it is of slower development in the latter. Robertson states that there are probably four and certainly not less than three growth-cycles in the normal development of man, as follows: (1) A very brief, so-called "autostatic" cycle probably preceding implantation of the ovum, during which the growth is chiefly nuclear and is accompanied by a decrease of phospholipenes in the tissues. (2) An "autokinetic" cycle lasting from nearly the beginning of development until nearly the end of the first year of extrauterine life and accompanied by the production of tissues unusually rich in phospholipenes. This period of growth acquires its maximum velocity at 1.66 months in males and 2.47 months in females. (3) The next cycle starts during or close to the completion of the first year of extrauterine growth and partially fuses with the suceeding cycle. It attains its maximum rate at about 5.5 years in both sexes, and since it is accompanied by a diminution of the phospholipenes in the tissues it is characterized as belonging to the "autostatic" type. (4) The final cycle, with a maximum velocity at about 14.5 years in females and 16.5 years in males, culminates in the attainment of adult weight and is believed to be "autokinetic."

There is no evidence of any critical period in human intrauterine development at which maldevelopment and premature delivery are more liable to occur, in infants born by normal mothers, than at any other period in intrauterine life. On the other hand, there is such a critical period in the latter half of the first year of extrauterine life, during which period an exceptional proportion of infants are liable to be subnormal in weight, and manifest an increased susceptibility to certain zymotic diseases. The suggestion is made that this critical period is probably attributable to a certain difficulty with which the two growth cycles which meet at this period "link" up with each other. Apparently the change from one growth cycle to a succeeding one is coincident with profound changes in metabolism that may for the time disturb the vital equilibrium.

THE LOCAL ACTION OF LEAD.

Although lead poisoning appears in several forms it is such a familiar condition that it is usually fairly readily recognized, the diagnosis often being made by the patient or his friends. An acute general intoxication does not seem to exist, the so-called acute cases being in reality chronic cases in which the patient is especially susceptible and suffers from more severe symptoms. The lesions which have been found in lead poisoning have been of a chronic nature, have progressed to sclerosis, and therefore the method of their production has not been determined.

In a recent paper (*Jour. Med. Research*, 1915, xxxii, 271) McJunkin details the results of some experimental work which helps to elucidate this point. Lead like many other metals forms an insoluble compound with protein so that the lead is precipitated on gaining access to the cells or fluids of the body. McJunkin gave lead by mouth to more than seventy-five dogs, monkeys, rats, guinea-pigs, and rabbits, and made post-mortem examinations after from six hours to 236 days. The results were quite uniform, the animals showing lesions in the gastrointestinal mucous membrane, the liver, and the blood. He showed that the lesions in the gastrointestinal tract consist in a necrosis of the mucosa which is rapidly repaired, in one case at least, within seventy-two hours. The epithelium grows

over the surface, leaving the lead in place beneath it. Granules of lead are shown taken up by the endothelial leucocytes in the mucosa and it eventually is removed entirely in this manner. After about three days it becomes difficult to demonstrate the lead within the leucocytes and at about this time hyaline basophilic granules appear in the cells of the liver and the red cells of the blood. By treatment with an alkaline sulphide solution he was able to show that these granules contained lead.

Since it seems improbable that the particles of precipitated lead work their way into the liver cells from the leucocytes, the author advances the theory that in the leucocytes the insoluble lead albuminate is changed into a compound, probably a lead alkyl, which is soluble in albuminous fluids and in which form it passes into the blood and liver producing basophilic granulation. He is unable to explain the absence of lesions in other organs. There is a question of the necessity of advancing such an hypothesis. It is quite possible that lead is not precipitated *absolutely* quantitatively by albuminous fluids, and exceedingly small quantities of the metal are sufficient to produce poisoning provided that it be administered over a long period of time. The apparent demonstration that by means of the leucocytes the poison is distributed through the body is interesting. The process is probably analogous to that which takes place in other conditions. So far as we are aware this is the first time that it has been shown that the basophilic granules in the red cells in lead poisoning contain metallic lead or a compound of it.

A NATIONAL MEDICAL LICENSING BOARD.

For many years, from the very beginning, in fact, of the movement for State medical examination and licensure, the inconveniences and evils of a State board have been recognized, but have been thought to be inseparable from the system itself. Our peculiar form of government, with its confederation of forty-eight largely independent republics, makes uniformity of laws dealing with domestic matters practically impossible. A man may be legally crazy in one State and sane in another; he may be lawfully married in one and an adulterer or a bigamist in another, and, if engaged in the practice of medicine, he may be an honorable physician in one and, in the eyes of the law, a quack in another. Many attempts have been made to induce the States to adopt uniform qualifications and to inaugurate a policy of genuine reciprocity, so that a legal practitioner in one State may be admitted to practice without further examination in another. But all such attempts have failed, of necessity, and all suggestions of a federal regulation have been silenced by the fact of the unconstitutionality of any such measures.

The attempt is now about to be made, however, to establish a system of national licensure by grace of the States. In his presidential address before the American Medical Association, meeting in San Francisco this week, Dr. Rodman described the plan which is to be inaugurated in the autumn. According to this, the details of which are given in our report of the meeting in another column, a national board of medical examiners, of which the surgeons general of the U. S. Army, Navy, and Public Health Service, with representatives of the Confederation of State Boards of Examiners, the Association of American Medical Colleges, the American College of Surgeons, and the American Medical Association, will be members, will meet in Washington in October, to examine such candidates as may present themselves. There is no doubt that the man who succeeds in passing this examination will be fit to practise medicine in any State of the Union, but whether or not he will be allowed to do so will depend upon the will of the several State boards. Some of these are forbidden by law to admit anyone to practice without an examination, and in such cases a change in the law will be necessary if the plan of a national licensure is to become universally effective; in other States the boards have discretionary powers to grant licenses to practitioners from other States or countries without examination, and these, if they will, can at once give standing to the licentiates of the national board. In Canada there is a national board of examiners, as well as provincial boards, and the latter all accept the examination of the national board and recognize its licentiates. That such unanimity will prevail at once in the case of all our States is hardly to be expected, but even if only twenty of the largest and most populous of them agree to the plan, the success of national licensure will be assured. No one who stops to consider the many disadvantages of the diversity of our State medical license laws can help wishing this project every measure of success.

HEART DISEASES IN THE GERMAN ARMY.

The so-called "cadet heart" has long been known, at least by reputation, to American physicians, and it is self-evident that in warfare heart strain due to forced marches and other physical hardships should be in evidence just as in civil life. It cannot be justly claimed, however, that the strain on the soldier's heart is so persistent as that in many peaceful occupations; while the clothing of the rank and file in actual warfare is quite unlike the heavy, rigid, and oppressive uniform of cadets on parade.

In a recent session of the Hamburg Medical Society (*Münchener medizinische Wochenchrift*, April 13) Reiche announces the results of physical examination of a large number of soldiers. The proportion of those with positive cardiac finds is not stated, but three distinct types are given. No comment is made of the fact that some of the troops had cardiac lesions before the war. The second class of lesions developed during the war. These include acute, at times fatal, dilatation, but also lessening of the heart shadow. Dilatation affects the right heart most frequently. As a rule these affections of the myocardium recover readily under treatment and rest. Digitalis and strophanthus are indicated. In a third group the state of the heart is a functional one, secondary to one or several cooperating factors, as tuberculosis, Graves's disease, alcoholism, nicotism, and essential neurasthenia. It

is very difficult to discriminate between the neurogenic and myogenic types, although in the former there is no alteration in the size of the shadow. In the purely functional type the patient has a neuropathic substratum, as shown by a rapid, irregular pulse. There is usually a systolic murmur over the pulmonary artery which nearly or quite vanishes on inspiration. The author ascribes it to friction of the pericardium against the wall of the chest. Pressure points are discovered over the latter and slight compression of the apex with the finger will cause alterations in the pulse. Digitalis is contraindicated, while bromides are useful. The word "heart disease" should never be uttered in the patient's presence, else he may develop a fixed idea of a serious condition.

Tetanus Neonatorum.

Within a very recent period several cases of this supposedly incurable condition have responded successfully to treatment, which consisted of or included the use of magnesium sulphate. In the *Deutsche medizinische Wochenschrift* for April 22, we find a belated account of a discussion on this affection which took place just before the breaking out of the war. Czerny laid stress upon the fact that tetanus bacilli are not found in umbilical infection of the newly born, but was set right on this point by Baginsky who remarked that Kitasato had found the bacilli in pus from the navel. Finkelstein stated that trismus nascentium so-called was by no means always a tetanus and was often due to skull traumatisms and encephalitis. Further the geographical pathology bas been neglected. Tetanus (infectious) of the newly born is rare in Germany, but common in Roumania. Negative bacillary finds signify but little in the presence of positive finds of other sorts. Czerny in alluding to cases in the tropics adds that umbilical antisepsis has not prevented tetanus. He has been on the hunt for tetanus germs in the navel for twenty-two years and has yet to find one. Tetanus of the newly born is not due to infection in the ordinary sense but belongs under the nervous affections. The consensus of opinion appeared to be that this question should be left open. The influence of magnesium in such a neurosis could be readily understood. None of those who discussed the paper threw any light on the alleged neurotic tetanus of the newly born, with reference to its intimate nature, and they left undetermined the question of its bacterial origin.

Animal Venoms and Venomous Animals.

Many singular data come to light as a result of the study of serpent venoms. The sting of the Bosnian sand viper causes an ulcer which may become cancerous. Since venoms proceed from glands which are analogous to human salivary glands it is not surprising to learn that the venomous secretion belongs to the normal digestive fluids. To diminish the number of venomous snakes in a locality the mice, rats, etc., upon which they feed may be exterminated while animals which prey on snakes may be colonized—the mongoose, hedgehog, hawks, storks, pigs, and even other snakes (constrictors). At the last meeting of the Breslau Medical Society before the war outbreak (*Deutsche medizinische Wochenschrift*, April 15), Professor Küttner, the well-known surgeon, cited the above and many other data. Under the old and present nomenclature the lesions due to animal poisons are regarded as purely surgical subjects, because surgical intervention and wound treatment are alike demanded. The advent of snake antisera, new chemical remedies, etc., does not lessen the surgical predominance of treatment. Küttner states that cupping is of no use, while among chemicals only some of the hypochlorites have any value (potassium, calcium). Constriction of a limb is a valuable resource. Horse serum slightly impregnated with snake venom and Calmette's sera have given some good results, even in advanced cases.

News of the Week.

Committee of American Physicians for the Aid of the Belgian Profession.—Dr. F. F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Pa., reports the receipt of the following contributions during the week ending June 19, 1915:

Dr. L. O. Tarleton, 1st Lieut., U. S. A., Manila, P. I.	$5.00
Norwich Medical Association, Norwich, Conn.	25.00
Westmoreland County Medical Soc., Mount Pleasant, Pa.	25.00
Elmira Academy of Medicine, Elmira, N. Y.	50.00
Dr. Angus McLean, Detroit, Mich.	30.00
Receipts for the week ending, June 19th	$135.00
Previously reported receipts	7,312.00
Total receipts	$7,447.00
Previously reported disbursements:	
1,625 Standard boxes of food at $2.20	$3,575.00
1,274 Standard boxes of food at $2.30	2,930.20
353 Standard boxes of food at $2.28	804.84
Total disbursements	7,310.04
Balance	$136.96

The Second Harvard Surgical Unit.—It was announced in the *Boston Medical and Surgical Journal* of last week that the second Harvard surgical unit was to sail from New York on June 22, aboard the steamer *Noordam* for Falmouth, Eng., for six months' service in British or French hospitals. The expedition consists of 32 surgeons and 75 nurses, the majority of whom have volunteered for the entire period of service.

Summer Courses in Public Health.—The New York State Public Health Council has sent a letter to all health officers urging that they take advantage of special courses of study in public health, to be given this summer by Cornell University, Syracuse University, the University of Buffalo, and New York University.

Pasteurized Milk Stations.—Ten additional pasteurized milk depots were opened last week by Nathan Straus. In addition to the supplying of modified and pasteurized milk in nursing bottles, ready to be given to the babies, the summer work includes the serving of a glass of pasteurized milk for one cent.

Heavy Sentence for an Illegal Practitioner.—A man named Schierson was sentenced last week to six months in the penitentiary for maintaining a "medical museum" in this city. He pleaded guilty and received the heaviest prison sentence that has been meted out by the court to any such practitioners, without the option of a fine.

Another Degree for Dr. Gorgas.—The honorary degree of Doctor of Laws was conferred upon Surgeon-General William C. Gorgas, of the United States Army, on June 15 by Georgetown University, in recognition of his work in the Panama Canal Zone.

Dr. Edward W. Ryan, chief of the American Red Cross in Belgrade, has been decorated by both the

Servian and French Governments for his work in the hospitals where typhus fever has been raging. France has made him chevalier of the Legion of Honor, the official order of the French Republic. Crown Prince Alexander himself bestowed on Dr. Ryan the Servian decoration of the Order of St. Sava. At the same time the Crown Prince expressed his appreciation of "this worthy and noble representative of the great western republic." Dr. Ryan is recovering from typhus, which he contracted while caring for the Servian patients.

Kansas State Board.—Twenty-two candidates passed the Kansas State medical examination in June and were admitted to practice in that State. At the close of the three-day session of the board on June 10 Dr. Anderson was reelected president and Dr. H. A. Dykes was reelected secretary. The other members of the board are: Dr. L. A. Ryder, Topeka; Dr. Albert S. Ross, Sabetha; Dr. F. D. Hatfield, Olathe; Dr. George M. Gray, Kansas City; Dr. C. W. Jones, Olathe.

Dr. Richard Strong who, with a party of surgeons and nurses from Serbia, arrived at the Piræus on June 17 aboard Sir Thomas Lipton's yacht *Erin*, was called by the Queen to see in consultation King Constantin, who has been suffering from empyema and has recently had to undergo an Estlander operation.

A Joint Meeting of the Medical Societies of the Counties of Allegany, Genesee, Livingston, and Wyoming (N. Y.) will be held at Letchwork Park, Portage Falls, on July 15. The members of the County Societies of Western New York other than those mentioned above are invited to be present. Drs. L. F. Bishop and W. S. Bainbridge of New York City will present papers. Letchworth Park is one of Nature's most beautiful spots in western New York and there will no doubt be a large attendance at this meeting.

The Rhode Island State Board of Health, at a meeting held on June 10, elected officers as follows: *President,* Dr. Alexander B. Briggs of Ashaway; *Vice-President,* Dr. Rufus E. Darrah of Newport; *Secretary,* Dr. Gardner T. Swarts.

The Missouri State Medical Association, at its annual meeting in May, elected Dr. C. R. Woodson of St. Joseph president. Soon thereafter there appeared in one or more of the St. Joseph newspapers the physician's professional card, giving his name and office address followed by the legend "Nervous Diseases." For this offense he was deposed by the judicial council of the association and Dr. C. B. Clapp of Moberly was appointed in his place. Dr. Clapp declined to serve and Dr. Woodson brought suit against the council on the ground that its action was illegal. Then the advertisement was withdrawn. The council admitted that its action was illegal because of the lack of a quorum and announced that Dr. Woodson had made reparation by acknowledging the wrong of advertising, the suit was discontinued, the unanimously elected president is again in office, and peace reigns.

New York's Death Rate.—During the week ending June 12, 1479 deaths were reported in this city as against 1365 for the corresponding week of last year, an actual increase of 114 deaths. If, however, the increase in the population is considered there were only 60 more deaths. The death rate for the week was 13.29 as against 12.75 for the corresponding week of last year.

Opposition to a New Health Bill in Wisconsin.—The Milwaukee County Medical Society, at its June meeting, adopted a resolution opposing certain provisions in the "public welfare bill," now before the State Legislature, which abolishes the State Board of Health, the State Board of Control, the State oil inspector, and the State Dairy Commission and substitutes a new board to be called the "Wisconsin State Board of Public Welfare," and to consist of a farmer, a woman, a physician, a dairyman, and a business man, each to draw a salary of $3,500 a year.

The Decreasing Tuberculous Mortality.—At the meeting of the National Association for the Study and Prevention of Tuberculosis in Seattle last week the president, Dr. George M. Kober of Washington, D. C., said that tuberculosis in all its forms carried off during the year 1913 over 143,000 persons in the United States, which signifies the presence of approximately 1,430,000 consumptives, with an economic loss of at least $214,500,000 per annum. "Nevertheless," he said, "there is certainly hope when we consider that the death rate from this disease has been reduced from 326 per 100,000 population in 1880 to 146.6 in 1913, which means that if the former rate had been continued the number of deaths from this cause would have been 322,027 instead of 143,000 in 1913, equivalent to a saving of 179,027 during one year." The membership of the association now numbers more than 2400.

Cancer Study Meetings in Vermont.—Several cancer study meetings were held recently in various districts of Vermont under the auspices of the Vermont State Medical Society. The first of these meetings took place at Rutland on June 8. Dr. W. Seaman Bainbridge of New York held a consulting and operating clinic at the Rutland Hospital. At Shrine Hall Dr. Charles Francis Dalton of Burlington discussed Vermont's cancer situation, Dr. Bainbridge of New York dealt with some practical phases of the cancer problem, and Dr. Jonathan Wainwright of Scranton, Pa., considered the field of the medical profession and the laity in the reduction of cancer mortality. In the evening at the Rutland High School Assembly Hall Drs. C. F. Dalton and Bainbridge discussed the cancer problem in relation to Vermont from other standpoints. On June 9 the meeting was at Burlington. Consulting and operating clinics were held at Mary Fletcher Hospital by Dr. Jonathan M. Wainwright, and Dr. Francis Carter Wood of New York, Dr. Wainwright, and Dr. C. F. Dalton, in the course of the day and in the evening discussed the cancer problem as regards Vermont. On June 10, at St. Johnsbury, a similar program was gone through and in addition Dr. Bainbridge gave a stereopticon cancer clinic. On June 11, at Montpelier, Drs. Wainwright, Dalton, and Bainbridge dealt with the question of cancer from various standpoints, and Dr. Bainbridge held a consulting and operating clinic at Heaton Hospital. Dr. James Hamilton, secretary of the Vermont State Society, chairman of the committee for the purpose of inaugurating a special campaign for the education of the profession and laity with regard to the cancer problem, was responsible for the organization of the several meetings.

Medical Society Elections.—THE AMERICAN PEDIATRIC SOCIETY, at the annual meeting held in Lakewood, N. J., May 24-26, 1915, elected the following officers: *President,* Dr. Rowland G. Freeman of New York; *Vice-President,* Dr. J. C. Gittings of Philadelphia; *Secretary,* Dr. Samuel S.

Adams of Washington, D. C.; *Treasurer*, Dr. Charles Hunter Dunn of Boston; *Editor and Recorder*, Dr. L. E. La Fetra of New York.

The American Surgical Association at its annual meeting of this association, held in Rochester, Minn., June 9-11, elected the following officers: *President*, Dr. Robert G. Leconte, Philadelphia; *Vice-Presidents*, Drs. Charles L. Gibson, New York, and Archibald MacLaren, St. Paul; *Secretary*, Dr. John H. Gibbon, Philadelphia; *Recorder*, Dr. John Binnie, Kansas City; *Treasurer*, Dr. Charles H. Peck, New York. Among the papers presented was one by Dr. J. Ewing Mears of Philadelphia, one of only two living original members of the association, on "The Great Names in American Surgery, Pioneers, and Founders." The 1916 meeting of the association will be in Washington in May.

The Rhode Island Medical Society held its annual meeting in Providence on June 4, and elected the following officers: *President*, Dr. Frank L. Day; *First Vice-President*, Dr. E. D. Chesebro; *Second Vice-President*, Dr. John Champlin; *Secretary*, Dr. Jay Perkins; *Treasurer*, Dr. Winthrop A. Risk.

The Maine Medical Society in annual session, held at Poland Spring in June, elected these officers: *President*, Dr. E. E. Holt of Portland; *First Vice-President*, Dr. H. B. Mason of Calais; *Second Vice-President*, Dr. Harry A. Snow of Milo; *Secretary-Treasurer*, Dr. John E. Thompson of Bangor. The 1916 meeting will be held at Portland.

The Connecticut State Medical Society, at its annual meeting held in Hartford in May, elected the following officers: *President*, Dr. Max Mailhouse of New Haven; *Vice-Presidents*, Drs. Charles B. Graves of New London, and Cushman A. Sears of Portland; *Secretary*, Dr. Melvin McR. Scarborough of New Haven; *Treasurer*, Dr. Joseph H. Townsend of New Haven; *Committee on Scientific Work*, Drs. Wilder Tileson of New Haven, and Frank W. Stevens of Bridgeport; *Committee on Medical Examinations and Education*, Dr. Charles A. Tuttle of New Haven; *Committee on Public Policy and Legislation*, Drs. Everett J. McKnight of Hartford, Charles J. Foote of New Haven, Rush M. Kimball of Norwich, W. H. Donaldson of Fairfield, George M. Burroughs of Danielson, Ralph S. Goodwin of Thomaston, Frank K. Hallock of Cromwell, and Eli P. Flint of Rockville; *Committee on Honorary Members and Degrees*, Drs. William H. Carmalt of New Haven, D. Chester Brown of Danbury, and Seldon B. Overlock of Pomfret; *Delegate to American Medical Association*, Dr. Everett J. McKnight of Hartford. Bridgeport was selected as the place for the annual meeting in 1916.

The New Hampshire State Medical Society, at its annual meeting held in Concord in May, elected the following officers: *President*, Edgar O. Crossman, Lisbon; *Vice-President*, Emdon Fritz, Manchester; *Secretary*, D. E. Sullivan, Concord; *Treasurer*, D. M. Currier, Newport; *Trustee*, H. L. Smith, Nashua; *Merrimack County Councilor*, R. J. Graves, Concord; *Hillsborough County Councilor*, F. J. Kittridge, Nashua; *Delegate to American Medical Association*, C. W. Hanaford, Portsmouth; *Alternate*, R. J. Graves, Concord.

Connecticut River Medical Association.—At the annual meeting of this association, held with the Windham County Medical Society at Bellows Falls on May 11, the following officers were elected: *President*, Dr. W. P. Craig of Walpole; *Vice-President*, Dr. L. H. Bugbee of Putney; *Secretary-Treasurer*, Dr. J. Sutcliffe Hill of Bellows Falls.

The Windham County (Conn.) Medical Society, at its annual meeting held with the Connecticut River Medical Association at Bellows Falls on May 11, elected the following officers: *President*, Dr. W. F. Hazelton of Bellows Falls; *Vice-President*, Dr. F. L. Osgood of Saxtons River; *Secretary-Treasurer*, Dr. G. R. Anderson of Brattleboro.

The Manchester (N. H.) Medical Association, at a meeting held on June 11, elected the following officers: *President*, Dr. Daniel C. Norton; *Vice-President*, Dr. Charles E. Flanders; *Secretary and Treasurer*, Dr. M. P. Badger; *Board of Censors*, Drs. M. P. Towle, J. C. O'Connor, M. P. Badger, W. H. Lyons, and J. E. Larochelle.

The La Salle County (Ills.) Medical Society, at its sixty-second annual meeting held in Ottawa on April 27, elected the following officers: *President*, R. C. Fullenweiden, La Salle; *Vice-President*, A. J. Weirick, Marseilles; *Secretary-Treasurer*, E. E. Perisho, Streator; *Board of Censors*, W. E. Smith, Grand Ridge; J. S. Geen, Utica; W. W. Greaves, Streator; *Delegate*, W. O. Ensign, Rutland; *Alternate*, E. W. Weis, Ottawa; *Medicolegal Committee*, E. W. Weis, Ottawa.

The Fifth District (S. C.) Medical Society, at its annual meeting held in Chester on May 21, elected the following officers: *President*, Dr. E. W. Pressley of Clover; *Vice-Presidents*, Dr. Samuel Lindsay of Winnsboro, and Dr. R. T. Ferguson of Gaffney; *Secretary and Treasurer*, Dr. George A. Hennies of Chester.

The Connecticut Homeopathic Medical Society, at its annual meeting held in New Haven on May 18, elected the following officers: *President*, Dr. George E. Evans, Branford; *Vice-President*, Dr. Eugene L. Bestor; *Treasurer*, Dr. Henry B. Sage of New Haven; *Secretary*, Dr. Richard Blackmore of Farmington.

The Worcester (Mass.) North District Medical Society, at its annual meeting in Fitchburg, April 27, elected the following officers: *President*, Dr. J. B. Donnelly of Gardner; *Vice-President*, Dr. A. A. Wheeler of Leominster; *Secretary*, Dr. Curtis H. Jennings of Fitchburg; *Treasurer*, Dr. Frederick H. Thompson, Jr., of Fitchburg; *Commissioner of Trials*, Dr. Frederick H. Thompson, Sr., of Fitchburg; *Councilors*, Dr. Charles E. Bigelow of Leominster, Dr. E. A. Sawyer of Gardner, Dr. Atherton P. Mason, and Dr. John W. Stimson of Fitchburg; *Nominating Committee*, Dr. E. A. Sawyer of Gardner; *Alternate*, Dr. A. P. Mason of Fitchburg; *Censors*, Dr. J. W. Stimson, Dr. A. P. Lowell of Fitchburg, Dr. A. A. Wheeler, of Leominster, Dr. W. F. Robie of Baldwinville, and Dr. B. H. Hopkins of Ayer; *Librarian*, Dr. A. P. Mason of Fitchburg; *Library Committee*, Dr. A. F. Lowell of Gardner, and Drs. L. F. Baker and F. H. Thompson, Jr., of Fitchburg.

The Berkshire District (Mass.) Medical Society, at its annual meeting in Pittsfield, April 29, elected the following officers: *President*, Dr. E. G. Howard of Pittsfield; *Vice-President*, Dr. A. K. Boom of Adams; *Secretary*, Dr. O. L. Bartlett of Pittsfield; *Treasurer*, Dr. J. D. Howe of Pittsfield; *Commissioner on Trials*, Dr. H. B. Holmes of Adams; *Councilor for State Nominating Committee*, Dr. L. A. Jones of North Adams; *Alternate*, Dr. J. H. Riley of North Adams; *Councilors*, Drs. E. H. Howard and Henry Colt of Pittsfield, L. A.

Jones and J. H. Riley of North Adams, and E. A. Kennedy of Great Barrington; *Supervising Censor*, Dr. Henry Colt of Pittsfield; *Censors*, Dr. William Gavin of Blackinton, Dr. George P. Hunt of Pittsfield, Dr. H. E. Stockwell of Stockbridge, and Dr. A. C. England of Pittsfield; *Nominating Committee*, Dr. E. W. Markham of Lee, Dr. B. W. Paddock of Pittsfield, and the secretary, ex-officio; *Committee of Arrangements*, Drs. A. P. Merrill and T. P. Hennelly of Pittsfield and the secretary, ex-officio.

Obituary Notes.—Dr. ALFRED MITCHELL of Brunswick, Me., emeritus professor of internal medicine in the Medical School of Maine, Portland, and dean of the school for many years, a graduate of the College of Physicians and Surgeons, New York, in 1865, and a member of the American Medical Association, the Maine Medical Association, of which he was at one time president, and the Cumberland County Medical Society, died suddenly on June 13, aged 78 years.

Dr. JOHN H. MCCOLLOM of Boston, emeritus professor of contagious diseases in the Harvard University Medical School, and until recently superintendent of the Boston City Hospital, a graduate of the Harvard University Medical School in 1869, a veteran of the Civil War, and a member of the American Medical Association, the Massachusetts Medical Society, and the American Association of Pathologists and Bacteriologists, died at his home, after a long illness, on June 14, aged 72 years.

Dr. JOB CORBIN of Brooklyn, N. Y., a graduate of the University of Vermont, College of Medicine, Burlington, in 1859, a surgeon in the United States Navy during the Civil War, died at his home on June 14, aged 80 years.

Dr. LEON OCTAVE MONORY of New York, a graduate of the University of Paris, France, in 1873, formerly a surgeon in the French Army, and a veteran of the Franco-Prussian War, died at his home on June 16, aged 69 years.

Dr. ROBERT M. LANGDON of Englewood Cliffs, N. J., a graduate of the University of Berlin, Germany, in 1880, of the Illinois Medical College, Chicago, in 1897, and of the Long Island College Hospital, Brooklyn, in 1898, died at his home on June 17, aged 55 years.

Dr. JOHN D. MILLER of Batesville, Miss., a graduate of the Louisville, Ky., Medical College in 1903, and a member of the Mississippi State Medical Association and the Panola County Medical Society, was killed in an automobile accident on June 1, aged 37 years.

Dr. WILLIAM WABASH KNEALE of Anderson, Ind., a graduate of the University of Virginia, Department of Medicine, Charlottesville, in 1889, and a member of the Indiana State Medical Association and the Madison County Medical Society, died suddenly, from apoplexy, on June 9, aged 54 years.

Dr. JOSEPH PREVETT of Boston died on June 6 from tuberculosis, after a long illness, aged 37 years.

Dr. JOHN M. BRIGGS of Woodburn, Ky., a graduate of the Medical Department, University of Nashville, Tenn., in 1859, and a member of the Kentucky State Medical Association and the Warren County Medical Society, died at his home, after several weeks' illness, on June 7, aged 78 years.

Dr. ROBERT W. LONG of Indianapolis, Ind., a graduate of the Bellevue Hospital Medical College, New York, in 1869, and the founder of the Robert W. Long Hospital of Indiana University, died at his home on June 18, aged 72 years.

Correspondence.

OUR LONDON LETTER.

(From Our Regular Correspondent.)

GENERAL MEDICAL COUNCIL—PRESIDENT'S ADDRESS—SHORTAGE OF MEDICAL MEN THROUGH THE WAR—LISTER INSTITUTE—CLEANLINESS IN DERMATOLOGY—AN ANTI-FLY EXHIBITION.

LONDON, June 5, 1915.

THE General Medical Council's meeting for this year opened on Tuesday and, as in so many other institutions, its proceedings have been largely dominated by the war. The president, Sir Donald MacAlister, in his address dwelt on the efforts that have been necessary to meet the calls of the army and navy for medical aid. The services of qualified men and women at home and in the colonies have been freely offered and accepted. Senior students enrolled in the ranks have been recalled by the War Office and directed to complete their curriculum so as to qualify for the R. A. M. C. Foreign doctors of medicine have been accepted on obtaining British qualifications. The casualties have been heavy, but confidence is felt that the schools and corporations will be able to replace the fallen and yet maintain in this emergency the standards of teaching and testing which are essential to efficiency. Although there were 1,000 fewer students at the end of 1914 than of 1913 the recall of the seniors who had enlisted must tend to meet the supply. There will probably be a falling off for the next few years of those taking their diplomas. From Canada many efficient surgeons are coming, some slight obstacles at first having been removed.

The Lister Institute's twenty-first annual meeting was held on the 12th inst. The report mentioned that on the declaration of war the services of the staff were placed at the disposal of the army medical department, with a list of volunteers for foreign service and an offer to supply serums and vaccines at cost price. Grateful acceptance was expressed and a full supply forthwith requested. The consequence was considerable pressure on the laboratories cheerfully met by all concerned who were also assisted by other bacteriologists and institutions.

One aspect of Listerism was the subject of an interesting discussion at the new Dermatological Society. It was started by Dr. Eddowes, president, with remarks on "Clean Dermatology," who said our difficulty in this specialty is to obtain asepsis, and if we can do this the case is cured. But mild and strong remedies alike may fail if unskillfully employed. He cited a case of impetigo spread all over a child's face, who had had applied too weak a lotion for the initial small lesions. But too strong remedies will inflame the skin. He mentioned also some cases pointed out to him as very rebellious with a request for a suggestion. He recommended cleaning with spirits and at once covering with a paste—the same paste has been used, but the cleaning first was the point. That insured success.

Dr. Walsh said in one class the organism was on the surface and could be dealt with, but some skin troubles were symptomatic of toxins in the blood or defective excretory functions. Identification of the organism and its lurking place in the body would lead to effectual treatment.

Mr. Dennis Vinrace claimed for the late Dr.

McLaren of Chelsea similar honor to that accorded to Lister. Dr. McLaren, he held, stood towards medicine as Lister did to surgery. Though largely unrecognized during his life he hoped to see a statue erected to the memory of McLaren. He indorsed the statements made as to the necessity of cleanliness, but the discussion of it must not indicate any want of it among dermatologists. He was always careful to clean off stale ointments as he went along. Sometimes he alternated ointments and lotions to insure getting rid of one dressing when another was applied.

The discussion was continued by several other members with a general consensus of opinion that though dermatologists did not neglect cleanliness as a remedy it was impossible to insist too much on its value.

A campaign against insects has been opened by the Zoological Society in the form of an anti-fly exhibition. The chief object is to show the public that the housefly is by no means a mere nuisance but too often the carrier of disease and therefore a danger to health against which continual war should be waged. If we cannot exterminate it we may determine to drive it from our habitations and immediate surroundings. Feeding on putrid organic matter it frequents accumulations of filth, particles of which cling to it, are carried away and drop off at a distance—often enough on human food or the vehicles containing it. Among the disgusting things in which they revel are the dejecta of animals and men to which they can get access, and here we can trace a direct way in which diseases may be propagated, *e.g.* their wings and feet may take up the typhoid poison as they settle a moment on a patient's excreta, and thus they become distributors of the infection. Possibly this may occur more frequently than is suspected. In the exhibition mentioned above there is a large scale picture of a fly, its hairy feet prominently displaying how easily all this may occur and more, too. Not only do they feed on offal, they breed in it, and prolific breeders they are. At the exhibition there are specimens of their eggs in many kinds of refuse just as they were laid. The germs and the processes by which they are spread form microscopic objects of interest among the exhibits. The importance of these is that knowledge of them lies at the base of every reasonable weapon in our war against the pest.

As to prevention, there are traps that can be examined by people who like to amuse themselves with such things. The simplest seems to be one sent from your side, Minnesota, I think. Poison is more efficient and perhaps less trouble. But there is always danger connected with it, especially where children are about. Our most effectual weapon against these and other insect pests is crude mineral oil, well known to many but in some localities still unknown. Large quantities are being supplied to our troops in the war. An emulsion of 5½ to 3 of soap with a little water is a good form for many purposes, though in others the crude oil can be used undiluted in all sorts of ways. There are preparations at the exhibition with a purified oil, but none are more deadly insecticides than the crude oil.

Cholesterin Therapy in Pernicious Anemia.—C. Cantieri bases this mode of treatment upon the supposition that pernicious anemia is the result of a toxin which combines with and is neutralized by cholesterin.—*Rivista Critica di Clinica Medica.*

Progress of Medical Science.

Boston Medical and Surgical Journal.

June 10, 1915.

1. Annual Discourse—Some Perplexities in Modern Medicine. E. A. Bates.
2. The Relation of Bacteria to the Etiology of Summer Diarrhea in Young Children. A. I. Kendall.
3. The Clinical Use of the Water Meal in Determining the Secretory and Motile Powers of the Stomach. A. E. Austin.
4. Posterior Gastro-Enterostomy by Exact Measure. M. P. Smithwick.
5. Program and Directions for the Mental Examination of Asocial, Psychopathic, and Doubtful Subjects. R. S. Hardwick.
6. A Suggestion in the Treatment of Hemorrhagic Disease of the Newborn. J. C. Hubbard.

2. Bacteria in the Etiology of Diarrhea.—A. I. Kendall, on the basis of his experience with the summer diarrheas in Boston, suggests that there may be a tendency for certain organisms to be dominant at one or another year. In 1910 the dysentery bacillus was by far the most frequent organism found in severe diarrheas of children. In 1911 but few dysentery cases were found and the streptococcus became dominant. In 1912 neither dysentery bacilli nor the streptococcus were prominent, but the gas bacillus appeared to be the more important factor. And in 1913 dysentery, streptococcus, and gas bacillus cases were few in number and sporadic, while the capsulated bacillus appeared to be the most common etiological factor in the diarrheas.

3. Clinical Use of the Water Meal.—A. E. Austin has employed this method as follows: The custom was to ask a patient to take a meal, the evening before, of meat, potato, bread, butter, rice, and raisins, and then come to the clinic the next morning fasting. There 350 c.c. of water were given the patient and the contents of the stomach removed twenty minutes later, the extreme limit at which it is claimed that the water given has left the stomach. The superficial advantages of this method were readily recognized; bread is not always available for the test breakfast, but water, of course, is. One can never rely on the time, if patients are allowed to take their bread at home and then come to the clinic; while, if taken in the clinic, a wait of 45 to 60 minutes is too long in a busy forenoon. Water, too, allows one to see readily whether there is any residue left from the Riegel meal. This method also avoids a second introduction of the tube, which is necessary if one first attempts to find food remnants in the fasting stomach, and then gives the ordinary test breakfast. Lactic acid, blood, and bile are also much more readily detected in the absence of a mass of partly digested food.

New York Medical Journal.

June 12, 1915.

1. The Tuberculosis Problem and Section 1142 of the Penal Code of the State of New York. S. A. Knopf.
2. Developmental Reconstruction of the Colon. J. M. Lynch and J. W. Draper.
3. Chronic Intestinal Stasis. G. R. Satterlee.
4. The Treatment of Erysipelas and Other Forms of Dermal and Epidermal Inflammation with Carbolic Acid and Alcohol. A. Judd.
5. Pain. H. J. Hartz.
6. Physiological and Pathological Changes in the Endometrium. J. W. Warner.
7. Persistent Cough Removed by Special Surgery. A. I. Schwartz.
8. Scopolamine-Morphine-Cocaine Anesthesia in Surgery. A. G. Brenizer.
9. Mucous Membrane in the Fasting Stomach Contents. E. A. Aronson.
10. Hysteria as a Constitutional Disorder. H. C. B. Alexander.

1. Tuberculosis and Contraception.—S. A. Knopf believes that where there is tuberculosis or any other serious transmissible disease in one or both of the parents, and there is danger that it may be transmitted to the offspring, it should be not only the right but the sacred duty of the physician to prevent the conception of any physically and mentally handicapped off-

spring destined to become a burden to the community. It is for this reason that the author entertains the hope that the New York penal code will be so modified that it will not be considered a criminal offense for the duly licensed physician to advise against conception when, in his judgment, this conception would be dangerous to the health of the mother or result in physically, mentally, or morally defective offspring.

2. **Developmental Reconstruction of the Colon.**—By J. M. Lynch and J. W. Draper. (See MEDICAL RECORD, May 29, 1915, page 919.)

3. **Chronic Intestinal Stasis.**—By G. R. Satterlee. (See MEDICAL RECORD, May 29, 1915, page 918.)

4. **Treatment of Erysipelas with Carbolic Acid and Alcohol.**—A. Judd details this method of treatment as follows: There is painted carefully with a swab of cotton upon an applicator the entire surface of the involved area, and extending about a half inch into the surrounding apparently healthy skin, 95 per cent. carbolic acid. This is left until the purplish color of the inflamed area is replaced by a pretty complete whitening of the skin. It is essential to the success of the procedure that we await this whitening before one proceeds to the next step. On the other hand, if one allows the whitening to proceed to a thorough blanching, one produces a distention of the epithelium, a slough of the skin, which, while it will not produce a scar, will prove painful to the patient, delay the result, and add nothing to the efficacy. When large areas are involved it is advisable that only a portion be painted at one time. The second step consists in going over the whitened area very thoroughly with a second swab saturated with alcohol. If this swabbing is done thoroughly the whitened area becomes once more pink, and the alcohol must be laid on until this is accomplished. After this one proceeds with other areas with the carbolic, neutralizing with alcohol, until the operation is complete at one sitting. It is essential to include half an inch of the apparently sound skin, as the bacteria of erysipelas are found beyond the apparently involved area. In some of the author's first cases he neglected this precaution, and found in twenty-four hours that, while he had completely controlled the initially inflamed area, a ring of newly inflamed tissue extended out in all directions beyond, much as an advancing ringworm extends. The method includes the painting of the hairy scalp, the eyelids, the mucous membrane of the alæ of the nose, and the nipple of the breast, if necessary. The author failed to note any evil result. There has been no toxic action of the carbolic in any case so far observed, although the urine is sometimes darkened and of characteristic odor. The temperature falls rapidly. In severe cases it is frequently necessary to support the patient with strychnine and whisky.

8. **Scopolamine - Morphine - Cocaine Anesthesia in Surgery.**—A. G. Brenizer cites the following as advantages of scopolamine-morphine anesthesia. If the injections are given an hour and a half before the operation the patient does not know when he is removed from the room and placed on the operating table; there is no fear. The patient is undisturbed by the injections of cocaine (the beginning of the operation) or by the induction of an inhalation anesthesia. When an inhalation anesthesia is used, the patient passes quietly under its influence without experiencing the usual unpleasant sensations of suffocation, sinking into space, etc. The breathing is quiet and smooth. There is little or no accumulation of mucus and saliva to obstruct breathing or dirty the field of operation in head and neck case. Vomiting is extremely rare. There may be a depressant action on the over-secreting thyroid gland through the effect of scopolamine, making this anesthesia especially favorable in goitre cases. The ill effects after operation, such as nausea, vomiting, and headache, are almost always absent. The pain in the wound and pains generally after operations, are not so great because the effects of the injections, in some degree, last for hours. Shock during and after the operation is largely done away with by dispelling first the fear of the pending operation and by reducing the force of the pain impulses generally. The injections of cocaine block the pain impulses locally. The insufficient local analgesia and muscular relaxation can be sufficiently overcome by injections of dilute cocaine along with large quantities of normal salt solution.

9. **Mucous Membrane in Fasting Stomach Contents.**—E. A. Aronson states that the diagnostic importance of the finding of mucosa in the stomach contents is purely relative and not absolute. The microscopical examination may show normal tissue, or such lesions as a marked interstitial inflammation in cases which clinically may differ entirely from what is expected upon pathological examination. The greatest value of this finding from a diagnostic standpoint occurs in unsuspected or even suspected cases of gastric malignancy, in which no mass is palpable. Here the early diagnosis from the pathological laboratory would be appreciated, but unfortunately, when mucosa can be withdrawn through the tube, it occurs as a rule when the lesion is far advanced and the diagnosis has already been made by other means. The author emphasizes the fact that no ill effects such as hemorrhage or ulcer follow from the exfoliation of gastric mucous membrane, either by expression or aspiration through the stomach tube; that the sectioning and microscopical examination of these specimens is of undoubted aid in enabling one to arrive at a more exact diagnosis; that in cases of chronic subacid gastritis, the mucous membrane is decidedly more vulnerable than in other gastric lesions; and that the aspiration of stomach contents has every advantage over expression.

Journal of the American Medical Association.

June 12, 1915.

1. The Rational Treatment of Hodgkin's Disease. J. L. Yates and C. H. Bunting.
2. The Beginning of Syphilis. W. A. Pusey.
3. The Landau Iodine Serum Test for Syphilis. A. W. Stillians.
4. A Further Note on Landau's Color Test for Serodiagnosis of Syphilis. J. A. Kolmer.
5. The Etiology and Experimental Production of Herpes Zoster. Preliminary Note. E. C. Rosenow and S. Oftedal.
6. Cholesterinemia and the Wassermann Reaction. E. Henes, Jr.
7. Taenia Saginata. A Case Presenting Structural Abnormalities and Associated with Spurious Parasitism in an Infant. M. C. Hall.
8. Artificial Pneumothorax, with Report of Fifteen Cases. M. F. Lent.
9. Diagnostic Theses in Pulmonary Tuberculosis. L. Brown.
10. Measures for Promoting the Nutrition in the Psychoses. S. Brown.
11. A Rapid and Simple Method of Testing Donors for Transfusion. P. Rous and J. R. Turner.
12. Intraspinal Administration of Antitoxin in Tetanus. Notes on a Series of Cases. M. Nicoll, Jr.
13. The Use of Kaolin to Remove Bacteria from the Throat and Nose. L. Hektoen and B. Rappaport.
14. Sodium Fluorid Poisoning. J. N. Stanton and M. Kahn.
15. Gangrenous Appendicitis on the Left Side. A Case of Visceral Transposition. W. B. Palamountain.

1. **The Rational Treatment of Hodgkin's Disease.**—J. L. Yates and C. H. Bunting tentatively define this disease as a noncontagious, infectious, granulomatous process due to the *Bacillus hodgkini*, a pleomorphic organism found almost constantly in pure culture in the pathological tissue of the disease. It is primarily localized at or about a port of entry, and has produced an analagous condition in monkeys by inoculation. The knowledge of the germ is not yet complete, though its casual relationship to the disease has been practically

demonstrated. The authors have proceeded on the plan of removing the primary source of infection, eliminating most rapidly the diseased tissues with its bacteria and toxins, and destroying the remaining bacteria by means of *x*-rays, hygiene, and vaccine therapy; by converting into fibrous tissue, by hygiene, and *x*-rays, such abnormal tissue as cannot be removed or undergo resolution; and, last, by continuing treatment until a clinical and roentgenologic examination and a normal blood picture show that the cure has been of at least a year's duration. Each of these measures is described and the results obtained are reviewed in detail. As regards vaccines, an ideal method of treatment is yet to be discovered. Supplementary treatment is necessary, as recrudescences are liable to occur. The general health should be carefully watched and routine periodical blood examinations be made. A cure can be considered as established only when there is no trace of the disease, including the blood conditions, for at least five years after the last manifestation.

3. The Landau Iodine Reaction in Syphilis.—A. W. Stillians concludes that no reliance can be placed on a positive Landau reaction, for this occurs in a large percentage of nonsyphilitics. A negative reaction is of no value in proving the absence of syphilis for a large proportion of syphilitics have a negative reaction. So far as the author's series of cases can show, no definite relation exists between syphilis and the Landau serum reaction.

5. Experimental Production of Herpes Zoster. — E. C. Rosenow and S. Oftedal have succeeded in producing herpes of the skin, tongue, or lips in rabbits and a number of other animals by intravenous injection of the bacteria in emulsions of extirpated tonsils of mixed cultures and pure cultures of streptococci obtained from tonsils or pyorrheal pockets and of streptococci in pure culture from the spinal fluid. In a number of the animals with skin herpes there were also herpetiform lesions of the viscera, and in these the ganglia of the vagus or sympathetic nerves were found to be hemorrhagic. The tendency of these organisms to localize in the ganglia is illustrated by the fact that herpes developed in six guinea-pigs following intraperitoneal injection. The streptococci isolated from the tonsils and other places after recovery, those cultivated on artificial media for a time, and those passed through a series of animals no longer show this peculiar property. The ganglion lesions consist chiefly in hemorrhages and round cell infiltration, usually marked outside and beneath the capsule and surrounding areolar tissue and along the sheath of the corresponding nerve. The blood vessels are commonly congested, and sometimes more or less filled with mononuclear and polynuclear leucocytes. Gram-staining diplococci and short chains are quite constant in the areas showing lesions about the ganglia, and cocci have been found in these lesions when absent in the blood and other tissues. Most of the cases studied were typical thoracic zoster.

13. Use of Kaolin in Removing Bacteria from Throat and Nose.—L. Hektoen and B. Rappaport note that kaolin is used in immunological and other investigations on account of its great adsorptive powers. The idea occurred to them that on account of this adsorptive power kaolin might be of use in removing bacteria from the nose and throat, especially in diphtheria carriers. They have found that, when properly applied, kaolin in the form of a dry powder removes not only diphtheria bacilli, but also practically all bacteria from the nose in the course of from three to four days. For this purpose the kaolin is blown into the nose six or seven times a day at two-hour intervals by means of a rubber bulb attached to a glass tube, the free end of which tapers a little. The insufflation is repeated several times at each treatment. The success of this treatment appears to depend largly on the free and thorough distribution of kaolin over the nasal surfaces. In cases of more or less obstruction of the nasal passages the removal of bacteria by kaolin insufflation is more difficult. In order to secure the most thorough application of kaolin to the mucous membrane of the throat, patients, if old enough, are instructed to swallow as slowly as possible one-third teaspoonful of kaolin four or five times an hour during the day. In the case of adults and older children who are anxious to get rid of diphtheria bacilli, this method, which has been selected after trial of several others, involves no special difficulty. In the case of small children it is more difficult to apply enough kaolin, and the plan of mixing the kaolin with sugar in the form of tablets is being considered. In a number of cases, in some of which there were a great many diphtheria bacilli in the throat, complete and apparently permanent removal has been accomplished by means of kaolin in the way described in from two to four days, the throat to a large extent being freed from all bacteria.

The Lancet.

June 5, 1915.

1. Arteriosclerosis. W. L. Blight.
2. Rheumatic Fever and Rheumatoid Arthritis: The Geographical Factor. J. T. Clarke.
3. A Case of Landry's Paralysis. J. S. B. Stopford.
4. On the Genesis of Constitutional Gastroptosis. J. J. Grace and W. Overend.
5. Some Points in the Circulatory System in Ankylostomiasis: A New Explanation for the Murmurs. Abd El Aziz Ismail.
6. Six Months with the Bearer Division of a Field Ambulance at the Front. S. J. A. H. Walshe.

1. Arteriosclerosis.—W. L. Blight states that there are four general causes of arteriosclerosis: (1) The normal wear and tear of life; (2) the acute infections; (3) the intoxications; and (4) those combinations of circumstances which keep the blood pressure high. The occupations most subject to the wear and tear of life are those of navvies, blacksmiths, porters, laborers, soldiers, and mountaineers, whose persistent use of muscles over prolonged periods to an extent sufficient to cause hypertrophy of the heart is a most potent factor in causing a heightened blood pressure. Of the acute infections causing the disease the most important is syphilis, the others being the exanthems, influenza, and tuberculosis. Syphilis is the chief cause of arteriosclerosis in infants and young people. Of the intoxications, the chief exogenous poisons are alcohol, lead, and tobacco. The chief endogenous poisons are those of gout, diabetes, Bright's disease, and obesity. The result of the disease is a slow, progressive atrophy with gradual loss of function in all the areas supplied by a sclerotic vessel; and when the artery becomes finally obliterated, especially if it occurs suddenly, necrosis and gangrene of the part normally supplied by the sclerotic vessel occur. The premonitory symptoms of arteriosclerosis are frequently evident in a middle-aged patient who comes complaining of headache, drowsiness, morning fatigue, feeling more tired when he gets up than when he went to bed, ineptitude for work, coldness of the extremities, tinnitus, attacks of migraine or neuralgia, together with high-pressure pulse and accentuated second sound of the heart. On the other hand, a middle-aged man may have a feeling of good health and may be able to perform his usual tasks and yet may die from rupture of a brittle artery in his brains. Another type of patient is one who has eaten much and drunk hard; he has a persistent elevation of the arterial blood pressure, and for some years has been feeling unwell, suffering from insomnia, cerebral confusion, despondency, and nervousness. An early symptom of the general disease is a slight pallor.

2. **Rheumatic Fever and Rheumatoid Arthritis.**—J. T. Clarke summarizes the various theories of the etiology of rheumatoid arthritis as follows: (1) It is a neurosis; (2) there is a deficiency of lime salts; (3) it is due to a disturbance of metabolism; (4) it is caused by absorption from chronic sores such as those of pyorrhea alveolaris, or those in the region of the anus; (5) it is due to insufficient sweating; it has a relationship to rheumatic fever; it is a specific disease. Of these the first four are just as likely to occur in the tropics as in the temperate climates, and the fifth is just as likely to be an effect as a cause and is very variable in different people in the tropics. No. 6 of these theories is supported by the geographical distribution. Neither rheumatoid arthritis nor rheumatic fever occurs in the tropics, and both are common in certain parts of the temperate zones. The author adds to the reasons for believing that rheumatoid arthritis is a specific disease and that it may have a relationship to rheumatic fever or possibly require that disease as an antecedent; and believes that the knowledge that these two diseases are absent from the tropics may give a clue to their etiology, but especially to the etiology of rheumatoid arthritis. Egypt is regarded as providing an almost certain cure for rheumatoid arthritis.

3. **Landry's Paralysis.**—J. S. B. Stopford concludes that one will never know the precise pathological changes in Landry's cases. Several nervous diseases can produce an acute ascending paralysis. There is good reason to suppose that there is a distinct morbid condition causing a train of symptoms similar to those described by Landry and worthy of the name "Landry's paralysis." There is no advantage in retaining the alternative name "acute ascending paralysis," and the name "Landry's paralysis" should be strictly reserved for a special type of ascending paralysis which does not show the morbid changes of poliomyelitis, polyneuritis, etc.

4. **Constitutional Gastroptosis.**—J. J. Grace and W. Overend note that in constitutional gastroptosis the abdominal muscles are often firm and tense in comparison with their condition in secondary splanchnoptosis. One cannot, therefore, attribute the descent of the gastric viscus to an acquired laxity of the abdominal wall. The genesis is to be ascribed to the existence of prolonged attachments due to a deficient development of embryonal adhesive processes. This defect is reinforced by the presence of a narrow upper abdominal opening, by downward displacement of the diaphragm, and by certain osseous changes which take place at the age of puberty. It is, in fact, a partial indication of a general innate or embryonal anomaly, in which an aberrant configuration of the chest, elongated ligamentous bands of the abdominal viscera, prolapse of the stomach, liver, kidneys, terminal ileum, cecum and colic flexures may one or all participate. Individuals of this habit, more especially men, often exhibit little or no digestive disturbances. There may be some gastric delay, with a tendency to diffuse habitual constipation associated with a liability, above the average, to impairment of health under conditions of strain.

British Medical Journal.

June 5, 1915.

1. Irregular Action of the Heart. C. Wilson.
2. Some Factors Concerning Amputations with Reference to the Present War. P. Lockhart-Mummery.
3. A Case of Acute Aneurysm of the Superior Mesenteric Artery, with Rupture. J. M. Cotterill and J. Miller.
4. Some General Notes on Suffocation by Poisonous Gases, with Detailed Notes on One Fatal Case. A. W. Hendry and E. L. Hersburgh.
5. Aneurysmal Varix of Popliteal Vessels from Gunshot Wound. R. B. Wright.
6. Anglo-French Hospital, No .2, Chateau Tourlaville, Cherbourg. M. L. Ramsay and F. A. Stoney.

1. **Cardiac Irregularity.**—C. Wilson describes the various types of irregular action of the heart. Sir James Mackenzie's work on arrhythmia and its developments are of epoch-making importance, and form solid ground on which one can base more accurate opinions and more definite statements than were formerly possible. Two baleful influences in connection with heart cases have long been at work—vague speaking, and the needless limitation of the patients' activities—and it was the recognition of these facts years ago that led the author to take a somewhat special interest in the heart. He came across numerous cases where patients had been told they had "weak hearts," and in which, though there occasionally was a murmur, and sometimes a loud one, he could discern no more evidence of "weak heart" than one might discover in a biceps whose owner had been told that he must only use it with great caution. Many means are at one's disposal for estimating a heart's reserve capacity; and among them a knowledge of the irregularities and their significance now occupies a prominent position. Ability to differentiate the rhythms will restore far more patients to activity than it will condemn, while in the case of those who may have to be restricted it brings the satisfactory assurance that the patients' lives will not be limited on insufficient grounds.

3. **Acute Aneurysm of Superior Mesenteric Artery.**—J. M. Cotterill and J. Miller report the case of a private who was admitted to the hospital complaining of severe abdominal pain and who was considerably collapsed. His temperature was subnormal, and his pulse thready and irregular. His bowels had not acted for three days. He had not vomited. His tongue was moist and clean. The abdomen was somewhat distended with gas; there was no abnormal dullness to be made out in either flank or elsewhere. Subjective pain was felt all over the abdomen, but tenderness on pressure was not noticed over any area in particular. A small enema was given, and this was followed by a slight normal evacuation of the bowels. After this the patient felt easier and slept for a short time. The heart sounds were feeble, but not otherwise markedly abnormal. Seven hours after admission the patient suddenly collapsed and died one-half hour later. It was considered likely that internal hemorrhage had taken place but he was too collapsed during the few hours he was under observation for laparotomy to be performed. At autopsy a thin-walled aneurysm about the size of a walnut was found in connection with the commencement of the superior mesenteric artery. This had ruptured into the substance of the mesentery and into the peritoneal cavity. The heart was enlarged and conical in shape. The cavities were uniformly dilated, and the muscle pale. The mitral valve was healthy. The segments of the aortic valve were thickened and covered with large friable vegetations. The lungs showed congestion and edema. Cultures were made from the vegetations on the aortic valve and from the spleen. Those from the spleen showed no growth. The cultures from the valve showed a pure growth of a staphylococcus which failed to develop pigment. The chief interest in this case lies in its rarity. Apparently the endocarditis and the hemorrhage had been in existence for a number of days as evidenced by the considerable amount of organization that had occurred.

Münchener medizinische Wochenschrift.

May 4, 1915.

The Louse Plague and the Prophylaxis of Typhus.—The military supplement of this number of the Wochenschrift contains a number of articles on these subjects. Nocht and Halberkann quote the opinion of Curschmann

that the louse cannot be the sole cause of typhus since even months after an epidemic the bedding, clothing and straw may convey it. The louse starves in a few days without food. Nits may be delayed to some extent in their hatching—from 2 to 4 weeks, according to several claimants—but the estimate that they hatch normally on the third or fourth day is too low. The entire matter needs careful study not only for the solution of the problem of the louse as a host, but for the more immediately practical one of disinfection. A constant following up of the egg cycle shows plainly that antiparasitic measures are often inefficacious. Freshly deposited eggs, which have not yet reached the respiratory stage, are harder to destroy than older ones. Too much cannot be learned in regard to the influence of heat, moisture, etc., on hatching. The authors recommend that dichlorobenzol be placed in sacks to be worn in each trouser leg and on each side of the chest. This substance is very volatile, and has to be renewed every three days. It is nearly odorless and inexpensive. These sacks may also be placed here and there in the bedding. They are of special value for lousiness in the badly wounded, and secure to these a good sleep. Wasielewski discusses chiefly the subject of the protection of physicians and nurses who care for typhus patients. He states that the body louse is the only known carrier of this disease, although the head and pubic lice, fleas, bed bugs and other bloodsuckers are under suspicion, to say nothing of infected material in patients when in the form of droplets projected into the air. However, as yet we do not even know enough about the body louse to secure its complete banishment. Some habits and attributes of the parasite are mentioned. Cold air makes it move more sluggishly, but even the freezing temperature does not prevent wholly its locomotion. Old observations show that opening the windows in cool weather was recommended as a prophylaxis against typhus. We find no mention of a kind of behavior seen in the skin dispensaries of New York, to wit: If a body louse was deposited in the center of a room with a coat hanging on the wall, it would almost unerringly crawl toward the garment and up the wall until it had reached the collar or upper portion. The rationale of such an instinct or tropism can only be conjectured. The author mentions the risk of throwing the outer clothing on the bed of a victim of lousiness; of riding in railway cars. Washable outer garments furnish no protection, for the lice readily go from these to the body linen and underwear. The author recommends the "louse proof" suits described in recent literature. Wulker states that two distinct campaigns must be prosecuted, against the lice and nits respectively. The latter may be submitted to microscopic control, and six well marked stages are recognizable, viz: (1) the freshly laid egg, full of yolk granules; (2) differentiation of yolk into uniform germinal spheres; (3) first outline of body of larva; (4) anlage of head, body and extremities; (5) fully developed larva; (6) hatched and empty egg. These stages require from four to six days at room temperature. Experiments with parasiticides must be carried out when the eggs are but one or two days old, when they are most hardy. If the egg continues to develop while under treatment with any of the numerous parasiticides, the conclusion must be that the substance is inert. Many volatile substances like ammonia, chloroform, tobacco smoke, have destructive power over the nits. Kulka, in a brief note, praises trichlorethyl as a parasiticide for lice. It is noninflammable. Its odor is, however, very objectionable, and the clothing, after treatment with this substance, must be exposed to the air for several hours or even an entire day in order to dissipate the disagreeable fumes.

Deutsche medizinische Wochenschrift.

May 6, 1915.

Case of Partial Soul Blindness, Optic Aphasia and Alexia.—Herzog reports the case of a soldier who suffered from the effects of a buffer accident involving his head, trunk, and pelvis. He had a contused wound of the head, which was the seat of severe pains; traumatic deafness, and at first suspicion of rupture of the intestine; pain in the pelvic bones and dysuria. As the other symptoms became less acute the deafness stood out prominently. The membrane was normal and there was no nystagmus, Kernig sign negative. Strength of arms subnormal; vertigo, even while in bed. Diagnosis of injury to the left temporal area of the brain. Transferred to neurological section. Mental tests showed good, rapid comprehension, correct memory and good judgment. The pupils, facial nerve, and tongue were normal. The disposition was "medium." No sense of smell. Total deafness, which was partly compensated by quickly attained ability in lip reading. Patient was unable to read either printed or written language and could not read his own handwriting. Letters he could read, a few, and his own name. He was, therefore, word blind, although in reality he comprehended the letters but was unable to name them. For many objects he had forgotten the names but clearly recognized their nature. Thus for "pocket handkerchief" he said "for wiping." Pince-nez he rendered "for seeing." He called a ewe a cow. He knew the word for knife but could not name the blade, etc., etc. As he was unable to name objects which he saw and comprehended, he was suffering from optic aphasia. There were numerous familiar objects which he could not comprehend by viewing them, but recognized by touch. Others he could not comprehend in any way, and having lost the memory pictures of these was also seen to have a certain degree of soul blindness.

Insufficient Results of Warfare Against the Clothes Louse.—According to Brauer all theoretic requirements have been fulfilled for getting rid of these parasites and their nits, but the plague still persists in prison camps and reserve hospitals. Those subjects who have been rendered louse free suffer from fresh invasions even when there has been no possibility of fresh accessions from without. While the head louse and pubic louse may exceptionally visit portions of the surface on which they do not generally occur, the clothes louse sticks to its own habitat faithfully if we are to credit all authorities. It is just here that our ignorance has come to light for the author hastens to assure us that this louse is now known to lay its nits in the pubic hair, not sparingly, but in huge quantities. Moreover, the author has also found nits in the axillary hair, perianal hair, hair on the thighs and legs. The error of medical men has been in confounding the body louse with the pubic louse, the latter being supposedly transmissible largely by intercourse of the soldiers with prostitutes. Nevertheless, instead of the well-known maculæ ceruleæ in the lower abdomen, which are characteristic of the pubic louse there is often present a melanoderma in the same area which characterizes the clothes louse. Finally the author has watched the hatching of young body lice in the pubic hair. Hence mere treatment of clothing with a simple bath and friction with some antiparasitic can exert little or no influence over nits in the pubis. It has long been known, moreover, that soldiers in a state of sexual abstinence have suffered severely, and over the entire surface, from the "pubic" louse (probably the clothes louse). The course to pursue is simple. All the old measures of warfare against the clothes louse should be kept in force and white precipitate ointment always applied to the pubes, axillæ, etc.

Insurance Medicine.

THE GENERAL FACTORS DETERMINING MEDICAL SELECTION.

FROM "ALLGEMEINE LEBENSVERSICHERUNGSMEDIZIN" BY PROF. DR. GEORG FLORSCHÜTZ OF GOTHA.

(*Continued from page* 1041.)

It is not our task here to penetrate into the nature of the diatheses, to discover the abnormal constitution of the organism or to study it more intimately as a substratum for disease. This is the affair solely of clinical medicine. We consider the pathological constitution as before only from the standpoint of a gross anomaly of constitution, and this method of consideration suffices here in order to attain that which alone we wish to attain, namely, the selection among applicants for insurance.

From remote times obesity in alternation or combination with gout and diabetes has played an important rôle in insurance medicine as well as general medicine, because it did not seem referable to any definite organic disease, but was to be regarded as a type of a constitutional affliction. Long since obesity was recognized as exerting an unfavorable influence upon the duration of life. But it was also recognized that not every fat man, because he was fat, must necessarily suffer from the short-lived constitutional form, and that differences existed here just as in thin subjects, which the medical examination is unable to discover. Life insurance medicine had long neglected the leanness of the applicant as a factor in selection, but it had early sought to discover some practical method of selection in the case of the overweights. In this case it was the weight which was first drawn into use as the measure of obesity, according to the well-known rule of Broca that the normal weight for adults amounted to as many kilograms as the number of centimeters of height exceeded a meter. As there was a hazard in the corpulent constitution, an applicant was accepted whose body weight exceeded the normal weight of an adult subject of the same age and height by a certain amount. Soon, however, life insurance medicine stood on its own feet in this matter. American societies formulated from their own material tables which gave the average weight of adults according to height and age in separate columns, and showed that a pathological supernutrition was present when the excess weight exceeded the average by 20 per cent. Othr insurance physicians sought, with the aid of formulæ, to draw the limits between normal and pathological corpulency. Mahillon assumed that corpulence began when the weight expressed in kilograms attained a figure which is larger than one-half of the height as expressed in centimeters. Norton regarded subjects as fat whose girth exceeded the chest circumference at inspiration. Maurel regarded a subject as fat whose weight exceeded the average by 10 per cent. Finally Pignet estimated corpulence according to the remainder obtained by subtracting from the number of centimeters in height the figures obtained by adding the number of centimeters of chest measurement and the kilograms of weight. If the applicant was to be regarded as insurable this remainder should be 10 or more.

The author personally has found the following formula, mentioned by an author unknown to him, to be the most serviceable: Multiply the girth (in centimeters) by 2 and subtract the height. The remainder is expressed by 2 G—H. Now divide the height by the remainder $= \frac{H}{2\ G-H}$. If now the quotient is 5 or more a good average nutrition is present; but if the quotient is under 5 the applicant is corpulent, and the further it drops below 5 the higher the degree of corpulence. This formula also seems to me to be especially useful because it entirely eliminates the weight and depends solely upon the measurements with the tape. For readily as I recognize that the body weight is a thoroughly practicable standard for the somatic constitution, I am in like manner skeptical as to the statement regarding weight given by the applicant. Every physician controls a tape measure, but not the scales of the subject. The weight is in many cases inserted in the application blank solely on the statement of the applicant, and little credit can be given it.

From these defects measurements with the tape are not only free, but the ratio of girth to height can replace fully the weight in determining the constitution of the corpulent, as I have convinced myself through special investigations. For the sake of completeness I mention only that in order to exclude the sources of error in the variable structure of bone and development of muscle in determining obesity according to weight, one has proposed the introduction of special measurements for bone and muscle. The first is determined by the circumference of the fat-free segments of the leg and forearm, and the last of the difference in the biceps measure when relaxed and contracted. Certainly these propositions look correct, but burden an examination more than they could aid it in the selection. For aside from the excessive degrees, the intensity of the corpulence determines the selection just as little as leanness determines the tuberculosis hazard. Both are only the basic factors about which are grouped all other factors which affect the prognosis. In this case the leading ones are the elements which have caused the corpulence or maintain it, while next in order come the changes which corpulence has brought about.

Those cases are always to be deemed the most unfavorable in which the hereditary taint points to the constitutional form—to the appearance of corpulence in early life or its association with gout, gallstone disease, etc. The most favorable cases, on the other hand, are those in which corpulence first appears in advanced years, the family history also showing that the condition, if present in parents or ancestors, has never led to premature death.

Of acquired causes chronic alcoholism stands at the head and is to be regarded as the most serious. Pelloutier in his "History of the Celts" (vol. II, p. 15), which appeared in 1770, says: "The embonpoint of the Celts proceeded infallibly from beer. At least it is certain that one no longer finds, either in Spain or among the Gallic or other races, so many people of vast corpulence as in Germany." The same thing was said by the chief physician of the Mutual Life Insurance Company, Dr. Norton, at the Third International Congress of Insurance Physicians at Paris, when he designated the Germans as poor risks because of their corpulence; and he closed his remarks with the statement that according to all statistics there could not be the slightest doubt that the corpulent Germans, who are beer drinkers, should be held, in respect to duration of life, as exceedingly poor risks.

(*To be continued.*)

Book Reviews.

THE ANATOMY OF THE DOMESTIC ANIMALS. By SEPTIMUS SISSON, S.B., V.S., Professor of Comparative Anatomy in the Ohio State University, Columbus, Ohio; Member of the American Association of Anatomists; Fellow of the American Association for the Advancement of Science. With 725 illustrations, many in colors. Second Edition, entirely reset. Price, $7.00. Philadelphia and London: W. B. Saunders Company, 1914.

THIS handsome volume contains an account of the structure of the horse, ox, sheep, pig, and dog. It is essentially a work on systematic anatomy, but the topographical aspect of the subject is by no means neglected. The author has managed to keep the volume within reasonable limits, largely by omitting details of embryology and histology. Nearly all eponyms have been omitted, and the synonyms have either been left out or relegated to footnotes. In this edition the illustrations have been increased by nearly fifty per cent., and nearly all of these are reproductions of photographs taken by the author. The printing and illustrations are excellent, and the volume should be welcomed by teachers, students, and practitioners of veterinary medicine.

PROGRESSIVE MEDICINE. A quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia; assisted by LEIGHTON F. APPLEMAN, M.D., Instructor in Therapeutics, Jefferson Medical College, Philadelphia. Price, $6.00 per annum. March 1, 1915. Philadelphia and New York: Lea & Febiger.

THE current number of Progressive Medicine contains the following articles: Surgery of the head and neck, by C. H. Frazier; Surgery of the thorax, excluding diseases of the breast, by G. P. Muller; Infectious diseases, including acute rheumatism, croupous pneumonia, and influenza, by J. Ruhrah; Diseases of children, by F. M. Crandall; Rhinology and Laryngology, by G. B. Wood; and Otology, by T. L. Saunders. Items of more than ordinary importance are the contributions on the cerebrospinal fluid, the hypophysis, and exophthalmic goiter. They should be read by the physician as well as the surgeon. This number maintains the usual standard of excellence achieved by this publication.

THE PROBLEM OF CANCER or the Philosophy of Malignancy. By EUGENE COLEMAN SAVIDGE. New York: William R. Jenkins Company, 1915.

THE material of which this book is composed was in part originally included in "The Philosophy of Radio-Activity" by the same author, and in part consists of reprints of two articles by him. He endeavors to defend the hypothesis that there is a close relation between malignancy, obesity, and glandular activity. The lack of success which he has attained is due largely to the obscurity of his style so that it is very often difficult to determine just what the author is trying to say. A couple of quotations will indicate its nature. "The incontinent nucleus, whose chromatin escapes into the cytoplasm, is characteristic of the malignant cell. This is analogous with the involuntary passage of urine and feces; or dilated pupils, or involuntary sex dreams, in the individual. It is a true incontinence due to the removal of some central control." "It is as if malignancy were all maleness, or all femaleness, respectively, dissolved from the tissue cells."

CLINICAL DIAGNOSIS. A Manual of Laboratory Methods. by JAMES CAMPBELL TODD, Ph.B., M.D., Professor of Pathology, University of Colorado. Third Edition, Revised and Enlarged. Price, $2.50 net. Philadelphia and London: W. B. Saunders Company, 1914.

THIS book, designed for the student and practitioner rather than the trained laboratory worker, places chief emphasis upon methods and microscopic morphology rather than upon the clinical significance of findings. In this edition are included many of the recent methods which have proven valuable and helpful. There are a few statements to which exception must be taken as that on page 98 where the author says that phloridzin "is transformed into glucose by the kidneys of healthy persons." This is not in agreement with the action of the drug so far as we know it. The advice given on page 130 to clear urine if necessary with talc or charcoal before testing for albumin is unsafe as it neglects the possibility of some of the albumin being absorbed by the powder. He does not emphasize sufficiently the possibility of blood on a stomach tube being traumatic in origin. While the book does not pretend to be an exhaustive treatise it gives most of the accepted methods and would prove a valuable aid to the average student and practitioner. The advisability of including the Wassermann and Abderhalden reactions in a work of this character is debatable, though if a man has at least read over the technique he is perhaps in a better position to assimilate the results. Todd's statement, "It may be flatly asserted that the correctness of Abderhalden's thesis has been abundantly confirmed," is a little more than we should be willing to admit in view of the recent work of Bronfenbrenner. The work is attractively bound for laboratory use.

LEHRBUCH DER INFEKTIONSKRANKHEITEN für Ärzte und Studierende. Von Professor Dr. G. JOCHMANN, Privatdozent an der Universität Berlin, Dirig. Arzt der Infektions-Abteilung des Rudolf Virchow-Krankenhauses, Mitglied des Konigl. Instituts für Infektions-Krankheiten "Robert Koch." Price M. 30. Berlin: Verlag von Julius Springer, 1914.

THE title of this volume might perhaps better have been the acute infectious diseases, since syphilis and the chronic forms of tuberculosis have not received consideration. Acute miliary tuberculosis is included. Gonorrhea and lobar pneumonia are discussed only in their relation to general gonococcus and pneumococcus sepsis. It is a most exhaustive work, filling nearly a thousand pages and containing numerous illustrations and temperature charts. It is obviously impossible to review the work in detail, but it may be said that each disease is discussed thoroughly in every respect and that the sections on treatment are more satisfactory than is usual in books of this type. The author is not very enthusiastic about the results of vaccine therapy. There is appended a valuable chapter on disinfection. The book can be recommended freely to all practitioners.

AN INTRODUCTION TO THE STUDY OF COLOR VISION. By J. HERBERT PARSONS, D.Sc., F.R.C.S., Ophthalmic Surgeon, University College Hospital; Surgeon, Royal London (Moorfields) Ophthalmic Hospital. Price, $3.75 net. Cambridge: At the University Press; New York: G. P. Putnam's Sons, 1915.

THIS volume of 308 pages is probably the most comprehensive presentation of the subject from the viewpoint of the ophthalmologist that exists in the English language.

Part I is devoted to a consideration of the chief facts of normal color vision. The physical, physiological, and psychological elements in color vision are presented, the arguments based on a comprehensive knowledge of the facts in our possession. The bases of color vision in the spectrum; the field of vision for colors; the flicker phenomenon; after image; evolution of color vision, etc., are discussed.

In Part II the chief facts of color blindness are presented. A chapter each is devoted to dichromats, trichromats, and monochromats.

Part III deals with the chief theories of color vision. Section I is devoted to a general review of the color theories; then follows a discussion of the various principal theories separately and in detail. The writer has carefully analyzed the obtainable data in a masterful manner, and has given us a dependable work on the subject that will not be readily superseded. It should be read by all who practice ophthalmology.

INTERNATIONAL CLINICS, a Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, etc. Edited by HENRY W. CATTELL, A.M., M.D. Volume I. Twenty-fifth Series. Price $2.00. Philadelphia and London: J. B. Lippincott Company, 1915.

THIS number contains twenty-one articles on Diagnosis and Treatment, Medicine, Surgery, and Medical Economics. William Osler has a few remarks on the Diagnosis of Polycystic Kidney and Harlow Brooks has an excellent article on the Heart in Syphilis. A summary of the Progress of Medicine During the Year 1914 touches most of the new developments in medicine for the year. The number is well up to the average standard for this excellent quarterly.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Sixty-sixth Annual Session Held in San Francisco, Cal., June 21-25, 1915.

(Special Telegraphic Report to the MEDICAL RECORD.)

HOUSE OF DELEGATES.

Monday, June 21—First Day.

THE PRESIDENT, DR. VICTOR C. VAUGHAN OF ANN ARBOR, MICH., IN THE CHAIR.

President's Address.—Dr. VICTOR C. VAUGHAN, in his address sounded a warning to the American medical profession that it was falling behind in its realization and practical application of the many and great advances that had been made in recent years in the department of preventive medicine. Indeed, many intelligent laymen at the present day knew more of the science of public health than did the average physician, and they were quite generally supplanting medical men in the practical application of the recent discoveries in preventive medicine. Michigan had recently appropriated $1,000,000 for the study of the prevention of tuberculosis and a small committee had been appointed to carry out this work, three members of which were non-medical men. This condition should be remedied and the profession should be aroused to a realization of its duties in this respect. Post-graduate study in this country is not what it should be, and the speaker said it should seriously be considered whether it might not be possible to send clinical teachers through the various States to give post-graduate courses in small towns and districts remote from medical centers.

Report of the Secretary.—Dr. ALEXANDER R. CRAIG stated that the membership of the Association on May 1, 1914, was 41,029; on May 1, 1915, it was 42,366, showing a gain of 1,337 for the year. A communication was submitted from the Medical Society of the District of Columbia objecting to the ruling that a member changing his location thereby forfeited membership in the American Medical Association by the end of one year unless he had in the meanwhile affiliated himself with the local medical association. It was suggested that this period be extended so that a member of any constituent society removing from the jurisdiction thereof might retain his membership in the American Medical Association for a period of eighteen months following removal, after which such eligibility should cease, unless it had been reestablished by the individual becoming a member of the constituent society within jurisdiction of which he was located. A resolution was submitted proposing for honorary membership in the Association Drs. Arndt of Berlin, Foerster of Breslau, and Wilfred Harris of London.

Report of the Board of Trustees.—Dr. WILLIAM T. COUNCILMAN of Boston reported that the weekly issue of the journal was now 63,000, an actual increase of 3,177 over that of the year 1913. The trustees regarded the *Archives of Internal Medicine* as a success, although it showed a financial loss. However, the *American Journal of Diseases of Children* had been a complete success, and already showed a slight profit. The cooperative medical bureau had been found to be a stimulus to the State journals in many ways, and was now used by twenty-four of these journals. Other improvements in the way of make-up and contributions had been effected in the State journals through the influence of this bureau. Advertisements to the amount of $10,000 for the benefit of these journals had been secured by the bureau. Last year the trustees called attention to the fact that the extension of various activities of the Association had used up the profits to the vanishing point. This year, however, there was a better showing, but the balance was only $3,984. The property and equipment of the Association, less depreciation, was valued at $328,656, and the reserve fund which had been created amounted to $118,832. It had been resolved that this fund should not be drawn upon except by the affirmative vote of seven trustees, and that it should be added to yearly. The expenses of the Association should not be allowed to increase, but they should on the contrary be decreased steadily. The work of the Propaganda Department had been continued during 1914 on the lines previously outlined, and a steadily increasing interest had been noted on the part of the public in the education work of the Association relative to medical frauds. Very many newspapers, magazines, and lay organizations were helping in this work. The lantern slides issued by the Propaganda Department were in great demand, as also were the educational posters. There were now listed twenty pamphlets on medical frauds, dealing with 288 individual preparations. Several law suits had been brought against the Association because of the exposures of the Propaganda Department; all of these had been withdrawn, however, but one, which the Association was fully prepared to meet. Dr. Councilman presented a supplementary report of the Council on Pharmacy and Chemistry, which the trustees had discussed at their February meeting. Although they appreciated that a vast amount of good had been done, nevertheless they could not but feel that the material results were far below what they should be. The main reason for this was that the Council was not receiving the active and hearty support of the profession, individually and collectively. In fact there was considerable indifference on the part of the medical profession. If its work was to be continued, the Council must have the strong and practical support of the physicians of the country. The trustees had passed a resolution appointing a committee to prepare an Address to the Profession on the use of proprietary drugs, and on the work of the Council of Pharmacy and Chemistry. This address would be presented to the House of Delegates, and sent officially to the presidents and secretaries of all the State and County Medical Societies. This address stated that the first duty of the physician was that of service to mankind, and the object of the American Medical Association was primarily to make this service more effective. This wide view made necessary an active and strong opposition to certain evils which could not be successfully resisted by individuals. The most important of these evils was the commercial exploitation of the sick for pecuniary gain. The best efforts of the Association in time and money had been directed to the correction of such abuses. The great advances in medicine during the past 40 years had given an opportunity for the exploiter of patent medicine. The low grade medical school had produced some men of ability, but the average graduate of such schools was the one who would give testimonials in favor of proprietary medicines. The medical journals were no more adequate to the task of leadership than were the medical colleges, for these journals necessarily relied on the advertisements of proprietary medicines for a part of their income. The Council on Pharmacy and Chemistry had been created to counteract these evils, and to publish facts regarding new and non-official remedies. It had also undertaken the simplification of the materia medica, having published a volume entitled "Useful Drugs." Its function was therefore to do more than merely pass on proprietary remedies. The influence of the Council was seen in changes in the curriculum of medical colleges, and its influence had extended even to Europe. Young men now entering the Profession were no longer afraid of unscrupulous educators. The medical college problem had been practically solved, but the situation regarding medical journals was but slightly better than before. There were many more journals than were needed and the major portion of the smaller ones depended entirely upon nostrum advertisements for their support. The remedy for this, as had been shown many times, was in the hands of the readers and of contributors to these journals. The elimination of advertisements not approved by the Council would necessarily eliminate a number of journals, just as the introduction of a higher standard of medical education had eliminated the low grade medical colleges. The trustees presented a resolution for adoption by the House of Delegates endorsing the work of the Council on Pharmacy and Chemistry, and encouraging it to further efforts in the attempt to overcome this evil.

Report of the Judicial Council.—Dr. ALEXANDER LAMBERT presented this report, in which it was suggested that the same privilege under proper restrictions be extended to physicians living near State lines, as was extended to those living near county lines; namely, that the man living near a line, either State or County, should be permitted to hold membership in the State or County Society the meetings of which he found the more easy to attend, provided, however, that the State or County in which the individual practised waived jurisdiction over his membership. There had been an increasing number of charges of various of-

fences against members of the Association, and it was apparently accepted by many that the judicial Council was able to accuse an individual and then to judge him. This, of course, was impossible, and it would seem wise that the House should consider the passing of a standing rule, designating a method of procedure, by which the Association could protect its fellowship. This would be done if the Judicial Council directed the Secretary of the Association to file charges against any fellow when any overt act on his part supported by reasonable evidence was brought to the attention of the Secretary. The Council reported upon the results of an investigation made regarding the commissions paid by surgical instrument makers to physicians and surgeons. This evil apparently prevailed in all parts of the country. It should, however, be understood that physicians could not honorably receive a "rake-off" from the instrument maker. The remedy for this was that the surgeon should exact a sufficient fee from the patient himself for the services rendered, and that the instrument maker should charge only what would give him a legitimate profit. It had been suggested that the American Medical Association should undertake the task of defending members in malpractice suits. In the opinion of the Council such action would come under the head of "benevolent work" as did also the suggestion that the Association furnish funds for the support of widows and orphans of medical men. Such work belonged to the State and County Societies, and should not be undertaken by the National body. Workingmen's compensation laws were being passed in various States, and this gave rise to certain economic conditions which presented many new problems for the medical profession. It was felt that the Judicial Council should describe these laws and discuss their social and philosophic foundations. Information regarding these laws had not yet been systematized, but the Council had sought to make a general review of the subject. The European conception which had been but recently adopted in this country was that injuries to working men should be regarded as risks of industry, and should be classed in the same category as wear and tear, and other expenses of production, and should be paid for accordingly. Most European countries were further advanced in this matter than were the States in this country. The report presented a review of accident insurance, compulsory sickness insurance, old age insurance, pensions for widows and orphans, and maternity insurance in the United States and other countries. In this summary of various social insurance laws, it would be seen that there existed in Europe a tendency toward a complete group of laws protecting industrial workers against accident, sickness, maternity, funeral expenses, granting pensions for partial disability or complete invalidity, pensions for widows and orphans when the bread winner had been killed, pensions for early old age brought about by industrial conditions, for physiological old age, when in the natural course it brought the wage earner to a complete inability. These problems were exceedingly interesting. The organization of physicians in Germany had been so effective that only 150 physicians out of the 33,000 in the empire could be induced to accept physicians under the insurance societies against the advice of the Liepzig league. Although the British Medical Association had expended a large sum for the protection of its members, the results of the National Insurance Act had been different from what had been anticipated. The Government had distributed among physicians $20,500,000, an average of $1,150 for each physician. There had been in this country a tendency to criticize the cost of medical service under the Compensation Laws, but after a careful analysis of the wages and fees in different parts of the country, it had been shown that the charge that there was a general endeavor among surgeons to demand more than their due was absolutely false. In considering the formulation of any new fee bill, it was well to remember that three-quarters of all accidents required less than two weeks' care, and that the daily visit to the house, or the daily office or dispensary visit, formed a large item in the total amount of surgical compensation. Further in considering the fee for fractures one should remember that an amputation for which a higher fee was granted usually required vastly less skill from a surgical standpoint than the treatment of fractures. Moreover, so far as the economic results of the patient were concerned, a fracture offered some hope of permanent rehabilitation, whereas amputation left partial or total disability. The work on fractures would in future stimulate the surgical profession to the employment of its ingenuity and skill in order to obtain the best results. It would in future require much greater judgment and skill in fractures than in any other form of injury to obtain the minimum disability, and such judgment and skill demanded a high rate of compensation to the medical man. The Judicial Council had presented this lengthy report because in the near future a majority of medical men in this country would be obliged to face new social conditions. The tendency was toward a complete insurance system, such as was now enforced in England and Germany. This would unquestionably tend to improve the social condition of the community, and in the carrying out of any scheme looking to human benefit the Medical Profession must necessarily be included, whether it be to pass upon sickness or health insurance, whether it be for mitigating the injury to the individual from accident, or whether it be for spreading the diseases in the community at large. The Medical Profession would however accept the responsibility in these new conditions, as it had always accepted responsibility in the past.

Report of the Council on Public Health and Public Instruction.—Dr. F. C. GREEN presented this report. During the past year the council had developed the program outlining a thorough investigation of public health conditions in the United States, with a view to securing more accurate information on all phases of public health. This program embraced the education of the public by every possible means, in order that the people might understand the enormous advances that had been made in scientific medical knowledge during the past generation, and the possibility of utilizing such knowledge in the prevention of disease, the prolongation of human life, and the reduction of the death rate. It also aimed to crystallize this educated public sentiment in the formulation of public health laws, regulations, and ordinances, which would render possible a conservation of human life, and further to render such laws more effective through an educated and enlightened public opinion. Dr. C. V. Chapin, a representative of the Council, had made an investigation and comparative study of the activities, equipment, and accomplishment of various State health boards. During the coming year, municipal public health conditions would be studied in the same way. A report of various voluntary public health organizations had been prepared and was in process of publication. It showed that these organizations were in a most chaotic condition, resulting in an unnecessary duplication of effort, a waste of money and labor, and an interference in function. The publication of this report made this very clear and also supplied data for the formulation of a plan for better organization and conduct of such work. During the past year, the press bulletins had been sent out to many newspapers of the country, which were showing an increasing tendency to use this material and to credit the Association and the medical profession with sincerity and disinterestedness. Their mailing list contained approximately 2,200 newspapers. The Bureau of Literature had also prepared suitable material for distribution to the public. Various pamphlets on the conservation of vision, cancer, sex hygiene, medical defence, medical research, etc., had been published and distributed during the past year. The pamphlet entitled "Save Babies," by L. Emmett Holt and Henry L. K. Shaw, was particularly worthy of note, and its general distribution would be productive of the greatest good. With reference to the third function of the Council, formulating suitable legislation, they had during the past year published the digest of Supreme Court decisions on medical practice acts and on the powers and duties of State boards of health. Their collection of public health laws was practically complete to date, and had been of assistance to inquiry in drafting bills for presentation to State legislatures and in drafting municipal ordinances. This bureau had rapidly increased the amount of available material of all kinds relating to the legal side of medicine, and it was prepared to respond to all inquiries on the subject. One of the activities of many State societies was the protection of their members in malpractice suits. This meant that the States would have a collection of Supreme Court decision on this subject, and it would be possible for the medicolegal bureau to collect, classify, and index these, and keep them up to date, thus forming a central bureau of reference from which any committee on medical defence could secure information and assistance in preparing briefs. The most important national legislation enacted during the past year was the Harrison Act. Certain necessary burdens would

have to be borne under this law, and these the profession might be confidently relied upon to bear without complaint. The unnecessary burdens, those that the profession might justly complain of, time might be expected to cure, and only after it had failed to do so, should thought be given to a recourse to the Courts or to Congress for relief. It had become increasingly evident, as the work of the Council developed, that the chairman was eminently correct in the statement which he had made during the first year of the Council's activity, that its greatest usefulness would be found in acting as a center around which other organizations and activities could group, rather than in any independent work which it might itself accomplish. This fact was becoming each year more apparent. Probably the most valuable work which the Council had done was that of coordinating and harmonizing different groups of organizations, bringing them into closer relation with the American Medical Association, and promoting mutual understanding.

The Committee on Welfare of Women and Children had continued along the lines of the first year's work formulating plans for the measuring and scoring of babies. They emphasized the fact that this measuring and scoring should be regarded rather as a basis upon which to formulate plans for the development of the frail child, rather than a means of establishing a standard of the healthy and strong child. Their ultimate hope was that their work would pave the way for creating a permanent station where babies could be examined from time to time. The Children's Bureau of the Federal Government was in hearty sympathy with the work of the committee and had cooperated with them throughout the year.

The Committee on Cancer had devoted its energies chiefly to the educational pamphlets dealing with the subject of malignant disease in its various forms. The campaign thus far waged was yielding excellent results as evidenced by the number of cases of early cancer presenting for operation in various clinics and elsewhere. They felt quite sure that within the next five years every person in the United States would be so far instructed in this point as to realize that cancer if taken in time could in many cases be permanently cured.

The Committee on Expert Testimony had submitted a bill which was a product of committees appointed by the American Bar Association, the American Institute of Criminal Law, and the American Medical Association. This bill was limited to expert testimony in criminal cases in which the plea of insanity had been raised. It left untouched the bulk of cases in which medical men offered testimony, but for many reasons this was considered most suitable as the first step.

The Committee on Cooperation with the National Educational Association reported that it had secured the passage of resolutions by this Association asking for information regarding the hygienic and sanitary conditions of rural schools, and especially to ascertain what instruction was being given upon the subject of hygiene and sanitation. Committees of the two Associations had had several joint meetings in which they discussed the minimum requirements of rural schools. Seven hundred and fifty thousand copies of these requirements would be printed and widely distributed.

The Committee on Uniform Regulation of Membership reported that practical uniformity in membership regulation was gradually becoming to prevail in all the constituent medical societies of the country. This change was taking place through a recognition by the State officers of the need of simple uniform methods, both for managing the work of the State Societies and for coordinating it with that of other State Societies and of the National Association.

The Committee on Conservation of Vision reported success in the establishment of State lecture bureaus, 490 lectures having been given in thirty-eight States to upward of 114,000 people. The work had led many to see the need of examination of the eyes, ears, noses, and throats of school children, and of the teachers as well. The Wyoming law on this subject was particularly praiseworthy.

Report of the Council on Medical Education.—Dr. A. D. BEVAN of Chicago said that the report of the Council for 1905, just ten years ago, presented two educational standards, one of which was recommended for immediate adoption, and the other was referred to as the "Ideal Standard" for adoption at some future time. The first called for a greater medical course, consisting of four years of seven months each, following the completion of the usual four-year high-school education. The ideal standard called for a standard four-year high-chool education, a year devoted to a college course in physics, chemistry, and biology, a four-year medical course, and one year's practical training as intern in a hospital. The college session just closed marked an important epoch in the history of medical education, for with the exception of the hospital intern year, the standard which in 1905 was referred to as ideal, had become in 1914 the essential standard. Last autumn thirty-seven medical colleges began for the first time the inforcement of the entrance requirement of a college year in physics, chemistry, and biology, joining the forty-seven which had already attained that or higher entrance requirements, there being now altogether eighty-four medical colleges out of the 100 now in existence which were operating under the higher standard. Six medical colleges had already adopted the requirements of a fifth year as intern in a hospital before the M.D. degree would be granted. One of the most important functions of the Council was that of conducting clearing house operations regarding medical education and licensure. The statistics collected were very valuable. The total registration in the medical schools in the country for 1914 was 5,797—a reduction of 2,069 since 1906. A marked improvement in State licensure has taken place during the past year. Another very important work of the Council was the preparation of a report on the reorganization of clinical teaching, which would serve as a guide in this direction. This report had also formulated the plan which provided for the training of teachers. Every clinical department should be organized with this point in view. During the past year an inspection had been made of the post-graduate schools of the country. As a result of this investigation the Council recommended that a distinction be made between advanced courses and more elementary courses in which the bulk of the work would be regarded as belonging to practitioners' courses. It was recommended that in determining the standard of graduate departments of medical schools, or of independent schools giving instruction to graduates, the Council should be guided by an outline, grading the various institutions on a Civil Service basis, in a manner similar to that employed for under-graduate medical schools. In graduate medical instruction only a bare beginning had been made but there was promise of more rapid development under the direction and with the assistance of the Council. A further investigation of hospitals was highly important, not only in the interest of medical education, to enable the Council to prepare lists of those in position to provide acceptable interneship for medical graduates, but also, and even more important, to lead to the publication of such information as would result in an improvement in the hospitals generally, and in greater efficiency of hospital management.

Report of the Red Cross Committee.—Dr. GEO. M. KOBER of Washington reported that 296 County Medical Societies had created committees for Red Cross medical work, and that there now were 510 committees composed of 2550 representative medical men in 48 States, which were available to render reliable advice or assistance in Red Cross work. During the past year many of these committees had been called upon to report of the qualifications of physicians and surgeons offering to serve in Europe, and their recommendations have been invaluable.

Report of the Committee on Scientific Research.—This Committee reported that its credit was completely exhausted, and it deeply regretted that it could make no further grants for the present.

Report of the Committee on Nomenclature and Classification of Diseases.—Dr. CRESSY L. WILBUR of Washington reported that owing to the European War the expected cooperation with the committee of the Royal College of Physicians of London on the fourth decennial revision of the English Nomenclature had not materialized, and he thought it might be well to wait for this as very probably it would be found to be an excellent system for adoption by American physicians with such slight changes as might be necessary for this country. Moreover, the International list of the causes of death and disability would soon be at hand. Studies like those of Cabot and Emerson, with respect to uncertainty in clinical diagnosis pointed to the necessity of devising the statistical classification so that prominence might be given to the more certain and definite returns. In view of these facts it might be expedient to discharge this committee for the present.

Report of the Committee on Anesthesia.—This committee reported that it had arranged with the *Journal*

of the American Medical Association for the publication of monographs on intratracheal insufflation by Meltzer, and on the Theory of Anesthesia, by Evarts and Graham. The plan was to bring out similar monographs from time to time in the hope that men of training and ability to do valuable work might be stimulated by the inducement of having their results published by such an organization as the American Medical Association.

Report of the Commission on Section Work.—Dr. HUGH CABOT of Boston reported that this committee had made a study of the sections and of the section work with a view to its rearrangement. Membership in the Association consisted, and probably always would consist of general practitioners, and the importance of making the scientific work of the Association of the greatest value to this, the majority membership, should not be lost sight of. Should too high a degree of specialization occur, the great educational function of the Association might be impaired or lost, with the result that the meetings would be simply a gathering place for groups of highly trained special workers. On the other hand, since the Association included among its members probably a majority of the most highly trained medical scientists in the country, it was very important to provide an opportunity to meet these men in discussion of scientific work of so highly special a nature that it was of necessity beyond the grasp of the great number of members of the Association. The committee suggested that instead of the present 15 sections, a division of the work into four groups be made as follows: Medical Science, including Anatomy, Physiology, Pathology, Bacteriology, and Pharmacology; Medicine, including the Practice of Medicine, Diseases of Children, Mental and Nervous Diseases, Preventive Medicine; Surgery, including General Surgery, Obstetrics, Gynecology, Genitourinary Surgery, and Orthopedics; Pure Specialties, including Ophthalmology, Otology, Dermatology, Stomatology, Gastroenterology, and Proctology. A study of the subject had convinced the committee that this section work must change from time to time as the science of medicine developed, and that it was therefore desirable to create a body having a continuity of service. It consequently recommended the appointment of a Council on section and section work, and suggested that necessary changes in the by-law be made to meet this new arrangement. The President appointed as a committee to consider the advisability of this change, Drs. Hugh Cabot, of Boston; Hass of Michigan, and V. G. Gecki, of California.

The various reports which had been presented were then referred to their respective reference committees.

Tuesday, June 22—Second Day.

This was a very brief session devoted to the reports of the various reference committees. Most of these were to the effect that the council and committee reports presented on Monday be accepted with few and unimportant changes. Regarding the report of the Committee on Expert Testimony, it was deemed advisable to let the the tentative bill regulating expert medical testimony liz over until next year as there were certain changes which the committee thought should be made before definite action was taken on it. Certain minor changes were also suggested in reference to the report advising a new arrangement of section work.

OPENING MEETING.

DR. VICTOR C. VAUGHAN OF ANN ARBOR, MICH., PRESIDENT, IN THE CHAIR.

Invocation.—The Rt. Rev. WILLIAM FORD NICHOLLS, Episcopal Bishop of California, made the opening prayer.

Address of Welcome to San Francisco.—Mr. JAMES J. RAINEY, representing Mayor Rolph, welcomed the members of the Association to the city. He said that he understood there were representatives present from all parts of the country, and he had been told that their principal work was devoted to putting themselves out of business. That was what preventive medicine meant. San Francisco more than any other city had cause to bless the name of preventive medicine because it had done more for San Francisco than for any other city. He said that he felt he was talking to one of the greatest and also to one of the most expensive bodies in the world. He did not mean this as a joke, and he did not refer to the cost of their services. He was thinking rather of the fact that the education of a medical man was more expensive than that of any other profession or class, not even excepting lawyers. The public ought to think well of medical men, especially the public of San Francisco, for they realized fully what medicine had done in keeping plague from the city. He was glad of the privilege of expressing to them in person his own and the city's debt of gratitude.

Address of Welcome to California.—Mr. CHESTER H. ROWELL, representing Governor Johnson, extended the welcome of the State of California to the members of the Association. He said he had been called upon to welcome many organizations this year to California, but he felt it was his proudest privilege to address this body which should be the proudest body of men in America. They might indeed well be proud for the part which they had taken in making the Canal Zone a place fit to live in. The medical profession, he said, stood committed to truth, and although there were many forms of error, truth was one. They would doubtless always have differences of opinion among themselves, but they would not insist that these different opinions, based possibly on imperfect knowledge, were virtues. Medical men stood committed to the unity found in truth through which they elevated the professional standard, and protected the public. They were also committed to the task of enlightening the minds of the public in health matters. They had devoted themselves to the alleviation of physical ills, and to the illumination of the darkness of ignorance. There was still much ignorance in the public mind in regard to medicine, and many even yet believed it was a magical art, and that some physicians possessed certain secrets or certain remedies whereby they could work miracles. On the other hand, there were many so conceited as to believe that they would diagnose their own condition and find a suitable remedy therefor. The public also believed that as in religion there were many creeds, one creed for the Methodist, and another creed for the Jew, so there were many creeds in medicine, and the medical creed that was best for any individual was the one in which he could place the most faith. The Association was to be congratulated on its lecturers, who were preaching a sound doctrine to some people. He himself had been present when brilliant lectures were delivered by superior men and were listened to by as many as 25 to 42 persons, who were already enlightened. He would not, however, disparage the effort for it was an entering wedge and much might be hoped from it in the future. He recalled that when he was a student at the University of Michigan 30 years ago, his fellow students who were looking for a "snap" course took in a lecture on sanitary science once a week. While they had some knowledge of the beginnings of modern medicine, many things that are now common, were then new. They were now giving a degree in sanitary science to many non-medical men, but the speaker thought that it would perhaps be a good thing if the physicians would monopolize this work, so that there would be no room for the lay-graduate in sanitary science. In closing he again referred to the great work that had been done by medical science in the sanitation of the tropics, and making possible the construction of the Panama Canal.

Address of Welcome by the Medical Profession.—Dr. H. M. SHERMAN of San Francisco, President of the Medical Society of California, welcomed the members of the Association on behalf of the Medical Profession of the city and State. He said that though they had come from northern Maine and southern California, from Washington and from Florida, they met as brothers who at home were doing the same things and trying to solve the same problems, in school, clinic, hospital, and for the public welfare. It was now 21 years since the American Medical Association had met in San Francisco, and many members of the Association thought that that was about the right time that should elapse before the next visit, but because of the great influence that the meeting of the Association exerted and because it was the inalienable right of the medical profession of California to return the courtesy which they had received at meetings in other cities and states, the Association should not object to coming to this city five times in a century.

President's Address.—Dr. WILLIAM L. RODMAN then delivered the Annual Address of the President, taking

as his subject "Work of the American Medical Association." The address was, however, not confined entirely to this subject but comprehended rather a general review of professional advancement in this country, including the work of the American College of Surgeons and the proposed establishment of a national board of medical examiners.

American College of Surgeons.—It was his duty and pleasure, as president of the American Medical Association, to congratulate most heartily the officers, board of regents, and fellows of the American College of Surgeons upon its auspicious beginning, its achievements, and its splendid aspirations. It had already accomplished much in elevating the general tone and level of American surgery and had met all reasonable expectations of its sponsors. The college was organized to fill a distinct need, and its aims and purposes were well presented by its president, Dr. J. M. T. Finney, at the inaugural meeting in Chicago, in November, 1913, in an address which was notable for its ability, sincerity, and lofty character. With a rare and keen discrimination, equaled only by the courage shown, he had pointed out the weaknesses in our armor, and the professional obligation of all to overcome them. Dr. Rodman said he could not do better than quote some of his forceful words, and, further, to express the hope that every member of the profession, in or out of the college, would read and read again the entire address: "The aim of this new organization and the reason for its existence lie in its disinterestedness and unselfish efforts to elevate the standards of the profession, moral as well as intellectual, to foster research, to educate the public up to the idea that there is a difference between the honest, conscientious, well-trained surgeon and the purely commercial operator, the charlatan and the quack; furthermore, that the term 'surgeon' means something more than a suave manner, a glib tongue, a private hospital, a press agent, and the all too easily acquired diploma. The standardization of surgery is absolutely essential to guard the public against such as these, as well as to preserve the honor of the guild itself. So far as the public is concerned, it is necessary to protect it from the wolves in sheep's clothing, from those who would prostitute their high office for the purpose of gain; from the ignorant and the untrained; from those who by reason of the lack of surgical judgment and skill are incompetent. That such are present in considerable numbers in our profession, and that they continue to ply their nefarious trade in every community of any size, with reckless disregard of the consequences, unfortunately cannot be denied. Are we to sit idly by while the fair name and fame of our profession are being dishonored and defiled? Is there nothing that we can do to protect the public and ourselves? Our presence here this evening is an answer to these questions. The American College of Surgeons has been called into being as an active, vigorous, virile protest upon the part of the profession itself against this unhappy state of affairs." In every community, Dr. Rodman continued, men were operating who had no right to take human life into their hands. This did not apply to the general practitioner who, in an emergency, and to the best of his ability, operated in an attempt to save life, but to those who, for gain, undertook that which should be done only by the skilful surgeon. Surgery was a special science, extrahazardous in its nature, and hence the public had a right to demand of the surgeon the very highest physical, mental, and moral equipment. The positive stand the college had taken on fee-splitting alone more than justified its existence. This evil had become intolerable, and a wave of protest was rising throughout the land which should and would overwhelm the offenders.

Council on Health and Public Instruction.—The function of this council was to investigate health conditions, to educate the public, and to foster a sentiment in the community that would force the enactment of health laws. The latter was important, for although the medical profession was better prepared than ever before to prevent disease and save life, it needed the confidence and intelligent cooperation of the laity before the work could be satisfactorily accomplished. The council was in touch with the newspapers and during the three years that the press bureau had been in existence it had issued 164 bulletins for publication in 4,900 newspapers. In Brooklyn there was a publicity committee which cooperated with newspaper editors in working out a plan for getting truthful reports of interviews on medical topics. This scheme had worked so admirably that the Judicial Council had recommended to the House of Delegates the formation of such a publicity committee in every county medical society in the country. Another plan of the council was to unite all of the public health organization into a national league. With this in view, it had suggested that the various public health organizations hold their 1916 annual meetings at the same time and place. Special societies, such as those for the study of tuberculosis, cancer, infant mortality, etc., could be made sections of this national league, which might be an advantage to them. The Bureau of Literature had circulated pamphlets on health topics, notably on cancer, which at this time was receiving great attention, not only by our Association, but by the American Society for the Control of Cancer, by a cancer committee appointed by the Clinical Congress of Surgeons of North America, and by various commissions, all working to the same end, namely, the enlightenment of the public as to the early symptoms of cancer, the necessity for prompt surgical intervention, and the danger of running after false gods. Many committees had done admirable work, notably the Committee on Resuscitation from Electric Shock, which had issued a chart and booklet for use in electric lighting plants which was considered authoritative all over the world; also the Committee on Resuscitation from Mine Gases, a report of whose work had been issued by the federal government. The Joint Committee with the National Educational Association had been engaged in a fruitful study of health problems in education which would give an impetus to sanitation in rural schools, hitherto much neglected. The activities of the Medicolegal Bureau were still in their incipiency, and it must be admitted that on the question of public health legislation the profession was still at variance. Efforts had been made, for nearly half a century, to secure the passage of laws regulating the practice of medicine in the different States, yet we failed to agree on the most essential requirements. The Association was, however, now making a more scientific study of medicolegal questions, and had issued two pamphlets dealing with this phase of its work. Nothing, however, could be more unwise or undesirable than hasty or ill-considered legislative experiments.

The Propaganda Department reported an increasing public interest in the matter of patent medicine frauds, and had issued more than thirty educational posters as well as lantern slides for popular lectures on this subject. Boards of health, clubs, and newspapers were alike active in disseminating information to the public.

Council on Pharmacy and Chemistry.—There were now three chemists in the laboratory of the Association who gave their whole time to the analysis of medicines, and although there was naturally much opposition to the work of the Council and some manufacturers had brought suit against the Association for what they regarded as unjustifiable condemnation of their projects, other manufacturers had voluntarily submitted their preparations to the Council for endorsement. In addition to the book on "New and Nonofficial Remedies" which contained a description of the new drugs and proprietary remedies which were deemed worthy the consideration of physicians, it had published "Useful Drugs," which contained a list of the really valuable drugs in our materia medica. This a number of the best schools now used as a textbook. Its labors, too, had materially influenced the teaching of materia medica and therapeutics. It remained, however, for the profession to set its ban on all proprietary medicines, if the only information concerning them came from those who manufactured and sold them.

Council on Medical Education.—This council was established in 1904 and its work since that time had more than justified its existence. It had accomplished more in the way of regulating and elevating medical education during ten years than had been done in a century before. It was only just, however, to acknowledge that there were outside influences which had been most helpful in this beneficent work, and to them all due credit should be given ungrudgingly. The Association of American Medical Colleges, the Federation of State Medical Boards, the American Academy of Medicine and the Carnegie Foundation had at all times cooperated cheerfully, zealously, and effectively. But, after all, it was to the greater credit of the Council that it had been able, largely through the tactfulness and diplomacy of its chairman, to make use of and coordinate so many forces for good, which, while working separately, as they hitherto had done, had oftentimes, though inadvertently, pulled apart instead of together. No one who had attended the annual meetings of the Council, Federation of State Medical Boards, and College Asso-

ciation, held on consecutive days, in the same hall, the members of each body having the privilege of debate in all, could fail to be impressed with the admirable team work thus far displayed.

When the Council was organized in 1904, it published, as an ideal standard to which it would gradually approach, the following: "(*a*) Preliminary education sufficient to enable the candidate to enter our recognized universities, the passing upon such qualifications by the State authorities. (*b*) A five-year medical course, the first year of which should be devoted to physics, chemistry, and biology, and such arrangements should be made that this year could be taken either in a school of liberal arts or in the medical school. Of the four years in pure medical work, the first two should be spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics, and the specialties. (*c*) A sixth year as an intern in a hospital or dispensary should then complete the medical course." This goal had now been reached, at least on paper; the ranks have been thinned, as more than a third of the schools were now *hors du combat*, and it was expedient to mark time for a while, and give those institutions which had approached the firing line at double-quick speed a chance to catch their breath. There were many reasons why this should be done. In the first place, the standard was now as high as it should be for *all* of the schools of the entire country. An irreducible minimum had been reached, and should be honestly enforced—that is, as soon as it could be. There was, of course, no limit to a maximum that any highly endowed and exceptionally circumstanced institution might adopt for itself. Second, the present standard of the Council (four years in an accredited high school, one year in the basic sciences of chemistry, physics, and biology) was on a parity with that of Canada and Great Britain, and with European countries. Third, medicine was not a thing apart, but only a link in the educational chain, and should be based on and correlated with the secondary schools, colleges, and universities of the country. Professional education, in medicine at least, had advanced much faster than our general educational system had done. It would therefore be logical to direct our efforts for the present toward stimulating progress in secondary education until it shall have caught up. It was the duty of the Council on Education to publish a list of acceptable and unacceptable medical schools; but the simpler the classification the better, as fewer mistakes would be made and, therefore, heartier support accorded by all. Nice discriminations between wholly acceptable schools were unnecessary, served no good purpose, would naturally be resented, and might lessen the usefulness of the Council. There was always danger of overdoing a good thing. It was proper and feasible to distinguish between schools which were acceptable and those which were not. But when the Council undertook to discriminate between high grade schools, mistakes certainly would be made. Therefore the Council had abolished "A plus" from its classification.

National Board of Medical Examiners.—To meet a situation which, under our peculiar form of government, had resulted in hardship and countless embarrassments, a national Board of Medical Examiners had been organized, the speaker said, and would hold its first examination in Washington in October. The character and scope of this examination would be such that no State ought to deny recognition, in the fullest sense, to those who had passed it. This board would not interfere in any way with the several State boards. It should be a simple matter to induce all of the States to recognize a national board whose only aim was to improve the existing situation, and remedy a defect in our law and form of government, provided such board gave an examination equal in every way to that required by the most exacting State in the Union. If this were done, then it would become the patriotic duty of the several States to recognize its licentiates, just as the provinces of Canada now recognized the examination of its national Board of Examiners.

The government had assented to the service on this board of the Surgeon General and an associate each from the Army, Navy, and Public Health Service, and, in addition, had promised the use of the government laboratories, hospitals and schools by the national board in conducting its examinations. The combined resources of these three government services were more than ample to meet every demand; moreover they would insure an examination of such character as was necessary, yet impracticable where large numbers of applicants were examined in one building, within a prescribed time, and by only a few examiners. With the resources available to the board, a number of men could be examined in the several laboratories, some might be given a practical examination in the hospitals, while others underwent written, and still others oral examinations, or operated on cadavers, all at the same time, but under different examiners. An executive committee of five members was perfecting details for the first examination, which would be held from October 4 to 11, and longer if necessary. The candidate for examination would be required to give evidence of having had: (*a*) A diploma from a high school of good standing giving a four-year course; (*b*) a satisfactory course in science, embracing physics, chemistry, and biology, of not less than one year; (*c*) four years in a medical school of A grade; (*d*) at least one year as intern in an acceptable hospital. The amount of the fee had not yet been determined, but it would probably be greater than that charged by the State boards yet less than the amount charged by the conjoint board of Great Britain, which was the equivalent of about $200. In addition the State boards, even though dispensing with an additional examination, would doubtless demand their customary fees as they do now when granting a license by reciprocity.

As to the personnel of the board, Dr. Rodman said, there would probably be fifteen members, several not having as yet been appointed. All sections of the country were to be repesented. As at present constituted, the board consisted of: Admiral William C. Braisted, Surgeon-General, U. S. Navy, chairman; Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army; Gen. Rupert Blue, Surgeon-General, U. S. Public Health Service; Col. Louis A. LaGarde, U. S. Army, treasurer; Asst. Surg.-Gen. W. C. Rucker, U. S. Public Health Service; Commander E. R. Stitt, U. S. Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isadore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllys Andrews, representing the American College of Surgeons; Dr. Lewis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association, and Dr. William L. Rodman, secretary, also representing the American Medical Association.

SECTION IN PRACTICE OF MEDICINE.

Tuesday, June 22—First Day.

Dr. THOMAS MCCRAE of PHILADELPHIA, CHAIRMAN.

Chairman's Address.—Dr. THOMAS MCCRAE of Philadelphia took as the subject of his address "The Use of Words." Words, he said, were the coin of mental exchange, and in medical science the choice of words was of great importance. Many vague terms in common use, often employed as a cloak for diagnostic ignorance, should be eliminated from the vocabulary of medicine. Such a term was "rheumatism." This was frequently applied to such diverse conditions as arthritis, osteomyelitis, neuritis, and the pains of aneurysm. This misuse of terms might not only cause a wrong diagnosis but might even lead to serious errors in treatment. Gonorrheal arthritis, for example, was often called gonorrheal rheumatism and this word suggested the use of the salicylates, which were of no therapeutic efficiency in such a condition. Again, the term asthma was very commonly wrongly employed, and when applied to the dyspnea of a myocardial lesion it often led to improper treatment. Temperature was another absurd word; it did not mean fever and one should not say a patient had no temperature when what we meant was that the patient's temperature was normal. Again, "case" was not synonymous with "patient." A very common misuse of a term was the employment of tubercular instead of tuberculous; tubercular was properly applied in the description of any disease in which there was tubercle formation, such as one of the forms of leprosy, for example; "tuberculous" signified infection with the tubercle bacillus. If medical men were more careful in their use of terms they would find as a result a greater efficiency in their work. They should exercise as much care in their choice of words in writing and speaking as they did in outlining their plan of treatment.

Phenoltetrachlorphthalein Test of Liver Function.—Dr. JAMES S. MCLESTER of Birmingham, Ala., read this paper. It was based upon results of the employment of the test in a series of unselected medical cases, includ-

ing a few of hepatic disease. Rowntree and his assistants had employed the test in sixty-seven cases, of which thirty-seven were quite severe, and they thought the fact of phenol excretion was of importance in diagnosis. Sisson had resorted to it in four cases with no definite results. Whipple, as a result of a number of experiments on dogs, had come to the conclusion that lowered functional capacity of the liver was attended with deranged pharol excretion. McLester had tried similar tests but concluded that they were of doubtful value. He had also found the carbohydrate, lipase, and nitrogen-partition tests of doubtful value; but the most material was the urobilin estimation. There were certain difficulties, however, in this. Wilbur says that the estimation should be made during a period of two weeks to eliminate the error resulting from the daily variations. In employing the method, phenol greatly diluted is given intravenously and then the feces for forty-eight hours are collected and examined. An output of less than 30 per cent. indicates functional or organic disease of the liver. Dr. McLester reported 100 cases, eleven of typical hepatic disease, sixteen of myocardial insufficiency, and the rest miscellaneous. In the liver cases the output of phenol was sometimes plus, sometimes minus; in the heart cases with liver engorgement the severity of the disease seemed to bear no relation to the phenol output, and the same was the case in tuberculosis with engorgement of the liver. The results were therefore inconclusive. The speaker questioned whether the amount of phenol output depended upon the functional capacity of the liver or whether a destruction of all powers was the active cause.

Dr. George Whipple of San Francisco discussed the clinical application of the test. He said that experimental work on animals was more satisfactory, for in them there was better clinical control and also more accurate control of the collection of feces. He had obtained positive results in intoxication, fistulas, and injuries of the liver. He thought one should be cautious in denying the value of a test such as this, nevertheless in complex liver conditions it was safer to have recourse to a number of tests, checking up one with the other.

Dr. Anderson of San Francisco said it was necessary to continue the observations for a period of at least two weeks before formulating any definite conclusions. One should make a distinction between experiments with a clinical object in view and those made for a scientific purpose. Animal experiments were convincing, but clinical ones were attended with so many disturbing factors that they were not so reliable.

Dr. McLester, in reply, thought that much work was still necessary to determine the value of the test; at present he could not regard it as any more certain than the nitrogen-partition test.

Leucemia—an Infection?—Dr. Ray Lyman Wilbur of San Francisco presented this communication. He said that medical men had a tendency to study the morphological rather than the etiological factors in the leucemias, but as yet it was impossible to say more than that a given case was myelogenous or lymphatic. Some observers regarded the condition as due to a neoplasm, but there was a growing tendency to consider the leucemias as of infective origin. The condition was probably occasioned by more than one microorganism, and an infection prepared the way for the next. Lymphocytosis was often confused with leucemia, and the occurrence of a high lymphocyte count in pneumonia and typhoid fever suggested the probability of an infection also in leucemia. The bone marrow afforded a convenient nidus for infection. Leucemia had been observed in chickens and other animals, and a passage through animals was possible. Familial leucemia had been noted and one case in the new-born had been reported. Corynebacteria and tubercle bacilli had been found, but it was improbable that they were the primary infective agents. Dr. Wilbur reported three cases in which there had been an acute course of about two months' duration with a gradual decrease in red cells and increase in white cells; the percentage of lymphocytes was as high as 99, and hemorrhages occurred. In one of the cases there was a mediastinal tumor, and in another there was also pernicious anemia with streptococci in the blood and bone-marrow. The bacteriological study of those cases was suggestive but not conclusive. Long-standing, low-grade infections probably played a part. It would be an important advance if the leucemias were proved to be infectious disease of human origin, but before this could be definitely proved the study of a long series of cases would be necessary. If foci of infection could be discovered the treatment should be directed against them.

Dr. Max Einhorn of New York said that the acute leucemias were probably of infective origin, though this was more doubtful in chronic cases. The tonsils might be the atria of infection. The bacteriological study of a case should always be made before the autopsy.

Dr. J. A. Lichtz of Pittsburgh said it was often very important to look for an infection in the cause of primary anemia. In the pernicious type the temperature was often elevated before death, which gave it the appearance of an infection. Perhaps leucemia might be caused by a virulent transformation of some previously non-virulent organism.

Dr. Wilbur said a careful study of the bone marrow in the living should be undertaken, a specimen of the marrow being obtained under local anesthesia. Whenever the tonsils were definitely diseased they should be removed.

Clinical Interpretation of the Platelet Count.—Dr. W. M. Duke of Kansas City, Mo., read this paper. Reports concerning the platelet count disagreed, he said, and the count followed no law in diphtheria, tuberculosis, and nephritis. He repeated the results of a number of experiments. In rabbits the injection of a fatal dose of diphtheria toxin caused a rapid fall in the count; but a sublethal dose was followed by a rise. Large doses of dead typhoid bacilli injected intravenously caused a fall in the count; small doses, a rise. Benzol in moderately large dose produced a rise; in small dose, a fall. The *x*-ray in large dose caused a fall; in small dose a rise. The same agent therefore might produce a rise or a fall. The injection of tetanus toxin produced little effect either way.

Dr. Webb of Colorado Springs said that the platelet count varied greatly; during the acute onset of a disease it might decrease, and later increase. It was possible that the use of the platelets was to carry opsonim. A high altitude caused an increase in the number of platelets.

Dr. Herberts of San Francisco said the platelets were discussed in hemorrhagic disease and also markedly discussed in aplastic anemia and pospurer. The patelets seen in coagulating blood are disintegration products of the leucocytes.

Dr. Duke said that hemorrhage occurred when the platelet count was below 10,000. The platelets were increased by the *x*-ray and in hyperemia. An important use was that they elaborated prothrombin when needed in case of injury to the vessels.

A Clinical Contribution to Our Knowledge of Chronic Pancreatitis. — Dr. Max Einhorn of New York presented this communication. He said the surgeons had contributed much to our knowledge of this subject, and so had the clinicians by their study of the function of the pancreas. Pancreatic disease was possible with increased activity of the gland. The clinical symptoms of pancreatic disease were diarrhea, fatty stools, emaciation, and atrophic changes. The diagnosis was often not made until the autopsy, and physicians were frequently timid about making a diagnosis *intra vitum*. Functional tests showed a charged trypsin and amylopsin relation. The digestive functions were defective for fat, starch, and albumin. In certain cases there was constipation with impaired digestion. Pancreatic disease was often associated with glycocuria. In 87 per cent. of diabetes the islands of Langerhans had disappeared. The pancreas was often affected in cases of gall-bladder disease. The gastric juice might be normal but the duodenal contents lacked the pancreatic ferments. Many cases recurred after operation. One of the etiological factors was alcoholism. In the treatment of pancreatic disease the cause (gallstones for example) should be removed if possible. Sometimes the disease was incurable and then our efforts should be described to maintaining the strength of the patient as long as possible and promoting his comfort as far as possible until the end. Acute pancreatis was not infrequently mistaken for cancer.

SECTION ON DISEASES OF CHILDREN.

Tuesday, June 22—First Day.

Dr. Lawrence T. Royster of Norfolk, Va., Chairman.

Chairman's Address.—Dr. Lawrence T. Royster of Norfolk, Va., delivered this address, in which he gave a brief history of the development of pediatrics and

made the prediction that the followers of this specialty stood at the threshold of a new era. Pediatrics was rapidly becoming recognized as the most important branch of medicine. It was a far call from the old woman nurse of a generation ago to the pediatrist of to-day. The requirements of a competent pediatrist now were a liberal education, general and medical, an interneship in a children's hospital, surgical training, and expertness in microscopical work. In addition he must be a leader of thought in his community and must be able to speak with authority on all matters pertaining to child welfare and the prevention of disease. His influence should be felt in the city council chamber, in the board of education and in all lines of sociological endeavor; indeed a thorough knowledge of sociology in all its bearings was most important. The child who was mentally abnormal was always less resistant to disease, and as there seemed to be an ever increasing number of children of this class it was important, if not absolutely necessary, that the pediatrist should be an alienist as well. It was only by constant study and practical post-graduate work at frequent intervals that the pediatrist could keep abreast of the times and fully acquainted with the best thought. This Section in Diseases of Children should be the clearing house for the entire country of the best work done in pediatrics each year, since many of the best pediatrists of America were members of it. The utterances of the Section as a whole should eventually become recognized as authoritative by the general public as well as by the medical profession. The best of the papers presented at these meetings should be selected for pamphlet distribution and a limited number of those, which might be suitable, should be given a wide publicity through the daily press. For this reason there should be a most careful censorship of all material presented. It would be well if a committee from the Section could be appointed to co-operate with the Child Welfare Bureau of the general government, with the American Association for the Study and Prevention of Infant Mortality, and with the several State boards of health, in studying the causes and the best means of prevention of infant mortality. Dr. Royster suggested that the American Medical Association might see fit to establish a Council on Infant Morbidity and Mortality, which could undertake the direction of child welfare work in an authoritative way throughout the country. Any body of men who were striving to better the race physically and to raise to a higher position the growing members of the human family could not possibly have too high ideals or be too well equipped for the service which they had undertaken to perform.

Recent Methods of Treating Diphtheria.—Dr. FRANK C. NEFF of Kansas City, Mo., presented this communication. After giving a brief summary of the work of Park and of Schick, he gave a report of the use of diphtheria serum in 155 cases at the Kansas City General Hospital. The mortality was 5.8 per cent. In the fatal cases the first dose of serum was administered on the third day on the average. The average number of units given at the first dose in the fatal cases was 6,100. Four of the nine deaths occurred within twenty-four hours of admission of the patient to the hospital. In spite of the greater severity of the disease the number of units employed when the serum was administered intravenously was practically no greater than in the milder cases. For the sake of greater security, however, more than was really necessary was given in the mild cases. The average dose in these cases was 6,000 units. In a general way it had been quite universally accepted that diphtheria should be diagnosed and treated at the earliest possible moment, and the delay incurred in getting patients to the hospital was that much time lost. To avoid this delay it had been suggested that the hospitals under control of the municipal health boards should extend their emergency service to include the immediate distribution and collection of culture tubes so that a positive diagnosis could be made and the administration of serum begun within twenty-four hours. As regards the administration of the serum, an intramuscular injection gave much more prompt and satisfactory results than a subcutaneous one, and there was no reason why the latter mode of administration should not be abandoned. An intravenous injection gave less discomfort than either an intramuscular or a subcutaneous one. The speaker knew of no contraindication to the intravenous method unless the occasional difficulty of finding the vein could be so called. In the series he had noted 24 cases of serum sickness. Eighty-one children had been tested by the Schick method; in 65 tests in infants under five months only one reacted to diphtheria antitoxin. There was definite evidence that the immunity of an individual might change from time to time, and the author had determined that the occurrence of a negative reaction shortly after exposure was of practical value as affording evidence that the individual lacked susceptibility at that time and that therefore a prophylactic injection of serum was unnecessary.

Dr. ZAHORSKY of St. Louis said that in his opinion the intravenous method of administration of the serum was not always practical, as it was sometimes followed by quite a severe reaction. He preferred in general the subcutaneous method in cases in which the circulation was good, the pulse was strong, and there was no lymphocytosis. If, however, the circulation was poor, as indicated by pallor and coldness of the extremities, one could not depend upon subcutaneous injections.

Dr. A. A. O'NEIL of San Francisco did not think the small doses recommended by Park were advisable, although it might be that diphtheria in California was of a more severe type than it was in the East, or possibly the speaker did not see his cases, as a rule, as early. He gave doses of 40,000 to 60,000 units, and even then he had to admit a mortality of from 12 to 15 per cent.

Dr. HENRY D. CHAPIN of New York said he had tried large doses and small doses and had found medium doses fully as effective as the large ones, and the failed to understand why such large doses should be regarded as necessary.

Dr. MCGAVIN of Portland, Ore., agreed with Dr. Chapin that it was seldom if ever necessary to give such very large doses. In the children's clinics in Vienna they never gave such large doses as were employed here. He inquired whether any members of the Section had observed good results from the use of diphtheria antitoxin in Vincent's angina.

Dr. W. W. BEHLOW of San Francisco disagreed with Dr. Chapin and McGavin in regard to the size of the dose of antitoxin. If large doses of the serum had been found to be effective, he said, he saw no good reason why he should risk the danger of small doses.

Dr. PHILIP S. RAY of Washington said that in his opinion the laboratory findings were so exact and so absolutely dependable that they might well be relied upon as a guide to dosage. He though that laryngeal cases were not apt to be so toxic unless other parts of the respiratory tract were also involved, and that therefore massive doses were not needed there.

Dr. WILLIAM PALMER LUCAS of San Francisco said that sufficient insistence had not been made upon the difference between the true Schick reaction and the pseudoreaction.

Dr. LAWRENCE T. ROYSTER of Norfolk, Va., said that he did not regard large doses as necessary in laryngeal and obstructive cases, and in cases in which there was muscular degeneration or atrophy of the myocardium large doses would do no good.

Dr. LANGLEY PORTER of San Francisco did not think a report of this discussion should go out as an authoritative opinion of the Section, for it was too indefinite. They should define what they meant by minimal doses, and they should not permit the statement to be published that the Section in Diseases of Children of the American Medical Association approved of the use of small doses of serum in the treatment of diphtheria.

Practical Value of the Examination of the Stools in Infancy.—Dr. H. M. MCCLANAHAN of Omaha, Neb., presented this communication in which he said that simple inspection of the stools gave much valuable information as to the color and consistancy of the discharges. The presence or absence of mucus and of blood curds, but a chemical analysis afforded additional information as to the digestion of fat and protein and it had consequently a practical application in the matter of feeding in difficult cases. He reported a number of cases illustrative of the value of a careful examination of the stools in infancy.

Dr. J. I. DURAND of Seattle said he did not regard the chemical and microscopical examination of the stools as a matter of very great importance in most cases. In the pediatric clinics of Berlin and Vienna no very great stress was laid on these examinations. It was generally possible to recognize by inspection alone which food elements were not being properly digested. It might, indeed, be important in teaching to demonstrate what could be learned by a use of the microscope and the test tube, but for the general practitioner inspection was more important.

Dr. C. G. GRULEE of Chicago said he was inclined to agree with the previous speaker that inspection of the stools was the more important as a routine measure. The object of an examination of the stools was to determine the underlying condition, whether something merely affecting the digestive tract or some essential disturbance of metabolism.

Dr. LANGLEY PORTER of San Francisco thought that certain chemical and microscopical examinations were of great importance. The gram stain, for example, was of value in showing an increase in the number of bacteria, and a chemical examination to determine the condition of starch digestion gave results of undoubted value.

A Clinical Study of Pneumonia in Infants.—Dr. HENRY DWIGHT CHAPIN of New York read this paper. He referred to the disappointing results of hospital treatment of pneumonia in children. His experience had been largely in the Post-Graduate Hospital which was located in a densely populated district where one could hardly expect to find much promising material, but the results were about the same in other hospitals dealing with cases of a similar class. The high mortality was due very largely to the poor vitality of these little patients and to the fact that many were not sent to the hospital until the disease was far advanced—often in the later and most dangerous stages. A large proportion of the cases represented secondary or terminal conditions which were apt to occur after any serious illness in poorly nourished infants. His paper was based upon a study of 50 cases, 23 of lobar pneumonia and 27 of bronchopneumonia. The lobar pneumonia cases gave a mortality of 21 per cent., the bronchopneumonia, 48 per cent. It was not always very easy to differentiate bronchopneumonia from lobar pneumonia. When the history showed a slow inception, form of a remittant type, not so constantly high, with disseminated patches over the posterior areas of both lobes, the case was considered as one of bronchopneumonia. In some instances both kinds of pneumonia were present in the same case. Hypostatic pneumonia was practically a terminal condition, Dr. Chapin said and was not usually recognized during life; it was almost constantly found up to 105° in atrophic babies. A notable feature of the series was that a high temperature was well borne. There was a notable leucocytosis in most cases. In some cases not showing a high degree of leucocytosis there was a high polynuclear average. The management of the cases was stimulating and supporting, the drugs employed being strychnine, caffeine, aromatic spirits of ammonia, and occasionally digitalis or nitroglycerin. For quick hypodermic effect camphor in oil and sodium-benzoate caffeine were depended upon. For cough and restlessness small doses of codeine sulphate as indicated was given. The drugs were always given singly. One of the greatest difficulties contended with was the giving of proper nourishment. Most of the children were already suffering from digestive disturbances arising from improper feeding before admission, and special treatment was therefore directed toward the digestive tract. This tested all the skill that the physician possessed. Vigorous infants with lobar pneumonia might respond well to fresh cold air but in the speaker's experience the cold-air treatment was not applicable in the bronchopneumonia of infants, but rather plenty of fresh air delivered into the ward moderately warmed. If better results were to be obtained in hospital treatment pneumonia cases must be admitted earlier and should be discharged as soon as resolution had taken place, since if they were kept too long there was danger of reinfection and relapse. Furthermore it was difficult to avoid secondary and cross infections when a number of weak infants were collected together in one place. Dr. Chapin's plan was to remove these infants to private homes in the country where provision could be made for supervision by a doctor and nurse as soon as the acute symptoms had subsided.

Dr. F. C. KNEFF of Kansas City emphasised the importance of proper feeding in these cases of pneumonia in children, since one of the greatest dangers in this disease was that of digestive disturbances.

The Problem of Unresolved Pneumonia in Children.—Dr. WILLIAM LUCAS of San Francisco read this paper in which he called attention to this condition as being not infrequent in hospital practice. It called for careful differential diagnosis as it was apt to be mistaken for tuberculosis or possibly beginning empyema. Fluoroscopic examinations and thoracentesis repeatedly performed were necessary to clear up the diagnosis. In these patients the pneumonia might not entirely clear up for months, but if they were treated as tuberculous patients many would recover unless some intercurrent infection supervened. Dr. Lucas exhibited a number of *x*-ray pictures and described several cases in which the diagnosis had been determined by their help.

SECTION ON SURGERY, GENERAL AND ABDOMINAL.

DR. CHARLES H. PECK OF NEW YORK, CHAIRMAN.

Tuesday, June 22—First Day.

Chairman's Address.—Dr. CHARLES H. PECK of New York delivered this address, taking as his title, "Bang's Lesion of the Stomach and Duodenum, with Special Reference to Late Results." The paper was based upon a review of the cases of gastric and duodenal ulcers coming under observation in Roosevelt Hospital during the past five years. The beneficial effects of gastroenterostomy in these cases were due, he said, either to the changed chemistry of the stomach or to the drainage afforded by the operation—probably to the drainage. Dr. Peck recommended simple gastroenterostomy for duodenal ulcer, gastroenterostomy with excision of the ulcer for gastric ulcer. The mortality of chronic duodenal ulcer was 8.1 per cent., this estimate being based upon a study of 58 cases. Seven patients of 13 suffering from gastric ulcer were reported well 5½ years after operation. Out of 17 cases of acute perforating ulcer, 15 made operative recovery, and 13 were permanently cured. The speaker said that both clinical and radiographic signs pointed to continued potency of the pylorus and a functionating stoma.

Chronic Gastric Ulcer.—Dr. WILLIAM J. MAYO of Rochester, Minn., presented this communication. He said that gastric ulcer was a more serious, but fortunately less frequent condition than ulcer of the duodenum. The chief reason for this greater degree of seriousness was the danger of perforation and leakage of the more toxic stomach contents. A predisposition to gastric ulcer was afforded by the deposit of excessively hot or excessively cold food in the pyloric portion through the canalis gastricus. The speaker said that he saw no advantage to be gained in closure of the pylorus in cases of gastroenterostomy. He believed that caudad section of the stomach for lesions in this region of the organ gave better results as regarded gastric motility.

The Relation Between Chronic Ulcer and Cancer of the Stomach.—Dr. A. J. OCHSNER of Chicago presented this communication. In all cancers, he said, the growth was located on the edge of the ulcer except in the case of papillanata. The ulcer-bearing area was similar to the seat of greatest frequency of gastric cancer. To reduce the frequency of cancer of the stomach we should preach the avoidance of sudden changes of temperature of the gastric mucosa and of the taking of uncooked food, for the speaker believed the cancer germs reached the stomach in the food. For the preservation of life early diagnosis leading to early operation was essential.

Dr. EMMET RIXFORD of San Francisco pointed out the difficulty of an absolute diagnosis early in the course of malignant disease of the stomach.

Dr. WILLIAM L. RODMAN of Philadelphia urged the necessity of excision of all ulcers of the stomach in order to avoid the dangerous consequences of these lesions. These were perforation in 33 per cent. of all cases and hemorrhage, with or without perforation, in 50 per cent. In 60 per cent. of all ulcers, if untrastal, malignant growths developed.

Dr. W. I. TERRY of San Francisco questioned the alleged frequency of cancer of the stomach; and other speakers discussed the causative factors of malignant disease.

Röntgenological and Surgical Aspects of Gastrojejunal Ulcers.—Dr. R. D. CARMAN of Rochester, Minn., reported a series of cases of gastrojejunal ulcers following gastrojejunatomy. He said the ulcer should be excised and gastroarterostomy should be performed if much induration was present.

Surgical Anatomy of Cleft Palate.—Dr. J. RILUS EASTMAN of Indianapolis read this paper. He dwelt upon the necessity of care in the operation to avoid the ascending posterior palatinoastomy, and emphasized the importance of detaching the border of the soft palate from the hard palate.

Dr. Harry Sherman of San Francisco said he had experienced the greatest annoyance, in operating for the closure of cleft palate, from the difficulty of controlling the action of the tensor palate muscle, and he had also had much trouble from infection of the wound.

Ileocolostomy and Colectomy for Arthritis Deformans.—Dr. Rea Smith of Los Angeles, in this communication, reported a series of cases which supported the contention of Davis and others that arthritis deformans was chiefly or very largely of intestinal origin, being one of the manifold results of autointoxication.

Dr. James F. Percy of Galesburg, Ill., referred to the buccal origin of arthritis deformans, which was, he though, of as much importance and as frequent as the intestinal origin.

Myositis Ossificans Traumatica.—Dr. Oscar M. Shere of Denver read a paper with this title, in which he stated his belief that the affection occurred with greatest frequency as the consequence of a single closed injury. He discussed the surgical pathology of the disease and its treatment from the standpoint of sarcoma.

Dr. Dean De Witt Lewis of Chicago said it would be interesting and of the greatest importance to determine the frequency with which myositis occurred after the receipt of an injury.

Dr. Alexius McGlannan of Baltimore advised an expectant course after an injury waiting to see what happened. No operation was indicated if the bone shrank, which, in his experience, was what usually happened. Operation during the acute inflammatory period following the trauma was very apt of increase bone proliferation.

ELECTION OF OFFICERS

The following officers were elected by the House of Delegates on Thursday, June 24:

President, Dr. Rupert Blue, U. S. Public Health Service.

First Vice-President, Dr. Edgar A. Vander Veer, Albany, N. Y.

Second Vice-President, Dr. George B. Evans, Dayton, Ohio.

Third Vice-President, Dr. Donald Campbell, Montreal, Canada.

Fourth Vice-President, Dr. Herbert C. Moffitt, San Francisco, Cal.

Secretary, Dr. Alexander R. Craig, Chicago.

Treasurer, Dr. William Allen Pusey, Chicago.

Trustees, Drs. M. L. Harris, Chicago; William T. Councilman, Boston; Thomas McDavitt, St. Paul.

The next annual session will be held at Detroit, Mich.

(*To be continued.*)

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held April 23, 1915.

The President, Dr. Howard Lilienthal, in the Chair.

Medical and Surgical Aspects of Empyema of the Thorax, with Conclusions Drawn from a Study of 299 Cases.—Dr. Abraham O. Wilensky read this paper which gave the results of a study of 299 cases of acute and subacute empyema, these being all the cases treated at Mount Sinai Hospital in the last ten years. Of these there were 285 cases of acute empyema, six cases of tuberculous empyema, seven of pyopneumothorax, and one of actinomycotic empyema. One-third of the cases were under two years, two-thirds were under ten years of age. Sixty per cent. were males and 40 per cent. were females. Eighty-three per cent. followed some affection of the lungs or pleura; 11 per cent. were primary. Besides these, empyema had followed the infection diseases, had been metastatic, and had followed trauma. Sixty-six per cent. were metapneumonic. Tuberculous processes rarely led to suppuration within the pleural cavity. The pathology of general, localized, and interlobar empyemata were described. The character of the effusion was gone into in detail, also the bacteriological and blood culture studies. The importance of operating at the right time was emphasized. Treatment included aspiration, intercostal incision, and thoracotomy with rib resection. All the complications were gone into and it was pointed out that these accounted for most of the deaths. The essayist found that 53 per cent. were cured after the primary operation; 28 per cent. died; 12 per cent. were improved; seven per cent. were not improved. He concluded as follows: (1) In the great majority of the cases empyema was secondary to some other inflammatory lesion in the body. (2) The mortality for the series was 28 per cent. varying from 50 per cent. in children to 18 per cent. in adults. (3) The most favorable period for recovery was between 3 and 10 years of age. (4) Twenty per cent. of the patients died as a result of the primary illness, or of a recurrence of it, or of some other complication or intercurrent disease. Only 8 per cent. died because of the process in the chest. (5) Twenty-three per cent. of the patients that recovered had more or less trouble with the healing of their sinuses. (6) Advances to be made in the treatment of empyema would come from improvement in the operative technic or in in the after-treatment, which would tend to decrease the frequency of chronic sinuses to a minimum or perhaps to eliminate it altogether.

Dr. Charles N. Dowd said that it was a pleasure to hear empyema of the thorax referred to as a secondary disease. It was very commonly treated as the primary disease and attention was given to the pleura which might better be given to the lung. Pneumonia was usually the primary disease and pyothorax was a complication. The pneumonia continued its wandering persistent course and was really much more dangerous than the pus collection. The liberation of the pus was a simple matter and should not be treated as a major operation. The giving of a general anesthetic to a patient who had pneumonia was to be avoided, if possible, and it was usually unnecessary for these patients. A preliminary dose of morphine followed by the local injection of one per cent. solution of novocaine gave local anesthesia which was ordinarily sufficient. A piece of rib could usually be thus resected. If it were really necessary the local anesthesia could be supplemented by a very short use of nitrous oxide. It was usually advisable to insert the finger into the chest so as to determine the degree of lung compression and to remove the coagulæ. If the patient coughed and expanded the lung at this time the danger of persistent fistula was practically past. It was particularly desirable that every procedure should be adapted to the patient's condition; the removal of the coagula in order to secure immediate expansion of the lung was desirable, but if the patient was not able to stand the measures which were necessary to obtain these results, drainage might be secured through an incision between two ribs. If the temperature rose a few days after the drainage was established, undrained pockets of pus were often suspected and vigorously searched for; they seldom existed. Dr. Northrup in making a very large number of autopsies at the Foundling Asylum never found one. Pneumonia was the most common cause of such temperature rises. In a recent paper before the State Medical Society the speaker said he had referred to twenty-three autopsies on empyema cases, and in almost all of these death was due to pneumonia or a pneumococcus complication. If there was a collapse of the lung Dr. Lloyd's suggestion was a good one, to break up the adhesions and thus endeavor to obtain lung expansion. In those cases in which the lung refused to expand a major operation was desirable. Among the 285 cases of empyema which he had reported there were 19 who had persistent sinuses owing to lack of lung expansion.

Dr. Samuel Lloyd said that this question had interested him for many years. He recalled that when he was at Princeton University the Professor of Biology was also interested in this work and he told him to take a cat, board and play with cats, studying the cases, etc. He placed a plug of cotton in a cat's chest during these series of experiments and found that the cat expanded the lung. Soon Dr. Lloyd forgot all about this experience. Later at the Randall's Island Hospital he met with many cases of empyema of the chest which bothered him and then he recalled the experiments made with the cats at Princeton University. He discovered that if they used a low anesthesia, allowing the patient to gradually come out of the anesthesia, when the patient coughed the lung would begin to expand, not with inspiration, however, but with forced expiration. Dr. Smith had likened this to the working of a pair of bellows. Dr. Lloyd said he did not advocate the operation today as he did years ago where the lung was not

already bound down by adhesions, but only in those cases where the lung was compressed and already bound down in the pleural cavity. In cases of acute empyema where the lung was not bound down, the operation formerly advocated by him was not now indicated. Where it was impossible for the lung to expand he advised giving low anesthesia and breaking down the adhesions. They had found that the mortality in these cases was greater in the younger children. He had found that the pneumococcus cases gave a better mortality; he dreaded the streptococcus cases which gave such a large mortality. In the pneumococcus cases one should operate early and many of them would get well. All these cases should be recognized earlier than they were. When there was fluid in the chest one should operate, in his opinion, early before the fluid became purulent. Every case with fibrin deposit should be thorocotomized. The mortality differed year by year. The main point he raised was that these cases should be operated upon early and thus the necessity of an extensive radial operation would be avoided. A second point was that an incision should be made into the chest in those cases in which the lung refused to expand and come down. The third point was to break up all adhesions and so allow the lung to expand. The apex of the lung must be released. Then too, they must be able to recognize an unresolved pneumonia. All lung abscesses should be drained at the time the operation on the empyema was done.

Dr. Henry Koplik said that it was unfortunate that these statistics were taken from hospital cases. It was true that many of these cases developed in the hospital, but most of them came to the hospital in bad or moribund condition, and therefore to the general practitioner hospital statistics are always misleading. The results in private practice would be more encouraging. Speaking of the prognosis, it would be seen at once that the age of the patient was a great factor. The mortality below one year of age was highest; that below two years of age quite high, and as had been pointed out, the best prognosis was given between the ages of five and ten years. The reason of this was quite evident to those who would analyze the cases. In children under one year of age, especially, the nature of the infection was that of a bronchopneumonia, limited or diffused on both sides. An empyema in such a case gave a serious prognosis, because the case had been operated upon, as a rule, before the bronchopneumonia had run its course. The result was that the lung collapsed when the chest was opened, and in a collapsed lung, the bronchopneumonia rarely cleared up, and the patients ran a course of temperature, with a large suppurating pleural cavity, and died of exhaustion. Above two years of age the infection was that of a lobar pneumonia. Here the resistance was not only greater, but was due to the advanced age. When the patient was operated upon, the pneumonia, as a rule, had run its course, the lung did not collapse, and the patient recovered simply because the pus was evacuated from the chest; therefore, the nature of the infection, as well as its severity in the relationship mentioned, was a potent factor in the prognosis. The condition of the patient at the time of operation was very important. A patient in a weakened condition should be tidied over by aspiration until the conditions were favorable to a more radical procedure. This was especially true of young, weakly babies. The operator also should not commit himself to one operation for all cases. The speaker said he had seen a baby of nine months of age, weighing, say, ten pounds, on whom the surgeon performed an operation by resection, as he said, to get perfect drainage, with the result that the patient collapsed after the operation, and died as a result of the radical procedure, whereas a simple incision in the chest might have saved the little one. Dr. Koplik doubted very much whether the prognosis could be predicted from the bacteriology of the fluid. It was not known generally that clear serous exudates contained pneumococci and streptococci. He referred to those exudates of pleurisy which got well without any interference except aspiration. He had always imagined that the practitioner was too eager to operate early in empyema. As soon as a turbid fluid was discovered the practitioner was anxious to place the case in the hands of the surgeon. He preferred to wait, in bronchopneumonia, especially of young children, until the temperature had dropped, and the fluid had become definitely purulent, before operating. In lobar pneumonia, it was much better to wait until the disease had run its full course, and a definite collection of purulent fluid had taken place before operating. For in these cases, as he had intimated, the pneumonia having run its course, the lung expanded more readily after operation, than when the chest was opened with foci of pneumonia still in the lung.

Dr. L. Emmett Holt said that the child as well as the empyema of the thorax must be considered. Few children under one year of age could stand an extensive operation. The great difficulty encountered in these small children was not that of drainage but that of obtaining proper lung expansion. He cautioned against the use of general anesthesia in these operations and also against excessive manipulation. He advocated for very young infants the siphon method of continuous drainage. In his experience the cases due to the streptococcus and to mixed infections were the most serious while the pneumococcus cases gave much better results. The staphylococcus infections in young infants gave the best prognosis. Many children were benefited by deferring operation until the acute pneumonia had subsided. Sex incidence in these cases was quite striking. There were in 204 empyemas of the thorax, 140 males and 64 females. This difference could not be satisfactorily explained. Pneumococcus meningitis caused death in five of this series of cases; also there were eight deaths attributed to suppurative pericarditis. In the great majority of cases the cause of death was the pulmonary condition.

Gallstones.—Dr. Beverley Robinson read this paper in which he stated that they were constantly meeting people who had passed middle life who gave premonitory symptoms of gallstones which if properly heeded might prevent later troubles. Among these symptoms were nausea and vomiting after a meal in which some food rich in fat had occasioned the upset, or a sudden diarrheic attack. With these manifestations there was often much chilliness or a feeling of faintness. Certain surgeons, notably Moynihan and Chauffard, had insisted that these and other symptoms usually assigned to the stomach were undoubtedly caused by the presence of gallstones and indicated the need of active interference by the surgeon. The question arose as to how such patients should be treated when their advisors did not share these radical views. If the patient was a man or woman of small means who was unable to be absent from daily work, and, if after several weeks of intelligent and careful treatment the dyspeptic symptoms remained, or were aggravated, or one or more attacks of biliary colic had supervened, it would seem injudicious to postpone an operation. But if the patient was well-to-do it was different. Medical treatment continued at home or abroad at a spa would not usually cure, but it would make the annoying symptoms far less for weeks and months and might prevent the outbreak of another attack of biliary colic. Under such conditions a diet including a variety of flesh food, broiled or roasted might be allowed and most vegetables were permissible, but alcoholic drinks must be forbidden and fats and sugar should be interdicted as far as possible. Frequent small meals were desirable. Laxatives and frequent small doses of calomel were useful. Daily exercise in the open air should be insisted upon. No doubt the alkaline salt sulphate of soda in Carlsbad water, as well as the hot liquid, helped to liquify the bile. Where there was a suspicion of infection of the bile moderate doses of salicylate of soda, or urotropin, should be given regularly for some days. When attacks of intermittent fever with chill occurred, similar treatment with the addition of hot stupes had a good effect. The formation of gallstones might largely be prevented by a carbohydrate diet. Dr. Robinson said he did not believe that remedies said to promote the flow of bile such as calomel, podophyllin, iridin, etc., had practically demonstrated their value, neither could it be said that olive oil was of value when one realized the improbability of its coming into direct contact with the gallstones. It must be understood that no medical treatment would effect an absolute cure of gallstones, but it might possibly soften them and diminish their size somewhat. The *x*-ray had its limitations as a means of revealing the presence of gallstones, though the technique had been improved so that they were recognized more frequently than formerly. While admitting the advisability of not waiting too long before resorting to surgery, the writer deplored all operations on the gall-bladder done by incompetent hands. He cited cases in his experience which led him to avoid as far as possible obtaining even skilled and careful surgery. He discussed the need of very careful judgment with reference to the advisability of operation, especially since even the most skilled surgeons were at variance

as to the exact indications for operation and recognized two types of cases: those with vital indications and those with relative indications. Among the remedies which had been mentioned favorably as to their action on the liver, perhaps even helping dissolve biliary stones were the bile acids, bile itself, boldine, schonanthin, and sodium succinate. In the writer's judgment nothing in the way of preventive or curative medical treatment met with similar successful result to that which might be had at Vichy, Carlsbad, or Hamburg, though he said he had seen much harm done by too enthusiastic practitioners and patients by too long drinking of the water at the spa, and also by too rigorous dieting. Nothing in the way of medicinal treatment was sovereign in any case, and the value of the personal equation must always be carefully considered. In the interval of attacks of cholecystitis, with or without gallstones, Dr. Riesman usually prescribed the following in capsule three times daily: Sodium salicylate, sodium succinate, ox-gall, each two and one-half grains. A fact to be emphasized was that in the judgment of the men of largest experience gallstones did not recur. After considering somewhat more at length the dangers of rushing inadvisedly into an operation, Dr. Robinson noted with satisfaction the drift toward saner thinking and doing, and said he thought the return should be to the old position when the physician took charge of the patient throughout the whole course of the disease and only invoked the surgeon's mechanical talent on those occasions when it was evidently required.

The Diagnosis and Treatment of Cholecystitis.—Dr. ANTHONY BASSLER presented this communication. After briefly referring the physiological function of the gall bladder he expressed the opinion that Luschka's crypts were potentially pathological, occurring as a development in chronic cholecystitis. He said it was interesting from a clinical standpoint to note that every process of the appendix occurred in the gall bladder—catarrhal, ulcerative, hemorrhagic, pseudomembraneous, phlegmonous and gangrenous. Even the chronic fibrous and obliterative appendix had its counterpart in the gall bladder. This was important to remember when one recalled that disease of both of these organs was so commonly met with at the same time and that it was so difficult to make a differential diagnosis between them. They could now all agree that cholecystitis was due to bacterial infection and that this infection reached the gall bladder with the bile directly from the liver which acted as an organ of body drainage, evicting bacteria from the general portal system. The most frequent association of cholecystitis was with gallstones, which occurred in the sequence of infection, stagnation and precipitation. While in a clinical sense gallstones were the most important factor in bringing out cholecystitic symptoms, one must not forget that such symptoms could occur without gallstones being present. They had seen the instances of typhoid fever, septicemia, pneumonia, food poisoning, and almost all infections in which it did occur in an acute manner. It was wise when a prolonged dyspepsia and tenderness existed that one should not diagnose "gallstones." It was better to say "an inflamed gall bladder," or, as was the author's choice, "pathology of the gall bladder." In a case in which the symptoms had been standing for some years, the history of infection was distinct, and the symptoms came on soon after this infection, one might be bold enough to say "cholecystitis with stones." In such an instance they were commonly present though not always. The gall bladder in chronic cholecystitis might be large and filled with foul smelling bile; or it might be normal in size and slightly thickened, containing bile in an infected mud; or it might be small, thick walled, whitish, and shrunken, containing a thick bile. More interesting, however, was the strawberry appearance of the mucous membrane in which one saw a dotting over of tiny yellow specks. This, in the author's opinion, was the most characteristic pathology, and warranted surgery whenever met with. Empyema of the gall bladder rarely occurred without stone and was most likely to occur in the impacted stone cases. As an acute condition it was one of the most fulminant, ending in a few days in rupture of the gall bladder and general peritonitis. Less severe cases presented the symptoms of a localized peritonitis. The case again might be less like a peritonitis and more like a biliary colic, when one met with fever, accelerated pulse, vomiting, leucocytosis, and rarely jaundice. In this type of case there was not much spasm of the abdominal muscles over the gall bladder but if the warmed hand was laid flat and gently on the abdomen one might feel the distended gall-bladder underneath. If one examined directly with the tips of the fingers one was not so likely to feel it, or an indistinct mass was felt continuous with the right lobe of the liver too closely simulating a Kiedel lobe to be sure either way. At operation such a gall bladder was found tense and distended with a mucopurulent fluid free from bile. Phlegmonous and gangrenous cholecystitis could not be differentiated clinically from the suppurative. They usually gave more severe symptoms than empyema. The acute forms of cholecystitis could readily be mistaken for appendicitis, since the pain might be referred to the right lower quadrant. Another type of cholecystitis might simulate uremia. Dr. Bassler spoke particularly of the diagnosis of common cases of cholecystitis in which gallstones might or might not be present, since these made up a considerable proportion of the cases which he saw in his office work and in too few of which diagnosis were being made. There were many having chronic cholecystitis in which the symptoms were entirely dyspeptic in the subjective way. They differed but little from the condition met with in chronic appendicitis, the history being quite as long. As an aid in making a diagnosis there were three procedures of physical examination that were distinctly helpful, the sign described by Robson and two which the author himself employed. The Robson point was tenderness on deep pressure midway between the tip of the right ninth costal cartilage and the umbilicus. The lower border of the liver being so variable in its position in the abdomen, this sign could not be depended on invariably. Dr. Bassler suggested that instead of making point pressure the ulnar side of the extended hand be pressed between these two points along the entire distance. If the tips of the fingers could be impinged under the ribs, the ulnar side of the hand could be pressed over the ducts as well and since these were tender sometimes the value of the sign was enhanced. The first of the author's signs was practised as follows: The position of the lower edge of the liver was carefully mapped out by superficial and gentle palpation and the tips of the fingers of one hand were sunk deeply directly below it in the gall bladder region. On deep inspiration the liver was driven against the maintained position of the tips of the fingers causing distinct pain. It was important that the gall bladder be pressed between the tips of the finger and the liver and the median fissure helped to guide one. The second sign was somewhat the same and was particularly useful when the liver was high or small. Here the examiner sat behind the patient, allowing the patient to rest back on his left shoulder to relax the abdominal muscles. The palmar surfaces of the fingers of each hand were then sunk firmly and deeply under each costal arch until the tips of the right were under the gall bladder and that of the left well over the stomach. Pressure was made alternately on one side and then on the other, first under condition of diaphragm rest, then under inspiration. Using the left side as a control, a tenderness in the gall bladder region was most suggestive. The author said he could not speak too enthusiastically of these two signs. Dr. Bassler, after speaking of the uncertainties of making a diagnosis of gallstones with the *x*-ray and reviewing the well established method of treating cholecystitis, advised the use of the following prescription:

Acidum soda oleat.	
Sodium salicylic	aa 4.3
Phenolphthalein	1.0
Mentholis	.35

Fiat. Pil. No. 50.

Sig. Two before breakfast and before retiring.

Such treatment merely brought about a *status quo;* no dissolving of gallstones took place. When the symptoms were frank enough, did not respond to medical treatment, or returned quickly, operation was indicated. It was likewise indicated in empyema of the gall bladder, diabetes, and cancer, and, of course, when phlegmonous or gangrenous cholecystitis was suspected. One might advise conservatively in individual instances but, in the author's experience, in view of the low mortality at the present time operation was far better for the patient and fairer to their knowledge of the subject. He believed with Mayo and Deaver that if more of those patients who did not respond early and definitely to medical treatment were operated upon, the reaping of the unfortunate sequelæ of cholecystitis would not be as marked as it was today.

Dr. JOHN HARTWELL said that he desired to discuss only one phase of the question, and that had to do with the surgical treatment of cholecystitis and gallstones. He felt that in this matter the responsibility for deciding on operation should be borne rather more by the surgeon than by the internist. The internist who considered the surgeon simply as a technician to carry out his instructions, failed to get from the surgeon the aid to which the patient was entitled. No surgeon who trained himself along only the lines of operative dexterity was capable of undertaking operations for diseases of the gall bladder. The functions of the internist and the surgeon did not differ until the time arrived for the application of therapeutic measures. The surgeon, therefore, must be equally familiar with all the details of the disease's process, must understand as fully as the internist the details of non-operative treatment, and the probability of success in both this and the operative treatment. Only in this way did the surgeon place himself in a position to do full justice to his patient and his art. In deciding for or against operation in a condition such as gall bladder disease, where remissions and recurrences were the rule, the question of first consideration was what was the relative danger of the disease, and of the operation. In other words, granting that the immediate condition could be controlled by internal medication was there a probability that a recurrence would occur which would demand operation as a life saving measure under most unfavorablable conditions for such an operation? This was the situation which presented itself to the internist and the surgeon in every case of gall bladder disease, and since the operative responsibility rested with the surgeon it was only fair that his opinion should carry great weight in deciding for or against operative interference.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, Held Tuesday, February 7, 1915.

THE PRESIDENT-ELECT, DR. W. M. LESZYNSKY, IN THE CHAIR.

Case of Deformity of the Skull with Optic Atrophy.—Dr. L. SHAPIRO presented this case which was admitted to Mt. Sinai Hospital by Dr. Sachs five weeks previously, with symptoms of chorea, associated with marked deformity of the skull and optic symptoms. The boy was 13 years old, of Russian parentage; the father had somewhat abnormal changes of the skull with prominence over the frontal region, but no optic symptoms; the child had a normal birth and no peculiarity of the skull was noted; later the mother observed the eyes becoming more prominent and the peculiar shape of the head became evident; five years ago the boy had scarlet fever, complicated by severe nephritis and hematuria and generalized edema; after this he could not longer see and the blindness was attributed to the scarlet fever; before that he was perfectly well; after that the unusual height of the skull, increase in breadth at the temporal region, and abnormally low ears became noticeable; this was no doubt due to premature ossification of the sutures of the vault which interfered with the normal expansion of this portion of the skull; the *x*-ray showed a peculiar net-work of thinned out areas in the frontal region; this was due to absorption of the inner table of the skull, as had been shown at operation; as to the nature of this premature ossification, it had been observed that this condition had been noted in the ancestry of these cases and Carpenter had noted a case where four children in one family showed a similar condition; other congenital malformations were frequently present, such as congenital pulmonary stenosis and cyanosis of the face; ventral and abdominal herniæ, webbing of the fingers, polydactilism, etc. One case of dermoid cyst had been observed; this association with other congenital malformations and in family groups might argue for congenital origin; the *x*-ray pictures showed enlargement of the pituitary fossa; this had been interpreted as being due to change in the pituitary gland which by some action caused dystrophy; this patient had no other symptoms than ocular ones associated with deformity of the skull; the oxophthalmos was evident; the right eye bulged more than the left; there was no nystagmus; in some cases dislocation of the eyeballs occurred; impairment of function in these cases was due to optic atrophy following neuritis; the origin of this neuritis was not well understood; because of the optic symptoms in this group of cases they were first observed by ophthalmologists. Von Graefe in 1866 had recorded cases; some views as to the cause of the optic neuritis had been advanced; Virchow considered it due to meningitis at the base of the brain, which caused neuritis and subsequent atrophy; other views were that it was due to the abnormal course of the internal carotid, the pressure causing atrophy; or, it might be occasioned by stenosis of the optic foramen which caused pressure and optic atrophy; perhaps the cause might be the difference between the size of the skull and the growth of the brain and the consequent increased cerebral pressure; lumbar puncture was done in this case and there was no increase of pressure; optic atrophy when it occurred, usually occurred before the 7th year, because the greatest growth of the brain was before that age; it was more frequent in boys than in girls and more common in dark-complexioned, sallow individuals; this boy had an organic heart lesion, due to several attacks of chorea; he was an intelligent boy, not at all mentally deficient.

Dr. FOSTER KENNEDY said that these cases were sufficiently rare to deserve consideration. Dr. Shapiro had given a very complete presentation. One point which interested him was the reference to the optic nerve changes in these cases. Dr. Shapiro said the atrophy was of a consecutive character, following neuritis. Dr. Kennedy was not sure whether he meant papilledema or retrobulbar neuritis. The question of the pathology of the exact processes occurring in these cases was important in view of the uncertainty as to the processes which produced changes in the optic nerve. In one case studied the optic nerves were found to be white, in another pallor was present in the temporal region. That would point to the fact that loss of vision was not due to papilledema. It might be produced by pressure of the bony ring on the nerve, a process analogous to the pressure produced by sinusitis and by frontal tumor.

Dr. ABRAHAMSON said the interesting point in the disease was the causation of the fundus changes. Internal hydrocephalus failed to explain them in very many cases. Enslin in 42 cases found twice double neuroretinitis, twice papilledema on one side with neuritic atrophy on the other; twice an apparent primary optic atrophy; thirty-six times post-neuritic atrophy. Cases were reported of oxycephalus with open sutures except the coronal and open fontanelles; with congenital meningoceles; with changes in the eye grounds essentially on one side. The problem was very important since it determined whether decompression or callosal puncture was advantageous as Anton had suggested. Behr believed that the narrowing of the optic canals and the bony dislocation with displacement of the internal carotid artery and compression of the optic nerve by the pulsating artery, were the important factors. The gradual concentric diminution of the visual fields found could also be explained that way. Central scotomata, as in Dr. Kennedy's case, were rare.

Syphilitic Muscular Atrophy.—Dr. JUNIUS W. STEPHENSON presented this case. The patient was a married man, aged 42, who denied all venereal infection, but admitted excessive use of alcohol for 15 years. He was the father of two children; his wife had no miscarriages. History antedating present illness was uneventful. Eighteen months ago patient had noted a weakness of his left hand which had progressed rather rapidly for several weeks, after which he stated that it had remained stationary. About six months following this the right hand was attacked in the same manner and progressed quite rapidly for a period of several weeks when it became stationary. There was no pain or paresthesia. Physical examination revealed double drop wrist with wasting of the thenar and hypothenar eminences, more marked in the left hand; also there was considerable wasting of the interossei more marked in the left hand; extensors of both wrists were very weak, causing a double drop wrist. There was a slight thinning of the left deltoid. The right knee jerk was present but very sluggish; the left was questionably elicited under reinforcement; ankle jerk was not elicited. Plantar, flexor, abdominal, and epigastric reflexes were active and equal. There were no sensory disturbances. Pupillary mobility was good; no nystagmus or diplopia. The right pupil reacted somewhat slowly to light; the left fairly; there was a slight irregularity of outline. There had been a perforating ulcer under the right great toe of one year's duration and patient stated that five or six years ago he had "perforating ulcers" under both great toes which were

said to have responded to treatment; inconstant fibrillary twitchings had been observed. Electrical reaction of the atrophied muscles was as follows: muscles of thenar eminence of left hand showed very slight responses to full faradic coil CCC = ACC. The other muscles of left hand showed slight hyperexcitability to faradism; galvanic o.k. Muscles of right hand responded to increased amount of both currents, left shoulder normal. Serum Wassermann positive; spinal fluid Wassermann positive; no globulin excess; 28 cells per c.mm. reduced Fehling's solution. Uranalyses negative and blood negative for lead findings. The clinical course and serological findings, Dr. Stephenson said, left no doubt as to the diagnosis of this case, which he presented as a muscular atrophy of luetic origin, the pathology of which, though not as yet universally accepted, was probably luetic endarteritis with thrombosis of the anterior horn vessels. Of course the condition of the various reflexes also indicated posterior column involvement, and the case might be considered as a case of tabes with atrophy, but the clinical course was so characteristic of the condition described by Dr. Dana as syphilitic muscular atrophy in which he recognized a distinct neurological entity, that the present case was presented as an example of it.

Dr. Foster Kennedy said he thought cases of atrophy in the hands associated with systematic changes in the spinal cord were not exceedingly uncommon. There was an alternative pathology. The case might be one of tabes with a well marked annular constriction which had produced nipping of the roots of the cervical nodules, or a premature degeneration of the tissue of the anterior horn. One saw occasional cases of tabes in which there was well marked muscular atrophy in the hands. He had seen one case with such hands, with present ankle jerk, no knee jerk and double extensor responses. This would be accounted for by pressure in the cervical region by hypertrophic meningitis.

Dr. S. E. Jelliffe said he would be inclined to think that this patient was allied with the group of tabetic cases described by Déjerine. Probably, from the disruption of ulcers in the lower limb, it was an acute radicular type of tabes.

Dr. Stephenson said he saw a similar case a year ago presenting the atrophy with no change in the jerks or pupils who, about three months later, developed a typical picture of tabes. There had been no pain, nor had they been able to elicit any sensory disturbance of any nature. The cases of pachymeningitis which he had seen had all presented pain and spastic phenomena. The case here shown presented flaccid findings without pain, therefore he thought we could eliminate the condition known as pachymeningitis. As stated the case might be considered tabes with atrophy but he preferred to assume that the initial lesion was a vascular one affecting the anterior horn, and that the patient was now developing a posterior column degeneration.

Basedow's Disease Treated by X-Rays.—Dr. A. Polon made this presentation. The seven cases presented came from the out-door service of Dr. I. Abrahamson, at the Mt. Sinai Hospital, and were treated by Dr. Polon with Roentgen rays at the department of radiotherapy of the same institution. The cases chosen belonged to the clinical groups classed as hyperthyroidism and morbus Basedovi. All of the cases had goitrous enlargement. The rationale of this theraupeutic procedure, Dr. Polon stated, was based upon the biological phenomenon that glandular tissues were inhibited in function and growth, and were even caused to atrophy by the radiation emanating from an *x*-ray tube. The method used presented a modification of the one commonly in use, in that the dosage administered was usually massive, applied at frequent intervals, the ray being of high penetrating power and filtered through one or two mm. of aluminum. The working formula was as follows: distance of nearest point of skin from anticathode 20 cm., miliamperes 6, spark gap 15 cm., time of exposure 3 minutes, filter 2 mm. with the usual protection of skin from the secondary filter radiation, interval between treatments 14 days. The Coolidge system used permitted of exactness and constancy of dosage. The patient was placed in reclining posture, the thyroid region being divided into two or three parts, each being rayed separately while the others were protected. Treatment of about 35 cases of hyperthyroidism and morbus Basedovi with goitrous enlargement, of which seven cases were presented, permitted of the following conclusions: (1) the size of the enlarged gland was definitely diminished by Roentgen-rays; (2) the diminution in size was commonly associated with an amelioration of all the symptoms, especially in early and mild cases; (3) uncommonly a diminution in size of the gland might be effected without a change in the general symptomatology; the shrinkage of the thyroid could not be ascribed to ensuing myxedema, since the Basedow symptoms persisted; (4) the course of the disease was not aggravated by the treatment even in these cases in which no change in the gland was observed; (5) the application of the ray did not preclude, nor did it interfere with other modes of treatment; (6) cases refractory to surgical, serological, gland feeding and drug therapy were benefited by Roentgen therapy. The main features of the cases presented were as follows:

Case I.—Thirty-six years; hysterectomy six months; ever since pronounced symptoms of morbus Basedovi; marked enlargement of thyroid; circumference measurement 15.5 inches; insomnia; psychic disturbance; anorexia; loss of weight; tachycardia 120; since December 9, four massive treatments; improvement at present in all signs and symptoms; glandular circumference diminished by one inch; sleeps well; gain in weight; pulse rate 90; improved mental attitude; still under treatment.

Case II.—Seventeen and one-half years; female stenographer; duration one year; tachycardia; palpitation; exophthalmos; tremor; prominence of isthmus; treated from June 20 to July 25, four times, two full, two half doses; pulse now 84; feels well; thyroid diminished; continues work past six months.

Case III.—Male, more severe case; 21 years; post-office clerk; onset after severe scarlet fever; came to clinic February 5, 1914, complaining of intense precordial pain, palpitation, weakness, irritability; measurement of thyroid anteriorly 15 inches; pulse 110; von Graefe +; Moebius +; received 10 treatments between February 5 and March 11, representing five massive doses; amelioration of symptoms; gland diminished 1 inch; pulse 80; gained 10 pounds weight; not been at clinic since March, 1914; has been working since. This is one of the few cases that show improvement after exophthalmos has been established.

Case IV.—Female 39 years; duration 1 year enlargement of thyroid; tachycardia; tremor; moderate exophthalmos; received four massive doses since December 5 last year. Improvement in all signs and symptoms including diminution of thyroid measurement from 14.5 to 13.5 inches.

Case V.—Female, 28 years; persistent enlargement of gland with pressure symptoms 2 years; all other signs of Basedow's; 3 treatments since December 26, 1914. Amelioration of all symptoms including diminution in size of gland.

Case VI.—Female, 32 years; operated upon thyroid 2.5 years ago; followed by all signs of unfavorable Basedow's; gland continues to enlarge in spite of intensive raying; 8 massive doses in 3 months.

Case VII.—Female, 39 years; 22 months duration before treatment; glandular enlargement, tachycardia; nervousness; 6 massive treatments between July and December, 1914; symptoms at this date, slowing of pulse 84; decrease in size of gland; general condition improved; gland presents characteristic diminution.

Dr. Leszynsky asked what was the change in the size of the gland generally.

Dr. Polon said from one to one and a half inches in the circumference of the neck on the level of the plane passing through the spine of the 7th cervical vertebra posteriorly and the most prominent point of the thyroid gland anteriorly.

Dr. Kennedy asked if the first patient had an oophorectomy as well as a hysterectomy.

Dr. Polon said no. He added a word of warning regarding the need of allowing a sufficient time to elapse (from 5 to 6 weeks) after the last *x*-ray before exposing the patient to the risk of operation, as the surgeon might find that the incision would not heal because of a radio-dermatitis which delayed its manifestation.

Dr. S. E. Jelliffe said he felt very much interested in the remarks of Dr. Polon. He wondered why the factor of etiology had been neglected. Exophthalmic goiter was due to a number of conditions, which were well known. The discussion should be limited to forms in which definite changes in the gland itself caused the condition. The changes supposedly due to emotional disturbance would not be helped by the *X*-ray. Unless there were glandular changes *per se*, patients were not likely to be benefited.

Dr KRAUS asked whether the blood changes had been followed in these cases. This might seem irrelevant, but, as Dr. Jelliffe had said, there were more than one kind of exophthalmic goiter; there was that caused by local thyroid changes and that caused by distant organs with functional thyroid changes; there were changes in the thymus, probably more frequently in the former group and depending upon the duration of the disease. The Germans had differentiated two types—Basedow-thyroid and Basedow-thymus. The former was associated with sympathetic symptoms in the main, the latter with parasympathetic, though this did not rule strictly. Basedow-thymus was often associated with a form of status thymolymphatis—the Kocher blood picture was said to be due to this status, hence it would be interesting to know the changes in the blood picture in order to appreciate whether any treatment were affecting the thymus and lymph system and in what way. Correlation of the symptoms in the light of the vegetative nerve system would help also.

Dr. TIMME said it would be interesting to know whether besides diminution in the size of the gland there was any relief of symptoms produced by enlarged thyroid. He had seen one case where the size of the thyroid was reduced by the parathyroid was stimulated to activity; the tremor and tachycardia were markedly increased. Following the cessation of *x*-ray treatment the patient was no better than before. In regard to the measurement of the decrease of the gland—it was a very difficult thing to get. He had seen an excellent method, devised by Dr. Woodberry, of Clifton Springs, for getting the upper and lower poles and the diameter of the thyroid gland.

Dr. ABRAHAMSON said the presentation of some of the cases treated by the method described was to call attention to this mode of therapy. This was merely a preliminary communication to encourage others to treat cases in a similar fashion. At a later date, when the number of cases reached 300, a more extensive study would be forthcoming. Then the various types of the disease and the many etiological factors would be grouped and studied. At present no such attempt had been made. At the present time there were certain types in which there was no improvement in signs and symptoms even though the thyroid had diminished markedly in size. They had had no accidents and up to date no myxedema. The role of suggestion as a cause for improvement was being considered carefully. Surgery had failed so often and here was a therapy apparently free of danger which yielded apparently good results. The future must decide.

Dr. ONUF said he would like to ask Dr. Polon how he would guard against bringing about myxedema, since to his knowledge the effect of the treatment often did not cease or did not become manifest until many months had passed after treatment had ceased, making it very difficult to let the reduction go to a certain desired point, and no further.

Dr. LESZYNSKY said he noticed no reference to exophthalmos and would like to ask if exophthalmos had existed and had disappeared.

Dr. POLON, in reply, said that with regard to the etiology of these cases they were able to establish in all, or almost all, an emotional factor. Nevertheless, they concluded that the emotional experience played a minor part in the etiology. It was often the last straw which broke the camel's back. The main interest and attention were directed to the clinical course of the disease, as it was affected by the decrease in the size of the gland through the agency of the *x*-rays. With regard to blood findings he regretted that no blood examinations were made, but provisions for doing so in the future were in progress. Regarding the diminution in the size of the gland upon the general symptoms they had come across three cases in whom, although a diminution in the size of the gland was affected, the symptoms still persisted. None of the cases shown to-night belonged to that group. In these there was a distinct ratio between the changes in the gland and the changes in the symptomatology. In regard to a more exact method of measuring the size of the thyroid gland they had found the spine of the 7th cervical vertebra and the most prominent point of the gland to be reliable, but would be glad to try the method spoken of by Dr. Timme. As to myxedema, they had met with no such experience. Speaking of exophthalmos, there was always exophthalmos of varying degree, but a pronounced exophthalmos appeared to be an unfavorable prognostic sign even if the ray caused shrinkage of the gland.

Address of Retiring President.—Dr. S. E. JELLIFFE said: "The Neurological Society was founded in 1872. After two years of stormy existence it was reorganized, and now represents the oldest society of its kind in the United States. It has a creditable history of 42 years of active service, and I feel it a special mark of privilege to have been chosen as your president, and to have served two years. What measure of success has been attained has been due to you, the individual members. I have tried solely to direct your energies and to make a platform upon which you could range your work with that of your precedessors. And now, in relinquishing the leadership, I wish to tender to you my word of thanks with sincere appreciation for the support you have accorded me. Retiring presidents seem to have left but few traces of their farewell utterances, for I am unable to find any guides which might be a lamp unto my feet in this most difficult of all tasks, namely, that of uttering one's own funeral oration. Turning to Holy Writ, therefore, for inspiration, I find that prophets have accrued much merit by foretelling what has already happened, and so in reviewing the work of the past two years I shall tell you what I had in mind, what I *had* planned to do, when you elected me president. Had you not meted out such good measure, heaped and running over, I would not have been such a good prophet. In view of this wealth of material, therefore, I shall not attempt any detailed recounting of it—most of you have contributed to it—I shall endeavor to give a somewhat rapid glance at the main trends: In the first place, the most striking feature of the material offered has been its great catholicity. All aspects of nervous structure and of functioning have received their attention, and a firm and progressive advance has characterized your activities.

"It has seemed feasible to regard the nervous system, speaking very broadly, as operating at three levels: through the course of ages these have been built up, not at all sharply delimited, but gradually and imperceptibly merging the one into the other, until this completed structure, through successive intergradations, has reached the dignity of the most important structure in the universe. These levels are familiar to you; we shall speak of them as the vegetative, the sensori-motor, and the psychical levels, respectively, and will utilize the terms, vegetative neurology, sensorimotor neurology, and psychical neurology, not as indicating three different kinds of neurology, but rather one, which working at different functional levels is finally integrated in that master spirit of evolution, the nervous system. Through countless ages that inexorable experimenter, Nature, has built up a series of successful models into a unity, the chief cleavages of which are merely suggested in order that such a conception might make the facts more readily handled. To attempt to make any such scheme of cleavage a ground for exclusion of any one level, as sufficient to handle the facts of neurology is to invite failure. Man is not solely a metabolic apparatus, accurately adjusted to an adaptive regulation of most marvelous efficiency and intricacy, through the vegetative neurological mechanism; nor do his sensoriemotor functions make him solely a feeling, moving animal, seeking that which we call pleasure and avoiding pain, conquering time and space by the enlargement of his sensory possibilities and by the magnification of his motor powers; nor yet is he solely a psychical machine, which by means of a masterly symbolic handling of the vast horde of realities about him has given him almost the power of reality itself. He is all three, and a neurology today that fails to interpret nervous disturbance in terms of all three of these levels fails in its high mission. This society has lived up to this criterion throughout its history and it has been the pride of each president that it has continued to carry out such a program.

"During the last two years you have presented, as contributions to the physicochemical level, much timely work, both new and important on the vegetative nervous system. The foundations laid by Langly and the English school have been built largely upon by the Vienna school, and all medical problems have had a new light thrown upon them by the more precise anatomical and physiological knowledge recently acquired in this field. Through the study of the reciprocal activities of the sympathetic and para-sympathetic systems, the entire group of metabolic activities has become much more comprehensible. The active and delicate adjustments of the physical and chemical needs of the tissues are, as we have seen, dependent upon these structures. Tissue hyperplasias, such as are seen in dermatosis, cirrhoses, scleroses carcinoses, gummatoses, etc., are the more readily explicable by means of this concept of the reciprocal activ-

ities of the vegetative nervous systems. The eminently practical problem of that which Eppinger and Hess have called the vagotonic constitution has been brought to your attention, and as a corollary flowing from these researches some of the most striking syntheses have resulted. Thus the activities of the whole group of the endocrinous gland disturbances has become comprehensible, and it is quite doubtful if a purely chemical concept, such as the hormone hypothesis will handle the facts. The anatomical pathways, the synaptic integrations, with the other levels, show readily why pain at a sensorimotor level may induce loss of tissue-tone and furthermore enable one to trace the anatomical and physiological connection between repressed desires, acting at the symbolic or psychical level, and enteroptoses, gastroptoses, vascular spasms and inequalities, skin atrophies and hypertrophies, and a host of changes in the body structures, a number of which have been shown here. A new syndrome, pilous adiposity, was presented before this society—an endocrinous constitutional anomaly. An entire revision of the whole embryology and anatomy of the hypophysis was a contribution from one of this society. The eminently practical problem of brain surgery, and some of the causes for disappointment following operations, was presented in which the kernel of the whole situation, namely, localized cerebral swelling, or tissue edema, receive its chief illumination from the study of the vegetative system activities upon the cerebral vessels.

"Thus not only every field of medicine, but many problems in surgery, receive most important clarification of the activities if the vegetative nervous system be taken into the mental grasp of the observer. Reluctantly I pass over this oldest phylogenetic level to even more hastily glance at the summaries and new work at the vital level which this society has fostered during the past two years. Perhaps the most striking of all the work in the field of sensorimotor neurology has been that clustered about the problems of syphilis of the nervous system. Early in 1913 the *Treponema pallidum* was discovered in the central nervous system, and demonstrated by its co-discoverer, one of your body. This discovery has settled the controversy relative to a host of problems upon nervous syphilis. In rapid succession we have had presented before us the attempts made to reach the organism by specific therapy in the elaboration of the Swift-Ellis treatment and its modifications; a thorough résumé of the pathological features involved has been presented, the peculiar lympathic blockings demonstrated, which throws some light on the difficulties of cerebral tissue penetration, and a group of experiments shown looking forward to the best means of seeking tissue penetration by remedial agents in order to reach the syphilis organism. This eminently practical problem of the treatment of all forms of nervous syphilis, suddenly reilluminated by the discovery of the causative factor, has also been clarified by a very full setting forth of contemporary experience from the chief clinics of Frankfort and Hamburg. This society has reason to congratulate itself that one of its members was the chief discoverer of the *Treponema pallidum* in the brains of paretics. Of the newer syndromes in sensorimotor neurology, which have been shown before us, may be mentioned, dystonia, musculorum progressiva, myotonia atrophica cauda equina neuritis, and progressive lenticular degeneration. Most illuminating and progressive work in spinal cord tumors has been brought to our notice and a large mase of fascinating clinical material of spinal cord and brain lesions, which I shall not burden you in relating. Cerebellar mechanisms and cerebellar localization have also claimed attention. Barany's important researches in localization and clinical cerebellar diagnosis have received extended discussion, while the cognate subjects of midbrain tremors, the pathology of the motor phenomena of paralysis agitans seen as lesions of the cerebellar static equilibrium pathways, the demonstrations of the extra pyramidal tract signs in disordered cerebellar disturbances in chorea, and the cerebellar types of multiple sclerosis and their separation from related lenticular degeneration syndromes, these have all come before us.

"Last, but not least, this society has not neglected the consideration of the most highly evolved and socially most valuable of all of the levels of the nervous system, *i.e.* the psychicial or symbolic. This is the most active field in neurology today, and its relationshin to the preceding phylogenetically older levels are being analyzed with bewildering activity. In no branch of medical science has the evolution of the concepts necessary to handle the facts been more active than in this particular field of psychical neurology. How rapid has been the change in formulations in the paranoia domain alone was the subject of my inaugural address. An entirely new light has been cast upon the subject of the traumatic neuroses and the unconscious factors of revenge have been laid bare. The psychogenic factors in a group of disorders, heretofore too narrowly viewed in the light of sensorimotor level affections, due to vegetative level disorders, has most amply shown that the psychical levels must not only not be ignored, but are probably the most important, if not the determining factors in the initial causation of these disturbances. It has already been shown how emotional *i.e.* psychic factors produce marked reactions at vegetative levels, that such reactions are capable even under experimental control of inducing transitory and permanent tissue changes, as has been demonstrated, following ligature applied to the vagus, for the changes in the gastric mucosa. Thus we have had presented the importance of psychical factors in epilepsy, in a group of tics, in tabes dorsalis, in spasmodic torticollis, in dementia præcox. Medicine is only on the threshold of this important field, in which an entirely new psychological scale, the Œdipus complex has been applied to measure all social phenomena. This concept, which in general means the instinctive biological direction of the reproductive instinct toward the parent of the opposite sex, and away from the parent of the same sex and its subsequent deviation or sublimation toward the socially permitted object in the ideal love relation, and the development of the Christian ideal of brotherly love, with the building up of the social group on the basis of the freeing of the individual frem the family neurotic romance, have been set forth in at least three different aspects. The interesting and important subject of comparative psychiatry has received illumination from a study of hysteria in a primitive folk, the Eskimo, while the problem of psychoses among the Jews has been presented in a masterly manner. The manic depressive psychoses among children have also received attention. The pragmatic aspect of the whole psychoanalytic movement has been set forth by means of a comparison with certain factors in modern philosophy, as seen in the work of Bergson, the factor that makes cures possible not only in psychoanalysis, but in the entire domain of psychical neurology, which makes up at a minimum 50 per cent. of the entire practice of medicine, has received attention in a study on transference, while the ethical implications and socially constructive values of psychoanalysis have been amply set forth at our last meeting. With such a record I feel we can pass on to even greater achievements in the year to come."

Address of the President-Elect.—Dr. W. M. LESZYNSKY said: "In assuming the office of President, I wish to express my thanks and also my appreciation of the honor conferred upon me. While it has been customary for the President-elect to deliver a so-called inaugural address or read a paper upon some neurological topic, I trust you will pardon me if I establish a precedent by dispensing with this time-honored tradition. Having no new policy to announce, nor new scheme to outline, you will not be disappointed, I am sure, when I tell you that I shall limit myself to a few brief remarks.

"Several years ago a former President-elect said in his address that the transactions of the meetings of the Neurological Society seemed to lack the animation and enthusiasm of former days, and he ascribed this to a phase of evolution, for want of a better explanation. There had never been any acrimonious discussion and harmony had always prevailed, but such a condition of affairs at that time, while apparently true, proved to be evanescent. Since then, neurology has become such a fascinating branch of medicine that it has attracted a larger proportion of practitioners and research workers than heretofore, the number of members in this Society being greater than has ever been known in its history. At the present time, however, a pessimistic attitude is not justifiable, for there are many fertile neurological fields awaiting development, which have not failed to interest an ever-increasing number of zealous and industrious students. On the other hand, we are still awaiting a satisfactory solution of the old but vitally important problem relating to the establishment and endowment of a special institution for the care and treatment of people of limited or moderate financial resources who are afflicted with disorders of the nervous system. The lack of suitable and adequate provision for a large and rapidly increasing number of such unfortunates, who are ineligible for admission to a general hospital, or institution for the insane, is more in evi-

dence than ever. While this subject does not come strictly within the scope of our scientific deliberations, it is of such paramount importance at the present time that I would suggest that you, at least, present this aspect of medicosocial economics to the attention of all philanthropically inclined persons on all befitting occasions.

"It would seem that this is an opportune time for a passing reference to the subject of psychoanalysis and it is not without some hesitation and personal misgiving that I touch upon this topic. It must have been evident to any unprejudiced observer that more time has been devoted to discussion (both polemical and uncomplimentary) in this field of endeavor, than is commensurate with the results, when we consider the antagonism it has engendered, and that its applicability is admittedly restricted. In consequence of the energy expended by its advocates and opponents, particularly the former, a new era seems to have dawned upon us recently, in which neurology has become threatened with a subdivision into specialties, namely, organic neurology and esoteric Freudism. Whether or not this is a significant sign of parlous times, it is impossible to state, but I am, however, unwilling to admit, that the majority of neurologists are sufficiently credulous to seriously entertain such a chimerical notion. Without entering into a discussion upon the merits of such a revolutionary tendency, permit me to state that the New York Neurological Society will, nevertheless, continue to welcome the unorthodox agitators among its members, although the present administration has pledged itself to maintain its well-established scientific and ethical standards.

"Among the younger members of the Society are many possessed of neurological training of a high order, to say nothing of ambition and enthusiasm, and who have been frequent and valued contributors at our meetings. There are others who undoubtedly possess similar qualifications and much latent talent, but have remained inactive probably through diffidence. Let us hope that this Society will never suffer from a superabundance of latency, an unfortunate condition which has so often proven fatal to progress in other organizations. It will always be our endeavor to encourage the younger men to actively participate in our scientific work. The presentation of clinical material demonstrating uncommon or rare types of disease of the nervous system will continue to be one of the essential features of our program.

"In conclusion, let me urge upon you, regular and prompt attendance at our meetings and bespeak your active support and co-operation, trusting that during the present year, a new impetus will be given to neurological research, through the energetic efforts of the members of this society."

An Analysis of the Action of Morphine in the Light of the Vegetative Nervous System.—Dr. WALTER MAX KRAUS presented this paper. He stated that the action of morphine in terms of the old pharmacological conception was said to be narcotic. However, the action upon the eye and the bladder sphincters was accelerating. Thus the narcotic effect did not extend to all parts. Considered in the light of the new pharmacological conceptions of the vegetative nervous system, we found that morphine increased the activity of the vagus to the heart, and decreased the activity of the vagus to the gastrointestinal tract. Thus it was not universally depressant. It should not be forgotten that small doses of a drug might have an opposite effect to large doses. This applied to morphine. Morphine in therapeutic dosage depressed all secretions except that of sweat, and depressed this in chronic morphinism. All smooth muscles were depressed in activity except the sphincters of the eye and bladder. But morphine acted upon the central apparatus, not the periphery. By analogy to natural or chloral hydrate sleep, we could see that myosis was depression. Thus, morphine's action equalled functional depression. The two functions of the bladder, to hold and to excrete urine, were depressed. If it were full, and unemptied, due to sphincter spasm, it could hold no more—diminished function; and if there were sphincter spasm it could not excrete—diminished function. Morphine did not increase the motor reflex activity of the spinal cord in therapeutic doses. Hence it stimulated, if anything, cerebral inhibition instead of narcotizing it. The example of stimulation of inhibition (heart vagus) and depression of stimulation (intestinal vagus), was true of all other vegetative organs. Dr. Kraus concluded, therefore, that the central effect of morphine in moderate dosage was to increase inhibitory actions and to decrease stimulatory actions. The peripheral result was always depression of function.

Dr. S. E. JELLIFFE said that he could not add anything to this paper. He would like to ask Dr. Kraus if he had any light to throw upon the action of drugs on the synaptic junction. What effect would there be, for instance, of nicotine on the one hand and strychnine on the other?

Dr. W. D. TIMME said that Dr. Kraus had made good use of his facts. It was very difficult to generalize on this subject. What generalization was possible he had used. To suggest some of the difficulties of such an investigation—in the first place morphine was always said to have a depressing effect upon the sympathetic centers and a corresponding irritating effect upon the autonomic or parasympathetic centers. That was only true in man and one or two animals, for instance, dogs. In cats the effect was quite the contrary. In cats we had a peculiar action of the pupil; it dilated; so also was the case in the bovine. So there we had a contradictory action of morphine. There were differences in the anatomic and the physiological autonomic systems, from the pharmacological autonomic system. Langley, Bayliss and Starling had traced the physiological sympathetic influence of the control of the sweat glands in the skin. Meyer, of Vienna, had proved that these glands were affected by an autonomic stimulus, such as pilocarpine. When it was seen that the influence was different in man from the lower animals, and that even in man it did not correspond to the anatomical conditions, to correlate these facts with such a drug as morphine was very difficult. Dr. Timme said he understood that this was a preliminary paper. If the investigation was to continue and be subjected to the proper controls, he thought the work was highly necessary, not only with morphine, but with other drugs.

Dr. KRAUS said that as he understood Dr. Jelliffe's question, he asked upon what point in the course of the nerve fiber morphine acted. Nobody knew definitely, as far as he could say. If one took two lines representing sympathetic and parasympathetic fibers and joined them by a third, centrally, one had the general plan. The action was not peripheral. Hence it must be central. It was in all probability upon connections between the sympathetic inhibitory center and the parasympathetic center. This inhibitory mechanism must be much like that described by Sherrington for the regulation of agonist and antagonist.

Dr. JELLIFFE said he did not know about the center. His question was in regard to neurones. The periphery received the stimulation and passed it on to the next neurone, over the synaptic junction.

Dr. KRAUS added that the action of morphine was stimulatory upon some centers, depressant upon others. It was confusing at first. It was impossible to account for the action, if it was called depressant, upon the center. It could not be so upon the intestine for instance, for if it depressed the central sympathetic inhibition to the parasympathetic centers, the vagus would be overactive, which it was not. As to the sweat glands this was the one exception to the rules of vegetative neurology. Though the sympathetic nerves upon electrical stimulation caused sweating, adrenalin did not and pilocarpine did. In chronic morphinism there was hypoidresis. The action of morphine in many other animals was very complex, but in man he felt certain that it was as he had represented.

The Origin of the Blood Platelets. — Carlo Martelli states that these bodies are not a third independent element of the blood. Some of them result from a breaking up of white blood cells, while others are the product of the involution of red blood cells—*Pathologica.*

Hexamethylenamine in the Cerebrospinal Fluid.—W. Usener states that in serous meningitis and hydrocephalus the amount of this drug that is excited in the cerebrospinal fluid is the same as under normal conditions. In tuberculous meningitis, however, there is a distinct diminution in the amount of this excretion.—*Zeitschrift für Kinderheilkunde.*

Sea Climate and the Morphology of the Blood. — E. Conradi notes that apart from a slight increase in the number of erythrocytes and the amount of hemoglobin there are no morphological changes in the cellular elements of the blood under the influence of sea climate.—*Folia Hæmatologia.*

INDEX TO PAGES.

Pages.	Date of Issue.
1— 42	Jan. 2
43— 84	Jan. 9
85— 126	Jan. 16
127— 168	Jan. 23
169— 210	Jan. 30
211— 252	Feb. 6
253— 294	Feb. 13
295— 336	Feb. 20
337— 378	Feb. 27
379— 420	March 6
421— 462	March 13
463— 504	March 20
505— 546	March 27
547— 588	April 3
589— 630	April 10
631— 672	April 17
673— 714	April 24
715— 756	May 1
757— 798	May 8
799— 840	May 15
841— 882	May 22
883— 924	May 29
925— 966	June 5
967—1008	June 12
1009—1050	June 19
1051—1110	June 26

INDEX.

A

Abbe, R., uterine fibroids, menorrhagia, and radium, 379.

Abderhalden reaction, 324, 525, 1037; after transplantation of organs, 79; clinical value, 241; in veterinary practice, 945.

Abdomen, after-treatment in operations on, 695; and thorax, acute diseases of, 789; disease of, and superior mesenteric vessels, 797; gunshot wounds of, 158; inflammatory tumors of, 817; leucocytosis in hemorrhages of, 742; septic condition in, 996; symptoms of, in pleurisy and pneumonia, 577.

Abortion, criminal, 405; legalized, 816.

Abrahams, R., indications for treatment of heart diseases, 683.

Abscess, subpectoral, 658.

Accidents and alcohol, 952.

Accident insurance, 829; and death caused partly by accident, 327; and medical profession, 537; medical aspects of, 34.

Acid crises, 897.

Acidosis, and surgery, 793; in children, 952.

Acids and alkalies in organic world, 524.

Aconite, renaissance of, 231.

Acromion, concretions below, 792.

Addison's disease, case of, 207.

Adenitis, tuberculous, cervical, 155; tuberculous cervical and tonsils, 155.

Adiposity, pilous cerebral, 249.

Advertisements, medical, right to publicity, 442.

Aeschylus, a doctor's study, 341.

Air, impure, dangers of, 564.

Alcohol, and accidents, 952; and the circulation, 533; criminality caused by, in Bavaria, 495; campaign against, in Munich, 863; in army, 365; in war, 33.

Alcoholism, and life expectancy, 201; and the intoxication impulse, 253; subacute, treatment of, 252.

Alexia, 1081.

Alimentary canal, intoxication from, in infants, artificial serum injections in, 924.

Alkalies and acids in organic world, 524.

Alkaloids, and fullers' earth as an antidote, 998.

Allylmorphine, 882.

Alopecias, the, 852.

Alzheimer's disease, 335.

Amebiasis, intestinal, 578; urinary, 955.

American Medical Association: Addresses of welcome by the medical profession, to California, and to San Francisco, 1087; election of officers and place of next meeting, 1093; president's address, 1084, 1087; report of Board of Trustees, 1084; report of committee on anesthesia, 1086; report of committee on cancer, 1086; report of committee on conservation of vision, 1086; report of committee on co-operation with the National Educational Association, 1086; report of committee on expert testimony, 1086; report of committee on nomenclature and classification of diseases, 1086; report of committee on section work, 1087; report of committee on scientific research, 1086; report of committee on uniform regulation of membership, 1086; report of council on medical association, 1086; report of council on public health and public instruction, 1085; report of judicial council, 1084; report of Red Cross committee, 1086; report of committee on welfare of women and children, 1086.

Ames, T. H., psychogenic convulsions, the result of a wish, 899.

Amino-acids in blood and spinal fluid, 156.

Amputation, and asepsis in war, 326; in war, 157.

Analgesia, novocain-suprarenin, in repair of inguinal hernia, 896.

Anaphylaxis to fly stings, 495.

Anemia, and cholesterinemia, 70; pernicious, 207; pernicious, splenectomy in, 230, 493, 570; pernicious, treated by transfusion, 163; pernicious, treated with cholesterin, 1077; pernicious, treated with salvarsan, 579; severe, with leg ulcer, 1004; splenic, 532; splenomegalic, treated by transfusion, 331.

Anesthesia, gas-oxygen-ether, apparatus for, 980; local, cesarean section under, 288; local, in general surgery, 289; local, in repair of inguinal hernia, 896; local, in thyroid surgery, 289; nitrous-oxide, in obstetrics, 494; nitrous-oxide-oxygen, fatal asphyxia under, 282; parametrian conduction, 285; sacral, 288; scopolamine-morphine, in abdominal surgery, 290; scopolamine-morphine, in obstetrics, 289; scopolamine - morphine - cocaine in surgery, 1078; scopolamine-narcophine, as used in Freiburg clinic, 289; scopolamine-narcophine, in labor, 599 (see also "twilight sleep"); spinal, in general surgery, 288; spinal, in gynecology, 492; spinal, in South America, 288.

Anesthetic, administration of, in intent to procure abortion, 569.

Aneurysm, arteriovenous, 914; arteriovenous, of the carotid, 921; ligation of first part of subclavian for, 331; of superior mesenteric artery, 1080; ruptured, of left vertebral artery, 543; war, 274.

Angina, pneumococcus and its treatment, 325; Vincent's, 58; Vincent's, local applications of neosalvarsan in, 840.

Ankylosis, 282.

Anosodiaphoria and anosognosia, 521.

Anosognosia and anosodiaphoria, 521.

Anthrax and war, 158.

Antivaccination in disguise, 231.

Antisepsis, and asepsis in war, 23; versus asepsis, 154.

Antiseptics, diffusibility and inhibitory qualities of, 1047.

Antisera, production of, 436.

Anuria, salvarsan, hypertonic solutions in, 997.

Anus, fistula in new operation for, 519; prolapse of, in children, 72.

Aorta, descending thoracic, dilatation of, 540.

Aortitis, syphilitic, 787.

Aphasia, and apraxia, 30; optic, 1081.

Appendicitis, 952; acute, and acute appendicular obstruction, 31; acute obstruction of, 704; and focal infection, 798; and sciatica, 364; cause of, 1038; clinical study of, 557; chronic, conditions simulating, 198; electric localization of streptococcus in, 959; from grazing bullet, 326 in soldiers, 955; in the army, 111; operation, catharsis after, 451; pseudo-, in a physician, 536; treated with anti-colon-bacillus serum and vaccine, 199; verminous, treatment of, 504.

Appendix, pigmented, 283, 362.

Apraxia and aphasia, 30.

Army, medical reserve corps of, 192; rum ration, 365; United States, report of surgeon-general of, 64.

Armies, allied, health of, 358.

Arsenic excretion in urine following use of salvarsan, 588.

Arteries, contour of normal pulse of, 788; coronary, action of opium alkaloids on, 825; heart, and kidneys, chronic diseases of, 925; syphilis of, 877; wounds of, 71.

Artery, middle meningeal, hemorrhage from, 120; superior mesenteric, acute aneurysm of, 1080.

Arteriosclerosis, 913, 1079; and ophthalmologist, 913; and uterine hemorrhage, 913; recent views on, 818.

Arthritis, deformans, ileocolostomy and colectomy for, 1093; elective localization of streptococci in, 959; gonorrheal, pituitary extract in, 1024; oral osteitis in relation to, 427; rheumatoid, 206; rheumatoid, and rheumatic fever, 1080.

Articulation, derangement of inferior radio-ulnar, 708.

Asepsis, and amputation in war, 326; and antisepsis in war, 23; versus antisepsis, 154; technique of, 787.

Aspinwall, F. E., the homograde thermometer, 856.

Association of American Physicians, president's address, 1003; report of George Washington memorial committee, 1003.

Associations, medical, and defense of their members, 650; advantages of, 631.

Astasia-abasia, in multiple neuritis, 70; recovery in, 673.

Asthma, bronchial, and life insurance, 410; bronchial, treatment of, 252; horse, horse-serum treatment of, 952.

Atrophy, progressive neuromuscular, 576; syphilitic muscular, 1096.

Auer, E. M., anosognosia and anosodiaphoria, 521.

Auricles, fibrillation of, 207, 505, 710.

"Auscultoplectrum," 282.

Autopsy, as public service, 870; plea for, 149.

Autoserotherapy in dermatology, 336; 703.

Aviator, darts of, injuries from, 524.

Aviation, hygiene of, 1006.

B

Bacillus, colon, effect of, on kidney, 240; in pasteurized milk, 741.

Bacteria, hemoglobinophilic, infections with, 997; of colon typhoid group, newer, 735.

Baker, V. C., neurasthenia among garment workers, 592.

Balantidiosis treated with emetine, 495.

Baldwin, J. F., splenectomy for pernicious anemia; apparent recovery; death, 250.
Ballard, L. W., the *x*-ray as an ideal local remedy for eczema, 523.
Ballenger, E. G., a new mission for variocele operation when the scrotum is to be amputated, 355.
Bandler, S. W., the use of pituitary extract in obstetric practice, with some critical observations on "twilight sleep," 55.
Barber, W. H., chronic dilatation of the stomach; a clinical and experimental study, 718.
Barnes, F. H., medical inspection of schools in Connecticut, 20.
Barnich, S., simplifying hydrotherapy, 820; the giving of Mariaheim baths in this country, 972; the psychology of the tuberculous, 310.
Bechet, P. E., diseases of the skin in pregnancy, 19.
Beck, A. L., suggestion narcosis, 1069.
Bedsores, treatment of, 882.
Beebe, S. P., medical news in the *New York Times*, 403.
Bell, R., the natural history of cancer, 939.
Benedict, A. L., artificial gastric juice in gangrene, 655; speech elementary sounds, 506.
Benzol, and its homologues, action of, 946; in leucemia and lymphosarcoma, 579.
Beriberi and white bread, 151.
Bile, ducts, cancer of terminal portion of, 149; feeding of, in biliary obstruction, 1037.
Binet-Simon tests in psychoses of senium, 493.
Bishop, L. F., some recent work in cardiovascular disease, 173.
Bissell, J. B., radium therapeutics, otherwise than for malignancy, 1023.
Bladder, bullet extracted from, 158; cancer of, 734; diverticulum of, 450, 531; excision of, for cancer, 71; hypertrophied, 588; papilloma of, 1037; quinine bisulphate in irrigation of, 323; total ectopia of, 663; ulcer in women, rare type of, 868.
Blakely, S. B., the medicine of the Old Testament, 934.
Blindness, color, and color vision, 112; from facial eczema, 542; snow, in troops, 325; Soul, 1081.
Blodgett, S. H., prophylaxis of puerperal convulsions, 478.
Blood, amino-acids in, 156; coagulation in infancy, 831; ferment of, 995; incoagulability of, in hemoptysis, 191; physicochemical studies on, 104; serum, decanted, in the treatment of hemorrhage and hemophilia, 647; transfusion of, see transfusion; uric acid of, 905; vessels, large, shot wounds of, 242; vessels, suture of, in war surgery, 199.
Blood pressure, and altitude, 997; clinical significance of, 473; during pregnancy, 282; estimation in children, 789; high, and thyroid intoxication, 1067; study of, and its value in clinical medicine, 1062; variations and their treatment, 269.
Blum, H., a few suggestions on handling cases of diabetes mellitus, 687.
Blumenthal, S. J., a new operation for fistula in ano, 519.
Boil, Oriental, 955.
Bone, callus, 696; cancellous, lesions of, 333; graft in surgery, 669; regeneration, 778; secondary carcinoma of, 1037; surgery, misapplied, 669, 740.
Book Reviews:
Abdominal operations, Vols. I and II, by Sir B. Moynihan, 830.
Air, water, and food from a sanitary standpoint, by A. G. Woodman, 411.
Alcohol, the question of, by E. H. Williams, 1043.
Anatomy, human, Morris's, edited by C. M. Jackson, 623.
Anatomy of the domestic animals, by S. Sisson, 1083.
Anatomy of the human skeleton, the, by J. E. Frazer, 664.
Anatomy, practical, Cunningham's manual of, revised and edited by A. Robinson, 369.
Anatomy, Quain's elements of, edited by Sir E. A. Schäfer, J. Symington, and T. H. Bryce; Vol. II, part 2, splanchnology, by J. Symington, 497.
Anesthesia, local and regional, by C. W. Allen, with an introduction by R. Matas, 623.
Anesthesia, local, by A. Schlesinger; translated by F. S. Arnold, 35.
Anesthesia, local, by H. Braun; translated and edited by P. Shields, 368.
Anoci-association, by G. W. Crile and W. E. Lower; edited by A. F. Rowland, 369.
Appendicitis, a plea for immediate operation, by E. Owen, 328.
Arzneimittel, die neueren, von H. Skutetzky und E. Starkenstein, 497.
Augenpflege, von Dr. Elsching, 917.
Augenverletzungen im Kriege und ihre Behandlung, von C. Adam, 875.
Augen, über die Ernährung des, von C. Hamburger, 35.
Auricular flutter, by W. T. Ritchie, 244.
Backward baby, the, by H. B. Sheffield, 875.
Bacteriology, clinical and applied, a manual of, by R. T. Hewlett, 706.
Bacteriology, general, by E. O. Jordan, 368.
Bäderbuch, Oesterreichisches, von K. Diem, 116.
Bakteriologische Untersuchungen des Ixemgenates im Genitalkanale der Gebärenden Wöchnerinnen, von Dr. Mund, 202.
Bones and joints, diseases of, by L. W. Ely, 202.
Cancer, its cause and treatment, by L. D. Bulkley, 706.
Cancer problem, the, by W. S. Bainbridge, 411.
Cancer, the problem of, or the philosophy of malignancy, by E. C. Savidge, 1083.
Carcinoma of the thyroid in the salmonoid fishes, by H. R. Gaylord and M. C. Marsh, 411.
Child training as an exact science, by W. W. Jacoby, 706.
Chirurgie de guerre, par E. Delorme, 161.
Circulation, therapeutics of the, by Sir Lauder Brunton, 706.
Clinics, international, edited by H. W. Cattell, Vol. IV, twenty-fourth series, 1914; 917; Vol. I, twenty-fifth series, 1915, 1083.
Clinics of John B. Murphy, M.D., Vol. III, No. 4, 287; Vol. III, No. 5, Vol. III, No. 6, 1002.
Cornell University Medical Bulletin, Vol. IV, No. 2, October, 1914; studies from the department of neurology, 917.
Defective children, edited by T. N. Kelynack, 958.
Dental anatomy and physiology, aids to, by A. S. Underwood, 664.
Dental anatomy, human and comparative, a manual of, by C. S. Tomes; edited by C. S. Tomes, E. W. M. Tims, A. Hopewell-Smith, and J. T. Eriseman, 456.
Dental surgery, edited by M. G. Bennett, with an appendix on dental jurisprudence, by P. B. Henderson, 116.
Diagnosis, clinical, by J. C. Todd, 1083.
Diagnostic and therapeutic technique, by A. S. Morrow, 1002.
Dictionary, a practical medical, by T. L. Stedman, 161.
Dietetics, by W. Tibbles, 368.
Diseases, the commoner, their causes and effects, by L. Jores, translated by W. H. Woglom, 875.
Dissection methods and guides, by D. G. Metheny, 1043.
Doctor's viewpoint, by J. B. Huber, 76.
Experimentation, animal and medical progress, by W. W. Keen; with an introduction by C. W. Eliot, 917.
Fear and conventionality, by E. C. Parsons, 830.
Feces of children and adults, by P. J. Cammidge, 76.
Fever, by I. Ott, 830.
Formulary, pocket, for the treatment of disease in children, by L. Freyberger, 456.
Frauenheilkunde, kurzgefasstes Handbuch der gesamten, edited by W. Liepmann, Ed. II. Pathologische Anatomie und Histologie der weiblichen genitalorgane, by O. Frankl, 202.
General paralysis, focal symptoms in, by C. M. Campbell, 1043.
Germ-cell cycles in animals, the, by R. W. Hegner, 244.
Glaucoma, edited by W. O. Nance and W. H. Peck, 958.
Glaucoma, sclerocorneal trephining in, by R. H. Elliot, 35.
Gonorrhœa and its complications in the male and female, by D. Watson, 1002.
Heart, the balneo-gymnastic treatment of chronic diseases of the, by L. Schott, with a foreward by J. M. Anders, 328.
Heart, the, in early life, by G. A. Sutherland, 411.
Ileocecal valve, the, by H. H. Rutherford, 328.
Immunitätsforschung, experimentellen Therapie, Bakteriologie, und Hygiene, herausgegeben von W. Weichardt, 496.
Infection and resistance, by H. Zinsser, with a chapter on colloids and colloidal reactions by S. W. Young, 287.
Infektionskrankheiten, Lehrbuch der von G. Jochmann, 1083.
Jurisprudence, medical, by E. D. Brothers, 368.
Karzinome, die Entstehung und Behandlung der, von H. Theilhaber, 244.
Laboratory work, public health, by H. R. Kenwood, 538.
Labyrinth, diseases of, by E. Ruttin, with a foreword by V. Urbantschitsch; translated by H. Newhart, 35.
Laryngological Association, American, transactions of, thirty-sixth annual meeting of, 664.
Massage, Lehrbuch der, von A. Müller, 497.
Massage and remedial gymnastics, by L. L. Despard, 830.
Medicine, modern, edited by Sir William Osler and T. McCrae, Vol. III, 76; Vol. IV, 538.
Medicine, progressive, edited by H. A. Hare, assisted by L. F. Appleman, 664, 1083.
Microorganisms, pathogenic, by W. H. Park and Anna W. Williams, 456.
Midwives, a textbook for, by J. S. Fairbairn, 456.
Military hygiene and sanitation, by F. R. Keefer, 35.
Nervous and mental diseases, by A. Church and F. Peterson, 1043.
Neurological Institute of New York, contributions from the third division of, 1043.
Nose and throat, diseases of the, by J. Wright and H. Smith, 76.
Nose, throat, and ear, diseases of, by E. B. Gleason, 161.
Nose, throat, and ear, operative surgery of the, by H. W. Loeb, Vol. I, 623.
Nursing manual for nurses and nursing orderlies, by D. C. L. Fitzwilliams, 917.
Obstetrics, case histories in, by R. L. De Normandie, 456.
Obstetrics, manual of, by E. P. Davis, 328.
Œdema and nephritis, by M. H. Fischer, 538.
Oesophagoskopie, von H. Starck, 161.
Ophthalmie, die sympathische, von A. Jess, 917.
Optic projections, by S. H. Gage and H. P. Gage, 875.
Orthopædics indispensable to practitioners, by F. Calot; translated by H. H. Robinson and L. Nicoll, 623.
Pathological technique, by F. B. Mallory and J. H. Wright, 1043.
Pathology, a textbook of, by F. Delafield and T. M. Prudden; revised with the cooperation of F. C. Wood, 287.
Pathology, textbook of, by J. G. Adami and J. McCrae, 35.
Pellagra, transactions of the National Association for the Study of, second triennial meeting, 1912, 197.
Pharmacology, handbook of, by C. W. Greene, 116.
Pharmakologie, die experimentelle, von H. H. Meyer und G. Gottlieb, 1002.
Physiology and practical exercises, a manual of, by G. N. Stewart, 369.
Physiology, essentials of, by F. A. Bainbridge, 244.
Physiology, Kirke's handbook of, revised and rewritten by C. W. Greene, 35.
Physiology, pathfinders of, by J. H. Dempster, 456.
Poisons and powerful drugs, laboratory manual for the detection of, by W. Autenrieth; translated by W. H. Warren, 623.
Problem of the nations, a study of sexual disease, by A. Corbett Smith, 116.
Psychiatrischen Diagnostik, Grundriss der, von J. Raecke, 958.
Psychopathic Hospital, Boston, contributions from, 958.
Public health administration, legal principles of, by H. B. Hemenway, with an introduction by J. H. Wigmore, 1042.
Race betterment, proceedings of the first national conference on, edited by the secretary, 664.
Rectum and anus, diseases of, by P. Lockhart Mummery, 664.
Röntgen-Therapie, von H. E. Schmidt, 917.
Röntgendiagnostik in der inneren Medizin, Grundriss und Atlas der, von F. M. Groedel, 664.

Saber and scalpel, with the autobiography of a soldier and surgeon, by J. H. Wyeth, 369.
Salvarsan treatment of syphilis in private practice, by G. Stopford-Taylor and R. W. Mackenna, 875.
Shortt, Thomas (principal medical officer in St. Helena), with biographies of some other medical men associated with the case of Napoleon from 1815 to 1821, by A. Chaplin, 1043.
Sick-room, the care of the, by E. G. Cutler, 1043.
Skin, diseases of, by F. C. Knowles, 244.
Smith, Nathan, life and letters of, by E. A. Smith, with an introduction by W. H. Welch, 116.
Surgical practice, guiding principles in, by F. E. Neef, 202.
Surgery, operative; head and neck, the thorax, and the abdomen, by E. H. Taylor, 161.
Surgery, Rose and Carless' manual of, revised by A. Carless, 328.
Surgery, urgent, by F. Lejars, translated by W. S. Dickie; Vol. I, introductory head, neck, chest, spine, abdomen, 875.
Surgical operations, textbook of, by F. Krause, in association with E. Heymann; translated and edited by A. Ehrenfried, 1042.
Syphilis and locomotor ataxia, the intensive treatment of, by Aachen methods, by R. Hayes, 958.
Therapie, Taschenbuch der, von M. T. Schnirer, 458.
Tonsils, the faucial, lingual, and pharyngeal, by H. A. Barnes, 497.
Tropical diseases, by Sir P. Manson, 497.
Tropical diseases, diagnostics and treatment of, by E. R. Stitt, 917.
Tuberculosis, acute general miliary, by G. Cornet, 368.
Tuberculosis, atmospheric air in relation to, by G. Hinsdale, 116.
Tuberkulose, Lehrbuch der spezifischen Diagnostik und Therapie der, von Drs. Bandelier und Roepke, 1042.
Untersuchungsmethoden, klinischen, chemisch-mikroskopischen und bakteriologischen, von M. Klopstock und A. Kowarsky, 830.
Vaccination question, by C. K. Millard, 116.
Venenpuls und Herzschallenregistierung, von R. Ohm, 244.
Vision, color, an introduction to the study of, by J. H. Parsons, 1083.
Weight reducing comfortably, by G. Gaertner, 411.
Worry and nervousness or the science of self-mastery, by W. S. Sadler, 1002.
Boorstein, S. W., chronic progressive polyarthritis, or arthritis deformans, with a report of one hundred and five cases, 1009.
Borgmeyer, J. G. L., an appliance for producing simultaneous suction and pressure for use in tonsil and adenoid operations, 732.
Borneo, sanitary conditions in, 950.
Bottle, nursing, a new, 442.
Boudewyns and Marcquis, Drs., of Antwerp, 975.
Brain, and cord, traumatic separation of, 543; decompression of, 198; in psychopathic subjects, 281; lesion of, preservation and Jacksonian epilepsy in, 290; multiple sarcomata of, 963; physiology of, study of, during war, 872; sarcoma of meninges of, 730; tumor involving hypophysis secondarily, 290; tumor, operations for, 197; with double frontal abscesses, 412.
Brannan, J. W., observations on twilight sleep, 715.
Bread, color analysis of, 619; German army, 873; war, and digestive disorders, 871; properties of, 1040; white, and beriberi, 191.
Breast, cancer of, 792; gelatinous carcinoma of, diagnostic sign of, 914.
Brickner, W. M., a simple, easily regulable method of applying abduction in the treatment of shoulder disability, 15.
Brides, war, 816.
Bronchitis, chronic, and emphysema, treatment of, 546; in children, apomorphine in, 252; treated with menthol eucalyptol, 200.
Bulkley, L. D., medical aspects of cancer, 799.
Bumsted, C. V. R., some clinical features of exophthalmic goiter, 467.
Burke, C. B., thyroglossal cysts, report of a case, 1021.
Burnham, A. C., the rôle of the physician in industrial medical insurance, 854.
Burns, in infant, treatment of, 924.
Bursitis, subacromial, 121.

C.

Calcium, chloride and hemolysis, 241; chloride in tic convulsif, 73; chloride, therapeutic uses of, 638; salts, action of, 619; salts, insoluble, intramuscular injections of, 1008.
Calvé-Perthes' disease, 581.
Camphor, synthetic, 696.
Cancer, and advertised remedies, 117; deep seated, *x*-ray treatment of, 221, 825; destruction by radium, 754; in relation to fuel, 779; inoperable, a treatment for, 912; inoperable, treated with goat serum, 284; natural history of, 939; of breast, 792; of bladder, 754; of colon, 796; of skin, treatment of, 533; of stomach, 827, 848; of stomach in a boy of nine, 828; of stomach, diagnosis of, 1058; of stomach, early recognition of, 796; of terminal bile and pancreatic ducts, 149; medical aspects of, 793; organotherapy in, 961; plastic surgery in, 824; radium treatment of, 200, 454; skeletal, 786; *x*-ray treatment of, 145.
Carbon, iodized, in treatment of infected wounds, 613; monoxide poisoning, erythema due to, 420.
Carcinoma, in the young, 730; secondary, of bone, 1037.
Cardiovascular disease, 173; in warfare, 200.
Care and skill, degree required, 483.
Carnivorous and herbivorous types in man, 492.
Carotid, arteriodenous aneurysm of, 921.
Carter, W., two cases of depressed nasal deformity resultant from the submucous operation, 813.
Casts, diphtheritic tracheobronchial, 728.
Catarrh, infectious, complications of, 874.
Catatonia in manic-depressive insanity, 311.
Cerebellum, uterolith from, 1007.
Celluloid tube in finger injuries, 914.
Cereals in milk modification, 396.
Cerebellum, diplegia from disease of, 963; tumor of, 543.
Cerebrospinal fluid, 370, 659; absorption of, 23; amino-acids in, 156; gold-sol test in, 576, 824; in pneumonia, 703.
Certificate, false, use of, 859.
Cesarean section, extraperitoneal, 197.
Chemotherapy, of tuberculosis, 694; of tumors, 741.
Chest, shot wounds of, 1000.
Childbirth painless, 118; see also scopolamine-morphine and scopolamine-narcophine semi-narcosis, and "twilight sleep."
Children, atypical, 885.
Chinaman, health and physique of, 25.
Chloroform, poisoning, delayed, 72.
Cholangitis treated with tincture of boxwood, 966.
Cholecystitis, and focal infection, 797; electric localization of streptococci in, 959; treatment of, 1095.
Cholelithiasis, pleurisy associated with, 536.
Cholera, and war, 743; treatment of, 321.
Cholesterin, and giant-cell tumors of the tendons and joints, 534; therapy in pernicious anemia, 1077.
Cholesterinemia and anemia, 70.
Chorea, antipyrine in, 966.
Christian Scientists, insurance of, 874.
Ciliary body, 1038.
Circulation, and alcohol, 533; reversal of, 532.
Clark, L. P., further observations on the tic neurosis, 171; outlines of a State policy for dealing with mental deficiency, 665.
Clubfoot, double, in twins, 1022; treatment of, 794.
Coccygodynia, 110.
Coffin, L. A., a new non-operative treatment of disease of the accessory sinuses of the nose, 556.
Coleman, J., nasal tuberculosis, 147.
Coley, W. B., medical news in the "New York Times," 403.
Colic, flatulent, treatment of, 630.
Collins, J., astasia-abasia, report of a case eventuating in recovery after many years' duration, 673.
Colon, cancer of, 796; developmental reconstruction of, 795, 918; the infected, and its surgery, 983; the Lynch-Draper developmental reconstruction of, 919.
Coma, forms of, 617.
Comedones, treatment of, 546.
Communications, privileged, 569, 859, 902, 944; privileged, waiver of, in insurance contract, 314.
Compensation, workmen's, 501; workmen's and hernia, 547, 583; workmen's, legal aspects, 585; workmen's, physician's interests in, 567; workmen's, theory of, 584.
Concretions, subacromial, 792.
Conjunctivitis, motor sts, treatment of, 630.
Conservation, human, 763.
Constipation, chronic, 78.
Contraception in tuberculosis, 1077.
Convulsions, psychogenic, the result of a wish, 899.
Copulation, secondary effects of ("for better, for worse"), 197.
Cornea, ulcer of, ethylhydrocuprein in, 490.
Correspondence: Berlin, 237, 490; London, 28, 69, 109, 151, 195, 236, 279, 320, 361, 405, 449, 489, 530, 572, 614, 656, 699, 739, 783, 821, 867, 909, 994, 1031, 1076; Philippines, 321, 657, 822, 867, 911.
Cosmetic creams, 420.
Cows, examination of, ordered by State Board of Health declared constitutional, 944.
Coxa vara, traumatic, 198.
Cross, F. B., cereals in milk modification, 396.
Crothers, T. D., a neglected field of medical culture, 349.
Cumston, C. G., history of the pathological physiology of icterus, 463.
Cunningham, W. J., the bugbear of drug eruptions, 560.
Curette, uterine, three bladed, 103.
Cyst, thyroglossal, 1021.
Cystectomy, subtotal, 71.
Cystin calculi and cystinuria, 159.
Cystinuria and cystin calculi, 159.

D

Dana, C. L., outlines of a State policy for dealing with mental defectives, 665.
Darling, B. C., oral osteitis in its relation to arthritis, 426.
Darnall, W. E., the Atlantic County Medical Library, 404.
Dart, airman's, 238.
Deafness following mumps, 353.
Dearborn, G. Van N., economy in study; certain practical points, psychological and physiological, on how to study to the best advantage, 930.
Decompression operation, 198.
Declarations by injured persons to medical expert, 63.
Defectives, mental, and State policy towards, 665, 671; and the courts, 338.
Deficiencies, moral and mental, physical basis for, 637.
Dentifrices, tax on, 232.
De Roulet, A., the occupational factor in diseases of women, 97.
Delavan, D. B., the effects of radioactivity upon nasopharyngeal fibroma, 1056.
Delirium tremens, suprarenal glands in, 31.
Depage, Dr., Red Cross hospitals of, 692; Madame, in memory of, 906.
Dermatology, and war, 660; and syphilography, advances in, 105; autoserotherapy in, 336; cleanliness in, 1076.
Desertion, psychopathology of, 818.
Diabetes, and surgery, 238; Allen treatment of, 912; dispensary treatment of, 589; in soldiers, 956; metabolic studies in, 879; preparation of patient with, for operation, 659; pyorrhea alveolaris in, 943; treated with casein and cream, 618; treatment of, 406, 687.
Diagonsis, a case for, 82; unjustifiably correct, 755.
Diaphragm, inflammation below, 742; rupture of, 485.
Diarrhea, bacterial etiology of, 1077.
Diathermy, in nerve lesions in war, 906.
Diathesis, exudative, 651.
Dickey, W. A., myocardial changes following the acute infectious fevers, 142.
Diet, children's, of fruit and nuts in, 834.
Digestion, disturbances of, in infancy, 832.
Digitalis, action of, 625; therapy, 322.
Diphtheria, bacillus, 790; clinical problems in, 571; immunity in, 315; infective, persistent, treatment of, 364; toxin and blood pressure, 444; toxin skin reaction of Schick, 417; tracheobronchial, with tracheobronchial casts, 728; treated with pyocyanase, 882; treatment of, 1091.
Director, medical, status of, in courts, 160.
Disease, exotic, introduction of, during warfare, 366; infectious, cellular factor in, 407; obscure causes of, 48.
Dispensaries, 823.
Diverticulitis, acute, 1047.
Dog, barking, held nuisance to physician, 314.
Donnelly, J. F., diary of a Red Cross surgeon in Serbia, 784.
Dostoyevsky, as psychopathologist, 242.

Draper, J. W., the infected colon and its surgery, 983.
Drueck, C. J., hematuria, 857.
Drug, addictions, nostrums for, 117; eruptions, 560.
Drugs, simple method of administering, 364.
Duodenum, and stomach, ulcer of, in childhood, 989; physiology and pathology of, 1003; tube for, 1003; ulcer of, 204, 332, 817, 913.
Dupuytren's contracture, 452.
Dutton, W. F., acid crises, 897.
Dysentery, affections resembling, 114; internal secretions in, 495; treatment of, in the army, 840.
Dysmenorrhea, atropine treatment of, 156; congestive, citric salts in, 451.
Dystonia musculorum progressiva, 249.
Dystrophy, muscular, 290.

E

Ear, disease of, and eye manifestations, 100; examinations to aid intracanalial localization, 543; middle, infections of, with Vincent's organisms, 1050.
Eclampsia, etiology of, 105.
Eczema, facial, blindness from, 542; *x*-ray treatment of, 522; subacute and chronic, treated with filtered *x*-rays, 1040.
Edema, malignant, 954.
Education, campaign of, 64; health, 572; of public in prevention of disease of heart, kidneys, and arteries, 925.
Efficiency, hospital and the efficiency expert, 996; hospital, and the hospital surgeon, 996.
Einhorn, M., further remarks on syphilis of the stomach, 421; recent studies of pancreatic secretion, 967.
Elbow, ankylosis of, 240; compound dislocation of, 707; fractures about, and Valkmann's contracture, 652; fracture of, treatment of, 708.
Elder, O. F., a new incision for varicocele operation when the scrotum is to be amputated, 355.
Electricity, Rumpf's oscillating current of, 662; static in medicine and surgery, 284; sterilization by, 280.
Electrocardiography, present status of, 1003.
Ely, L. W., double clubfoot in twins, 1022.
Emetine, in hemorrhage following nasopharyngeal operations, 102; treatment of balantidiosis, 495.
Emphysema and chronic bronchitis, treatment of, 546.
Empyema, 1093; acute and chronic, 322; intercostal theracotomy in, 281; necessitatis, 672; traumatic, decortication for, 1915.
Endocarditis, infections, 953; verrucosa, 285, 325.
Endometritis, chronic histodiagnosis of, 159.
Energy, conservation of, 274.
Enteritis, embolic, 332.
Epidiomyitis, epidiomytomy for, 869.
Epilepsy, 451, 493, 617; from many angles, 860; from metabolic disturbance in adolescence, 772; Jacksonian, a case of, 1068; nervous constitution resembling, 394; new theory of, 780; psychological studies on, 414; venesechin in treatment of, 577.
Epithelioma, basal celled, 753.
Epithelium, proliferation of, 1029.
Epstein, J., humanized milk in infant feeding, 981.
Equations, pathometric, 660.
Ergotherapy, in obesity, 725.
Ernst, J. R., the importance of the early recognition of the mental limitations of the precox type, 894.
Erysipelas, treated with carbolic acid and alcohol, 1078.
Erythema, due to carbon monoxide poisoning, 420; nodosum, electric localization of streptococci in, 959; of erythromelalgic type, 252.
Ether, action of, in microorganisms, 365; in surgical therapeusis, 365.
Ethics, intranational and international, 946; medical, history of, 239.
Ethylhydrocuprein, in corneal ulcer, 490; in pneumococcus infections, 490; in pneumonia, 955.
Evidence, as to patient's treatment and condition, 314; as to physical condition after injury, 398; expert, see expert; mortality tables as, 650; opinion, as to permanency of injury, 355; value of opinion as, 455.
Ewing, J., medical news in the "New York Times," 403.
Examination, of physique and stamina, for school purposes, 240; periodical of supposedly well persons, 705; physical, of Health Department employees, 239.
Examiner, medical, as insurance company's agent, 411; medical, liability of, 733; medical, prosecution of, for alleged collusion, 537; medical, suggestions to, 34.
Exanthemata, diagnostic points in, 366.
Exophthalmic goiter, 767; clinical features of, 467; clinical treatment of, 431; etiology of, 357; roentgenization of thymus in, 788; *x*-ray in, 1097.
Existoses, multiple, 546; multiple cartilaginous, 913.
Experimentation, animal, and medical progress, 779.
Expert, medical, and medical works, 944, 1028; medical, and opinion of, based on experience, 859; medical, cross-examination of, as to medical authorities, 988; medical, testimony as to character of wound, 988; medical, testimony of, 783; testimony, basis of, 569.
Eye, defects of, in recruits, 999; infection during pneumonia, 813; injuries in war, 909; manifestations of ear disease, 100; symptoms and spinal cord lesions, 924.
Eyelid, gumma of, 272.

F

Fat indigestion, 322.
Fatigue and exhaustion, 873.
Fear and disease, 324.
Feebleminded, care of, 735; syphilis as cause of, 836.
Feeding, bad, remote effects, 831; in Germany, in war time, 536; infant, see infant feeding; of people during war, 366, 408, 535, 827.
Fetus, effect of gravity on, 323.
Fever, protracted, salt in the dietetics of, 1030.
Fibroma, nasopharyngeal, effects of radioactivity upon, 1056.
Field, E., the efficiency of radioactive waters for the control of faulty elimination, 390.
Fingers, flexion, treatment of, 956; injuries of celluloid tube in, 914.
Fischer, C. S., the sympathetic nervous system and the gastroenteric functions, 127.
Fishberg, M., artificial pneumothorax, 1.
Fistula in and, new operation for, 518.
Flatfoot, superstition of, 702.
Flatulence, treatment of, 504.
Flies, and public health, 166.
Food, synthetic, 781.
Foot and mouth disease, etiology of, 407; in Germany, 485.
Forceps, 952.
Foreign bodies, *x*-ray localization of, 153.
Fowler, R. H., carcinoma in the young: report of cases, 730.
Fracture, of elbow, 708; of humerus, supracondyloid, 709.
Fractures, in infants, 700; inlay and peg graft versus the Lane plate in treatment of, 794; inlay bone graft versus Lane plate in treatment of, 499; Pinto or near joints, 65; rare, 912.
France, in war time, 661.
Frazer, T., the significance of the von Pirquet test, 57.
Frazier, C. H., the abortion of typhoid fever, 476.
Freud, and his conception of sexuality, 507; from surgeon's viewpoint, 841.
Freundlich, D. B., the diahetic type of pyorrhea alveolaris; the necessity for its early recognition by the medical profession, 943.
Friedmann, H. M., physical basis for moral and mental deficiencies, 637.
Frostbite, 241, 531, 789; glue in prophylaxis and treatment of, 358; treatment of, 660.
Fruits and nuts in children's diet, 834.
Fuller, E., surgery of the seminal vesicles, remarks in reply to criticisms, 134.
Fullers' earth and its antidotal value for alkaloids, 998.
Furuncles, metastases of, 535; sulphurous acid in treatment of, 30.

G

Gall-bladder, gangrene of, 120; operations and life expectancy, 874.
Gallstones, 1094; early operation for, 239.
Gangrene, artificial gastric juice in, 655; gas, 74, 618; gas, and gas phlegmon, 317; senile, treated with ultraviolet rays, 200.
Gas, bombs, poisoning with, 872; phlegmon, 74; phlegmon and gas gangrene, 317; phlegmon ingredient, 662; phlegmon of the dura mater, 745.
Gastritis, alcoholic, treatment of, 546.
Gastrointestinal tract, perforations of, from swallowed foreign bodies, 823.
Gastroptosis, constitutional, 1080.
Genitourinary tract, persistency of certain affections of, 608.
Gibson, C. L., the Belgian Red Cross Hospitals of Dr. Depage, 692.
Gilmour, A. J., a case of gumma of the lower eyelid, 272.
Glands, tuberculous mesenteric and retroperitoneal, 406.
Glasgow, M., human conservation, 763.
Gleason, W. S., obscure causes of disease, 48.
Glénard's disease, 30.
Goiter, cure of, by injection of boiling water into thyroid, 893; exophthalmic, see exophthalmic goiter; intestinal antisepsis in, 924; surgical indications in, 1037.
Gold-sol test, 576; and cerebrospinal fluid, 824.
Golf ball, eye injury from bursting, 619.
Gonorrhea, arthritis of, pituitary gland in, 1024; cure of, 229; in the male urethra, 85; in women, 634; sepsis following, 285; treated with succinimide of mercury, 643.
Gout and tuberculosis, 570.
Graef, C., two cases of laryngeal obstruction and one other, 604.
Granger, F. B., further observations in the production of sterility by the Roentgen ray, 776.
Granuloma, coccidioidal, 238.
Graves' disease, see exophthalmic goiter.
Greeley, H., the dangers of impure air, 564.
Griffin, E. H., quinsy or peritonsillar abcess, 224.
Growth, and nutrition, 870; and overgrowth, 658; studies on, 1071
Guenard, H. M., tropical irritability,

H

Haberman, J. V., psychic therapy, clinical psychology, and the layman invasion, 680.
Hagemann, J. A., some ocular manifestations of aural disturbances and their interpretation, 100.
Hair, and scalp diseases treated with quartz lamp, 773; loss of, treatment of, 420.
Hamilton, H. McL., psychopathology of the war, 110; medical war notes, 280; war notes, 153.
Hansell, H. F., two cases of monocular optic neuritis, 405.
Hay fever, active immunization in, 322.
Head, gunshot wounds of, 452, 489; injuries, 618.
Head, J., vaccines in relation to mouth infection, 91.
Health, and military service, 406; community conditions in Europe, 838; Department of New York City, fiftieth anniversary of, 457; education, not coercion, 572; insurance and nature of disease, 1001; law of New York State, attack on, 610; officer, increase of salary of, 188; public, science and practice of, 462; Service, United States Public, work of, 189; tax in restraint of, 232.
Heart, communication between ventricles of, 198; contractility of, 870; disease, treatment of, 683; diseases in German army, 1072; failure and pituitary extract, 79; failure beginning, clinical signs of, 325; functional testing of, 956; in syphilis, 879; irregularity of, 1080; kidneys, and arteries, chronic diseases of, 925; local amyloidosis of, 1031; massage, subdiaphragmatic, 745; muscle changes following acute infectious fevers, 142; murmur in tuberculosis, 741; rupture in a child, 660; the Copenhagen, 791; the tobacco, 786.
Hematomyelia, spinal, and Brown-Séquard paralysis, 81; spinal, of the hemiplegic type, 80; spinal, of the paraplegic type, 81.
Hematuria, 857; unilateral, cured by decapsulation, 790.
Hemicrania, see migraine.
Hemiplegia, with aphasia, 543.
Hemolysis, effect of calcium chloride on, 241.
Hemophilia, treated with decanted blood-serum, 647.
Hemoptysis in young children, 409; incoagulability of blood in, 191.
Hemorrhage, treated with decanted blood serum, 647; abdominal, leucocytosis in, 742.
Hemorrhagic disease in newborn, 923.
Hemorrhoids and hyperchlorhydria, 239; death from strangulated internal, 408.
Hemostatics, tissue transplants as, 695.
Henderson, H. H., a rational and successful treatment of pulmonary tuberculosis, 988.
Henkin, N. L., pemphigus foliaceus neonatorum, 62.
Hensel, O., modern phases and treatment of Basedaw's disease, 767.

Hepatitis, sardiopathic, 58.
Heredity and constitution in life insurance, 583.
Hernia, and the workmen's compensation law, 547; inguinal, 707; inguinal, double ovariain, 586; inguinal, repair of, under local analgesia, 896; relation of, to workmen's compensation, 583.
Herpes zoster, experimental, 1079.
Hexamethylenamine, therapeutic value of, 1039.
Hinesdale, G., American thermal springs: their therapeutic uses; radioactivity of springs in Germany, Austria, and Virginia; with a régime for patients with gout, rheumatism, and arthritis, 722.
Hip, tuberculosis of, 953; static dislocation of, 617;.
Hodgkin's disease, 1008; rational treatment of, 1078.
Holiday, a practical plan for, 991.
Hospital, charitable, liability of, 148; cleaning, notes from, 284; work of, 72; efficiency, 996; infants', 111; operating room, as nuisance to neighboring dwelling, 777; private, liability of for negligence, 777; psychopathic, recoveries at, 110; Red Cross, of Dr. Depage, 692; Saturday and Sunday Association, 485; secondary infections in, 399; small, serving in, 492.
Hoyt, A. W., suggestion narcosis, 1069.
Human being, new species of, 996.
Hunger in infants, 997.
Hunt, E. L., report of a case of conjugal syphilis, with conclusions, 850.
Hydrocele, phenol injections in, 31.
Hydrocephalus, chronic, hypopituitarism in, 283; cisterna drainage in, 751.
Hydromyelia, 1046.
Hydronephrosis, infected, 77.
Hydrosalpinx, intermittent, 326.
Hydrotherapy, 722; simplifying, 820.
Hygiene of soldiers, 536.
Hyperchlorhydria and hemorrhoids, 239.
Hypernephroma, 574; pulsating tumors secondary to, 579.
Hypersensitiveness and immunity, 484.
Hyperthyroidism, 877.
Hypertrichosis in the insane, 1038.

I

Icterus, pathological physiology of, 463.
Idioglossia, 789.
Ileum, organic obstruction of, as cause of gastric disorders, 795.
Ileus duplex, 871.
Illegitimacy and war, 816.
Immunes, non-interference with, 459.
Immunity and hypersensitiveness, 484.
Inbreeding and crossbreeding, 525.
Indigestion and insomnia, 84.
Infant, feeding of, see infant feeding; measuring board for, 814; physiology and pathology of, 443.
Infants, drinking, unsalted milk in, 901; in newborn, 156; malt soup in, 833; soy bean in, 833; with precision, 295.
Infection, focal, and ulcer of stomach, cholecystitis and appendicitis, 797; latent, in surgery, 495; secondary, in hospital wards, 399.
Influenza, and insurance, 916; antipyrine and aconite in, 1008; and life insurance, 829; treatment of nervous depression following, 966.
Infusion, intravenous, cannula and needle for, 482.
Inglis, J., unconscious mental phenomena, 348.
Injuries from cold in war, 113.
Injury, evidence as to cause of, 1070.
Insane, gynecology in, 363; hypertrichosis in, 1038.
Insanity, in relation to sex and age, 485; manic-depressive, catatonic states in, 311; prognosis in, 1036; State care of, 905; thyroid gland in, 1035; treatment of, 532.
Insect, campaign against, 1077; powders, value of, 1041.
Insomnia, and indigestion, 84; caused by pain, treatment of, 504; suicide and, 31.
Insurance, accident, see accident insurance company examining physician as agent of, 410; health, see health insurance; industrial, medical and the physician, 854; of Christian Scientists, 874; sickness, see health insurance.
Intestinal stasis, 51, 577, 794; colectomy for, 112; chronic, 918; chronic, *x*-ray diagnosis of, 919; functional, 658.
Intestine, amebiasis of, 578; antisepsis of, in treatment of goiter, 924; multiple polyps of, 1046; obstruction of, an early symptom in, 275; obstruction of, late operation for, 21; parasitism of complement fixation in, 1047; paresis of, treated by pituitary extract, 180; prolapse and adhesions of, 795; rupture of, 322; stasis in, see intestinal stasis, 794; trichomoniasis of, 824.
Intoxication impulse, 253.
Intussusception, in infancy, 218.
Iodine fumigator, 577.

J

Jacoby, A., pituitary extracts in uterine bleeding; preliminary report of cases, 228.
Java and its medical school, 1035.
Johns, M. W., modern Röntgen technique in the treatment of malignant conditions, 145.
Johnston, J. C., a suggestion in cases of late operation for intestinal obstruction, 21.
Joints, flail, reinforced by silk strands, 792; fracture into or near, 65; fractures near, 794.
Joseph, B., insurance of Christian Scientists, 874.
Judd, A., the use of decanted blood serum after severe hemorrhage and in hemophilia, 617.
Junor, K. F., twilight sleep in the home, 146.

K

Kahn, A., an electrical mouth light, 609.
Kaliski, D. J., a cannula and needle for blood transfusion and intravenous infusions, 482.
Kanstoroom, D. S., the significance of acids and alkalies in the organic world, 524.
Kaolin, use of, for removing bacteria from throat and nose, 1079.
Keratosis follicularis spinulosa, 756.
Kidneys, and ureter, anomalies of, 164; atrophy of, from ureteral calculus, 77; decapsulation of, 156; decapsulation of, for unilateral hematuria, 790; effect of colon bacillus on, 240; fatty degeneration of, 77; heart, and arteries, chronic diseases of, 925; hematogenous infection of, 577; horseshoe, 165; infections of, 363; lesions, regeneraion following, 915; movable, operation for, 112.
King, E. H., intestinal paresis, its treatment by means of pituitary extract, 180.
Knapp, A., the prognostic significance of changes in the retinal vessels, 883.
Konkle, W. B., Aeschylus—a doctor's study, 341.

L

Labor, see parturition.
Labyrinthitis following operation for atresic, 912.
Lake, G. B., gonorrhea treated with sucrose-imide of mercury administered intramuscularly, 643.
Lambert, A., the intoxication impulse, 253.
Lamn, Nagelschmidt modification of Kromayer quartz, 773.
Landau, reaction of, 924, 1079.
Langhorst, H. P., the streptococcus peril, 184.
Larkey, C. J., an appliance for producing simultaneous suction and pressure for use in tonsil and adenoid applications, 732.
Laryngopharynx, lymphoid growths of, 264.
Larynx, abductor paralysis of, 168; diseases of, dry-cupping in, 283; obstruction of, 604; superior nerve of, alcohol injection of, 239; tuberculosis of, treatment of, 81; tuberculosis of, treatment of dysphagia of, 840.
Lawsuits, baseless, for injuries, 609.
Laxative powder, 630.
Lead, local action of, 1071; workers, effect of military training upon, 789.
Leg, ulcer, with severe anemia, 1004.
Lenticular degeneration, Wilson's, 250.
Leprosy, chaulmoogra oil in, 105; pulse and temperature in, 786; study of, 824.
Leszynsky, W. M., further observations on the treatment of sciatica by perineural infiltration with physiological saline solution, 211.
Leucemia, 994; acute lymphatic, 913; an infection, 1090; benzol in, 527; lymphatic, following splenectomy, 281; lymphatic, without lymphatic enlargement, 542.
Leucocytes, during digestion in infancy, 924; count of, differential, 336.
Leucocytosis in abdominal hemorrhage, 742.
Levinson, A., a case of diphtheritic tracheobronchial casts in a woman 50 years of age, 728.
Lewisohn, R., a new and greatly simplified method of blood transfusion, 141, 195; priority in the use of citrated blood for transfusion, 448.
Liability, in malpractice cases, 103, for negligence of hospital nurse, 22; of charitable hospitals, 148.
Libraries, medical, 329.
Library, medical of Atlantic County, 404.
License, practising suggestive therapeutics without, 188; practising without, 22, 569.
Licensing board, a national, 1072.
Life, conservation of, 763; expectancy and operations on gallbladder, 874; insurance of, see life insurance; lengthening of, with aid of life insurance experience, 367.
Life insurance, and alcoholism, 201; and approaching organic disease, 243; and breach of warranty, 115; and bronchial asthma, 410; and Christian Scientists, 874; and complications of infectious catarrhs, 874; and examination of the urine, 455; and general medicine, 829, and influenza, 916, 829; and medical selection, 746, 916, 957, 1001, 1041, 1082; and mouth and teeth, 115; and operations on gallbladder, 874; and overweights, 75; and pulse anomalies, 663; and the Copenhagen heart, 791; and the Wassermann reaction, 791, 201; and tuberculosis mortality, 705; build, and mortality, 34; director and his status in courts, 91; examinations, 160; examinations, danger signals in, 286; examinations, microscopy of urinary sediments in, 663; experience, application of, to lengthen life, 367; father as beneficiary in, 496; heredity and constitution, 582; history taking in, 91; medical investigations in, 327; medicine, 410; medicine and medicine as a whole, 705; sphygmomanometer in, 75; syphilis, and the Wassermann reaction, 327.
Light, mouth, electrical, 609; therapeutics of, in military medicine, 200.
Lipoma, extraperitoneal, 167.
Lips and cheek, epithelioma of, 77.
Lister, back to, 615.
Literature, medical, classification of, 940; medical, preparation of, 1019.
Lithotrite, visual, 187.
Liver, abscess, 120; fastening of, in hepatosis, 956; function, phenoltetrachlorphthalein test of, 1089.
London, J., a new visual lithotrite, 187.
Louse, clothes, warfare against, 366, 1081; plague among soldiers, 704; plague and prophylaxis of typhus, 1080; prophylaxis against, 745.
Louvain and its university, 110.
Luckett, W. H., a new instrument for scarifying in the von Pirquet cutaneous tuberculin test, 650.
Luetin and Wassermann tests at naval prison, 523.
Luke, H. C., a new gas-oxygen-ether apparatus; description and use of the instrument, 980.
Lungs, bayonet wounds of, 1000; wounds of, 409.
Lydston, G. F., a unique case of syphilis of the cranium and spine, with remarks on syphilitic bone dystrophy, 43; Dr. Lydston misquoted, 279.
Lymphangioma, 754.
Lymphosarcoma benzol in, 579.
Lynch, J. M., the infected colon and its surgery, 983.

M

McCaskey, D., what first aid in railway surgery does not mean, and what it actually does mean, 259.
McGurn, W. T., further remarks on the retention of salvarsan, 645.
McRobert, psychogenic convulsions, the result of a wish, 899.
McSweeny, E. S., are we getting proper value from our plant and expenditure for the tuberculous, 94.
MacRobert, R. G., the epileptic type of nervous constitution, 394.
Mabbott, J. M., some desultory personal observations on perineorrhaphy, puerperal septicemia, and pain, 308.
Macy, M. S., some observations on clinical treatment for systemic goiter (Graves' disease), 431; pituitary gland in gonorrheal arthritis, a report of three consecutive cases, 1024.
Malaria, and impounded water, 317; control of, 695.
Mallory, W. J., the present status of the diagnosis of cancer of the stomach, 1058.
Malpractice, action, statute of limitations in, 398; and emergency cases, 63; excessive, damages in, 1070; expert testimony in, 944; insufficient evidence as to, 230, 815; with respect to *x*-ray burn, 355; suits, defense of, by medical society, 733.

Malt soup in institution marasmus, 832.
Malta fever, chemotherapy of, 362.
Marcquis and Boudewyns, Drs., of Antwerp, 975.
Martin, W., blood pressure variations, with some reference to treatment, 269.
Marasmus, institution, malt soup in, 832.
Mastitis, in pregnancy, 71.
Maxilla, inferior, fractures of, 157.
Maybaum, J. L., diagnosis and conservative treatment of inflammation of the accessory sinuses of the nose, 1025.
Mayer, E., medical literature and its preparation, 1019.
Mayo, R. J., the fight against tuberculosis, 491.
Measles, immunization against, 752.
Measuring board for infants, 814.
Mediastinum, tumor of, 672.
Medical Society of the County of New York; address of president-elect, 498; address of retiring president, 498.
Medical Society of the State of New York, address of the president, 747; address of welcome, 750; discussion of president's recommendations, 748; election of officers, 750; oration on medicine, 750; report of committee on expert testimony, 748; report of committee on legislation, 749; report of committee on medical legislation, 749; report of committee on medical research, 749; report of committee on midwives, 749; report of committee on public health, 748; report of committee on publication, 748; report of counsel, 749; report of the secretary, 748; report of the treasurer, 748; report of workmen's compensation committee, 749; Section on Syphilis discontinued, 750; shall American Medical Association have appellate jurisdiction, 750.
Medicine, a neglected field of culture in, 349; agreements not to practise, 272; America's supremacy in, 273; and Rabelais, 595; clinical, and blood pressure, 1003; literature of, 1019; of the Old Testament, 934; patent, 739; practice of, and title of statute, 398; practising, without authority, 815; progress of, and animal experimentation, 779; scholarship in, 281.
Mellon, R. R., the early diagnosis of streptococcic sore throat and the effect of vaccines in its treatment, 809.
Meningitis, 740; a new treatment of (use of soamin), 535; and the sphenoidal sinus, 998; meningococcus in, 660; newer conceptions of, 611; serum and vaccine treatment of, 408; serum, effects of, 625; suppurative arthritis in, 1069; tuberculous, new method of treatment of, 580.
Meningococcus, in meningitis, 660; in peripheral blood, 743; varieties of, 624.
Menorrhagia, uterine fibroids and radium, 379.
Menthol-eucalyptol treatment of pneumonia, pleurisy, and bronchitis, 200.
Mercury, bichloride poisoning, treatment of, 1006; deep muscular injections of, in treatment of pyorrhea alveolaris, 424.
Mesentery, tumor of, 587.
Metacarpal, cyst of, 71; sarcoma of, 77.
Meyers, J., the diagnosis and treatment of cancer of the stomach, with a suggestion as to possible racial treatment of cancer, 848.
Michie, H. C., Jr., Mexican typhus fever, 214.
Microscope, localization in, 672.
Migraine, glyceryl trinitrate in, 420; ophthalmic, treatment of, 420.
Migrants, tuberculosis of, 1044.
Military training, effect of, upon lead workers, 1076.
Milk, modification, cereals in, 396; pasteurized, *Bacillus coli* in, 741.
Mind, defect of, borderland cases of, 700; deficiency of, and State policy, 665, 671; disease of, see, immunity; limitations of, of the precox type, early recognition of, 894; periodic depressions of, 335; pathology of, 31, 72, 112; unconscious phenomena of, 348.
Moffett, R. D., a new baby bottle, 442; a new measuring board for infants, 814.
Mole, hydatid, with cancer of vulva and vagina, 165.
Monsters, 1007.
Montgomery, D. W., the influence of the study of medicine on Rabelais, 595.
Morphine, action of, 1100.
Morris, R. T., Freud from a surgeon's viewpoint, 841; what do we mean by the unfit, 135.
Mortality, build and, 34; institutional, of the newborn, 240.
Morton, W. J., radiochemicotherapy; the internal therapeutics of the radio-elements, 381.
Moschcowitz, H. V., the relation of hernia to the workmen's compensation law, 547.
Mosenthal, H. O., the treatment of diabetes mellitus in dispensaries, 589.
Mould diseases, 312.
Mount, L. B., the alopecias, 852.
Mouth, infection and systemic disease, 797; infection and vaccines, 91; sepsis, 618; writing for the armless, 999.
Mucklow, A. E., a method of feeding infants with precision, 295.
Müller, R. W., the Nggelschmidt modification of the Kromayer quartz lamp in the treatment of diseases of the hair and scalp, 773.
Mumps, and atrophy of prostate, 404; deafness following, 353.
Muscle, chronic contractions of, 963; extensor longus pollicis, rupture of, 659; strength, clinical instrument for measuring, 83.
Mushroom poisoning, 703.
Myeloma, multiple, 204.
Myocardium, see heart muscle.
Myositis, gluteal, 1064; ossificans traumatica, 1093.
Myxedema simulating nephritis, 869.

N

Narcosis, asphyxia after laparotomy, 242; suggestion, 1069.
Narcotics, addiction to, 247; law against, 274.
Nasolabial area, gray hair, and disease in, 158.
Nasopharynx, fibroma of, effects of radioactivity upon, 1056.
Nauheim baths in the United States, 972.
Navy, surgeon-general of, report of, 24.
Needles, locating of, in tissues, 450.
Negligence liability of private hospital for, 777; of physician or surgeon, 902; of nurses, liability of private hospitals for, 650.
Nephrectomy, procedures following, 578.
Nephritis, drug treatment of, 1008.
Nephrolithiasis, 869.
Nerve, alcoholic injection of, 1037; concussion from bullet and shell wounds, 198; peripheral, regeneration of, 963; superior laryngeal, alcohol injection of, 239; ulnar, scar tension on, 658; shot wounds of, 704.
Nervous system, central, intraspinal treatment of syphilis of, 472; constitution, of epileptic type of, 394; disorders of, in children, 320; in naval warfare, 316; in primary syphilis, 579; sympathetic and the gastroenteric function, 127; syphilis of, treated with salvarsan, 251; wounds of, in war, 238.
Neuralgia, and neuritis, treated with bacterial toxins, 73; trigeminal, treatment of, 504.
Neurasthenia, among garment workers, 292.
Neuritis, and neuralgia, treated with bacterial toxins, 713; lead, from cosmetics, 870; multiple, astasia-abasia in, 71; optic, 605; optic, due to sphenoidal sinusitis, 241.
Neurology, war, 113.
Neurosis, psychopathology of, 787; tic, 171; traumatic, and war, 744.
New York Academy of Medicine: address of incoming president, 245; address of retiring president, 245; report of board of trustees and treasurer, 245; report of public health, hospital, and budget committee, 245; resolution, 245.
New York Psychiatrical Society, report of committee on legislation of, 334, 670; report of committee on national hygiene movement, 335.
News, medical, in *New York Times*, 403.
Nicholson, P., the clinical significance of blood pressure, 473.
Nipples, sore and fissured, treatment of, 840.
Nixon, P. I., non-bacterial urethritis, 607.
Noguchi, H., propagation of pure vaccine virus, 717.
Nose, accessory sinuses of, a new nonoperative treatment of, diseases of, 546; accessory sinusses of, diagnosis and conservative treatment of inflammation of, 1025; deformity of, from submucous operation, 813; diseases of, and headache, 533; diseases of, *x*-ray prevention of, 532; plastic operation on, 921; septum of, deflection of, 762; tuberculosis of, 147.
Nostrums, itinerant vendors of, 103.
Noyes, W. B., studies of atypical children; from the department of ungraded classes in the public schools of New York City, 885.
Nutrition, and growth, 870; economy in, 495.
Nuts and fruits in children's diet, 834.
Nystagmus, miner's, in the trenches, 153.

O

Obesity, ergotherapy in, 725; general faradization (Bergonié) in treatment of, 501; treatment of, 123, 186.
OBITUARIES:
Abell, G. C., 739.
Able, M. L., 614.
Abernathy, J. C., 574.
Addis, C. F., 360.
Alsdorf, J., 482.
Allen, D. P., 153.
Allen, L. A. D., 488.
Allen, P. P., 448.
Allen, W. J., 194.
Amadon, A. M., 655.
Alvord, A. W., 782.
Armor, S., 655.
Armstrong, W. J., 993.
Ashton, T. H., 361.
Bailey, G. C., 949.
Bain, J. D., 530.
Bak, H., 994.
Baker, F. E., 993.
Baldwin, H. C., 529.
Barber, A. W., 993.
Bauman, J. C., 949.
Benton, S. H., 529.
Bidde, T., 488.
Bigler, W. B., 820.
Billinghurst, H., 237.
Bischof, L. F., 993.
Bissell, E. F., 948.
Black, E. H., 655.
Bleyer, J. M., 699.
Bloodgood, J. F., 594.
Bodene, J. M., 319.
Boggs, W. DeW., 194.
Boston, D. R., 279.
Boutelle, H. C., 402.
Bowman, C., 279.
Boyd, F. R., 278.
Briggs, J. M., 1076.
Britton, W., 782.
Bromley, J. L., 655.
Brown, F. W. A., 529.
Brown, G. W., 279.
Brown, J. L., 738.
Brown, J. W., 782, 909.
Brown, M. J., 448.
Brumond, D. A., 236.
Brusstar, H. D., 909.
Bryant, T., 196.
Bryne, T., 530.
Bulford, H. S., 236.
Bunn, W. H., 820.
Campbell, J. P., 488.
Caney, P. H., 360.
Cannon, C. H., 530.
Carl, G. D., 614.
Carling, W. M., 994.
Carney, C., 402.
Carter, W. H., 738.
Cauthen, R. S., 820.
Chalmers, S. G., 699.
Chandler, L. G., 575.
Chapman, C. H., 108.
Chapoton, E. A., 360.
Christopher, W. H., 866.
Clark, A. C., 994.
Clark, F. C., 949.
Clark, J. G., 699.
Clausnitzer, J. F. A., 27.
Clouston, Sir Thomas, 822.
Coates, T., 361.
Cogswell, E. R., 108.
Cohn, S., 948.
Colegrove, C. H., 1033.
Collat, A. J., 530.
Cooke, A. S., 448.
Coolidge, F. S., 993.
Corbin, J., 1076.
Cotton, J. C., 655.
Crawford, J. S., 279.
Crocker, E., 782.
Crofts, H. M., 822.
Croft, T. G., 655.
Cronmiller, J. D., 194.
Crooke, W. C., 699.
Cubbage, S. T., 866.
Daniel, R. L., 738.
Dansereau, H., 236.
Dickerson, J. D., 68.
Dobie, W. M., 740.
Donnellan, P. S., 949.
Donnelly, J. F., 403.
Donovan, C. C., Jr., 278.
Doolin, T. C., 530.
Dougherty, W. J., 866.
Drennan, M. C., 782.
Duncan, H. M., 450.
Dusenbury, H., 153.
Edie, J. O., 1033.
Edwards, C. L., 738.
Eldridge, J. R., 994.
Elliott, J. C., 866.
Elliot, T., 614.
Evans, L. H., 319.

Eve, P. F., 108.
Eves, J. S., 69.
Farson, J. M., 739.
Farrish, M. J., 448.
Fisk, S. A., 361.
Flint, O. A., 448.
Flood, T. W., 27.
Flower, G. W., 655.
Floyd, J. W., 1033.
Ford, C. W., 236.
Forman, W. M., 994.
Fournier, J. A., 27.
Frank, J. N., 993.
Freed, J. B., 909.
French, L. M., 108.
French, R. C., 1033.
Freund, R. S., 614.
Fritz, H. M., 993.
Fulton, S., 278.
Gale, A. E., 948.
Gaines, J. M., 820, 866.
Gardner, C. E., 236.
Gates, S. J., 236.
Gavin, M. J., 994.
Gibney, H., 403.
Gillis, A. F., 814.
Gills, W. J., 1033.
Goldin, W. J., 993.
Goldsworthy, W., 575.
Gorshel, R., 575.
Gowers, Sir W. R., 910.
Gray, J. W., 402.
Griffin, L. B., 448.
Grifling, G. P., 909.
Griggs, W. O., 488.
Griswold, J. B., 655.
Grödel, T., 529.
Guess, J. M., 1034.
Guthrie, G. W., 1033.
Habershon, S. H., 615.
Hagmeier, C. H., 27.
Hair, J. E., Jr., 820.
Hammond, L. C., 361.
Haussen, H., 153.
Harris, W. H., 109.
Hart, H. H., 530.
Haven, H. C., 448.
Hazen, M. C., 108.
Herrick, A. E., 575.
Herron, J. S., 530.
Hill, G. C., 949.
Hill, W. B., 279.
Hitchcock, G. G., 69.
Holly, F. M., 820.
Horn, G. F., 949.
Horr, J. L., 153.
Hover, G. H., 866.
Howard, S. L., 108.
Howe, H. T. J. 361.
Hoyt, C. C., 530.
Hughes, A. B., 319.
Hughes, D., 866.
Hull, J. C., 614.
Hungerford, G. H., 361.
Hurlbut, G. T. M., 820.
Hustace, F., 448.
Hutchings, G. H., 1033.
Hutchinson, W. F., 949.
Irvin, J. S., 739.
Jackson, C. R., 153.
Jacoby, M., 820.
James, W. M., 529.
Johnstone, W., 196.
Johnson, C. W., 361.
Jones, H. W., 699.
Jones, L., 740.
Jones, W. M., 529.
Joyce, J. H., 1033.
Juett, G. P., 655.
Julian, H. M., 361.
Kalisher, J., 319.
Kalbach, H. M., 279.
Kelly, S. W., 949.
Kelly, W. D., 360.
Ker, M. A., 521.
Keys, B. E., 236.
Klaer, F. H., 488.
Kneale, W. W., 1076.
Knight, C. C., 738.
Knowlton, W. W., 279.
Lach, C. E., 488.
Langdon, R. M., 1076.
Langmaid, L. W., 402.
Landis, I. R., 1034.
Lauer, J. P., 699.
Lee, D. E., 738.
Lee, J. A., 993.
Lempe, G. G., 993.
Leutaigne, Sir J., 740.
Leopold, L., 278.
Lereboulet, L., 153.
Lincoln, C. J., 699.
Lincoln, J. B., 279.
Little, G. B., 360.
Loeffler, F., 654.
Long, R. W., 1076.
Loring, D. J., 153.
Lyford, E. H., 108.
McAllister, J. J. H., 738.
McCandles, W. L., 949.
McCollom, J. H., 1076.
McCorkle, J. S., 27.
McCormick, D. R., 1033.
McDonald, H. E., 909.
McFadden, J. J., 361.
McGourty, J. E., 782.
McGowan, J. P., 488.
McGrew, R. L., 153.
McKenna, M. S., 1033.
McLanahan, J., 27.
McLoughlin, T. J., 909.
McNamara, W. H., 237.
Mac Arthur, J., 1034.
Mack, J. S., 1034
Maerckelin, B. G., 993.
Magruder, E. P., 699.
Maguire, T. H., 575.
Manchester, L. C., 351.
Marshall, G. W., 738.
Marshall, J. F., 994.
Martin, G. A., 655.
Maunsell, E. L., 109.
Maxcdon, T. H., 994.
Mayer, C. A., 738.
Maynard, A. W., 488.
Middleton, T. S., 194.
Miller, A. S., 236.
Miller, J. D., 1076.
Miller, T. E. R., 655.
Miller, N. M., 655.
Mitchell, A., 1076.
Mitchell, L. C., 488.
Molist, S. Y., 153.
Monory, L. O., 1076.
Montgomery, C. T., 278.
Moore, H. D., 1033.
Moore, W. G., 361.
Mosley, W. W., 575.
Muller, H. W., 994.
Munn, S. B., 699.
Murphy, F. W., 69.
Myers, E. W., 27.
Nelson, G. J., 529.
Newcomb, A. S., 529.
Nichols, H. L., 529.
Noble, H. S., 614.
Nash, G. H., 278.
Nichols, C. F., 866.
Norcross, W. S., 236.
Oakley, H. W., 994.
Ogden, W. W., 949.
O'Leary, C. D., 108.
Oliphant, E. T., 739.
O'Malley, A. P., 27.
O'Neill, J. W., 909.
O'Shea, D. J., 782.
Osthues, H., 699.
Pacher, A. D., 319.
Palmer, A. W., 1033.
Parker, G. L., 994.
Parker, J. A., 279.
Parsons, J., 866.
Pasmore, W. J., 782.
Patterson, E. A., 68.
Patterson, J. S., 909.
Pawlik, K., 529.
Payne, H. J., 1035.
Peck, E. S., 574.
Peck, F. H., 994.
Phillips, I. R., 655.
Phinney, L. W., 739.
Purce, A. H., 448.
Piersol, J., 153.
Pitts, B., 109.
Plymire, H. G., 574.
Polglase, W. H., 909.
Potts, G. J., 949.
Powers, C. L., 448.
Pratt, H. S., 278.
Prevett, J., 1076.
Price, M. L., 909.
Ramsey, R. W., 69.
Rand, I. T., 994.
Randle, W. H., 655.
Randolph, J. A., 738.
Ransom, N. M., 236.
Ray, C. W., 738.
Raymond, J. H., 614.
Robert, L. S., 614.
Robinson, F. N., 1033.
Robinson, R., 1033.
Reed, D., 448.
Reynolds, D. S., 448.
Rhodes, G. H., 488.
Rice, W. R., 909.
Richardson, P. N., 530.
Richards, D. B., 279.
Rivailles F. T., 866.
Rivers, R. J., 820.
Roberts, A. J., 993.
Roberts, H. B., 993.
Rodenstein, L. H., 278.
Rogers, K. R., 236.
Rosenbloom, J. M., 655.
Rowan, J. H., 278.
Rowe, G. D., 279.
Rowe, W. H., 448.
Rogers, W. B., 278.
Rogers, T., 699.
Rudge, H., 190.
Rutledge, H. R., 949.
Ruttledge, E. B., 109.
Russel, E. H., 361.
Safley, L. E., 866.
Saville, S. C., 1033.
Schannel, J. J., 448.
Schmidt, W. G., 402.
Scribner, C. A., 530.
Seaton, E. C., 489.
Seaver, J. W., 949.
Sharp, B., 235.
Shaw, J. S., 68.
Shearer, N. H., 949.
Sheehan, E. F., 909.
Sheehan, W. J., 319.
Shellenberger, C. N., 949.
Sherk, H. H., 1034.
Sherman, E. E., 108.
Shriner, T., 949.
Simon, R. M., 196.
Smith, C., 194.
Smith, F. M., 909.
Smith, H. H., 196.
Smith, J. W., 153.
Smith, O. C., 571.
Smith, W. L., 27.
Spence, J., 948.
Stattsworth, F. B., 236.
Stauffer, A. W., 655.
Stewart, R. A., 949.
Sturgis, R. F., 866.
Stavely, W. R., 782.
Stuart, D., 739.
Sutherland, H. L., 488.
Swaving, J. H., 194.
Swisher, D. F., 655.
Swygert, S. L., 866.
Talbott, J. E., 69.
Tate, T. T., 782.
Taylor, T. W., 279.
Terry, J. L., 909.
Thayer, G. D., 739.
Thompson, L. W., 820.
Tillinghast, E. L., 530.
Tillinghast, F. H., 108.
Townsend, S., 994.
Travis, R. B., 69.
Trees, P. E., 530.
Triechler, A. C., 655.
Tucker, W. P., 236.
Turner, L. C., 994.
Turner, Sir G., 529, 615, 740.
Tyler, J. B., 866.
Vanderpoel, W. P., 529.
Van Gehuchten, Professor, 67.
Veitch, G., 782.
Viehe, C. H., 360.
Von Prowazek, S., 529.
Voorhees, S., 866.
Walder, H. T., 28.
Walker, G. F., 1033.
Walter, M. J., 739.
Wamsley, J. W., 28.
Ward, S. B., 993.
Warder, C. B., 194.
Warner, L. F., 194.
Warren, L. S., 403.
Warren, S. S. O., 739.
Watson, G. H., 320.
Watts, J. P., 488.
Webber, A. P., 739.
Weir, F. H., 236.
White, E. L., 948.
White, W. P., 194.
Wiley, G. M., 278.
Wilson, J. H., 153.
Winfrey, C., 361.
Wing, E. M., 866.
Wood, H. W., 278.
Wood, M. H., 909.
Wood, M. P., 699.
Woods, R. F., 448.
Woodruff, C. E., 1034.
Wright, J. D., 738.
Yokom, G. D., 994.
Zerbe, B. F., 1033.

Obstetrics, and the American Gynecological Society, 399; disease of glands of internal secretion in, 399.
Occupation and diseases of women, 97.
Ogilvie, H. S., progress in the use of standard salvarsanized serum intraspinally, 1062.
Operation, shockless, 363.
Ophthalmology, Wassermann reaction in, 452.
Opium alkaloids, 199; action of, in coronary arteries, 825.
Optic nerve, neuritis of, 605.
Organic disease, approaching symptoms and physical signs of, 243.
Organotherapy, 73; in chronic disease, especially in cancer, 961.
Osteitis, deformans, 208; fibrosa, 539; oral, in its relation to arthritis, 426.
Osteomyelitis, acute, 741.
Otitis media, suppurative, and arthritic metastic conditions, 36.
Ovary, cyst of, with portion of pedicle in child twelve years old, 586; cyst of, with twisted pedicle, 165; cysts of, associated with ectopic pregnacy, 167; non-teratomatous bone formation in, 1046; sarcoma of, 167; transplantation of, pregnancy following, 196; tumors of, 531.
Oxaluria, 535.

P

Pabst, C. F., an important group of skin diseases, 602.
Page, B. W., etiology of pellagra, 22.
Paget, O., the prevention, the treatment, and the cure of tuberculosis, 227.
Pain, 29, 308.
Palate, cleft, operative treatment of, 579, 617; surgical anatomy of, 1092.
Panama, Exposition, hygiene at, 905; sanitation in, 29.
Pancreas, ablation of, and intravenous injection of dextrose, 1006; death and visceral lesions, 200; duct of, cancer of terminal portion of, 149; recent studies of secretion of, 967.
Pancreatitis, 157; chronic, 1090.
Panophthalmia during pneumonia, 813.
Paraldehyde, administration of, 252.

Paralysis agitans, disease resembling, 290; birth, 914; cerebral spastic, operation for, 323; Landry's, 1080.
Paraplegia, from shell explosions, 32; senile, 169, 205.
Paresis, somatic characteristics of, 701.
Park, F. E., a new curative treatment for pneumonia, 397.
Parotid, ablation of, 29.
Parotitis, ointment for, 924.
Parturition, analgesia and anesthesia in, 273; see also anesthesia; pituitary extract in first stage of, 166.
Pavor nocturnus, 412.
Pediatrics, development of, 1090.
Pellagra, etiology of, 22; in children, 923; new theory of, 788; treatment and prevention of, 233.
Pelvis, permanent enlargement of outlet of, 569.
Pemphigus foliaceus neonatorum, 63.
Perineorrhaphy, 308.
Peristalsis, hypodermic stimulation of, 200.
Peritonitis, pneumococcus, 711.
Permanganates in wounds, 72.
Pertussis, communicability of, 729; treatment and prophylaxis of, 1045; vaccine treatment of, 952.
Peterkin, G. S., scientific knowledge logically applied to acute gonorrhea in the male urethra, 85.
Peterson, E. W., the danger of delay in the diagnosis and treatment of intussusception in infancy, 218.
Peters, L. S., tuberculin in pulmonary tuberculosis, 16.
Petty, O. H., enormous tumor of the uterus, 62.
Pharyngitis, acute, a spray for, 504.
Pharynx, pouch of, 74.
Phenol poisoning, lavage in, 966.
Phenolsulphonephthalein test in abdominal surgery, 357.
Phenoltrachlorophthalein test of liver function, 1089.
Phlebotomy, tube for use in, 313.
Phosphorus poisoning and chondrosimes, 378.
Physician, and superstition, 531; attending, increased responsibility of, 458; contract for treatment by, terminated by death, 398; deed from patient to, 859; German, captured by French, experiences of, 745; good faith of, and life insurance company, 115; itinerant, 609; opinion of, when inadmissible, 483; proof of employment of, 815; services of, see services, medical.
Physique, estimation of, 240.
Picric acid poisoning, 186.
Pittfield, R. L., enormous tumor of the uterus, 62; report of a case of panophthalmia occurring during pneumonia, 813.
Pituitary disease, with unusual eye symptoms, 204.
Pituitary extract, in first stage of labor, 166; in gonorrheal arthritis, 1024; in heart failure, 70; in nasal and throat surgery, 240; in obstetrics, 55, 702; in uterine bleeding, 226; standardization of, 400.
Plague, 863; eradication of, 233.
Platelet count, clinical interpretation of, 1090.
Pleura, infection of, 150.
Pleurisy, associated with cholelithiasis, 536; pneumothoracic, 693; treated by artificial pneumothorax, 704; treated with menthol-eucalyptol, 200.
Pneumococcus, infection, 155; infection and immunity, 111, 136; infections, ethylhydrocuprein in, 490; types of, 418, 443.
Pneumonia, a new treatment of, 397; and varieties of pneumococcus, 443; autogenous vaccines in, 703; consolidation in, 711; epidemiology of, 624; ethylhydrocuprein in, 955; in children, abortion of, 833; in children, drug treatment of, 546; in children, unresolved, 1092; in infants, clinical study of, 1092; lobar, treated by specific methods, 1005; panophthalmia during, 813; spinal fluid in, 753; treated with menthol-eucalyptol, 200; typhoid, complicating typhoid fever, 539; vaccine treatment of, 619.
Pneumoperitoneum, 198.
Pneumothorax, artificial, 1, 70, 533; natural, 620.
Poliomyelitis, etiology and mode of infection in, 626; treatment of, 198.
Poison, labeling bottles containing, 815.
Poisoning, industrial, new type of, 612.
Polk, W. M., unauthorized and premature publications in the lay press, 361.
Posture, and digestion in infancy, 694; standardization of conditions affecting, 794.
Potato, as universal food, 494.
Pottenger, F. M., tuberculin therapy; its present imperfections and future improvements, 306.
Pregnancy, acidosis and nitrogen-partition in, 284; blood pressure during, 282; care during, 823; ectopic, associated with ovarian cysts, 167; extrauterine emergencies of, 281; care of woman during, 156; early interstitial, 586; following ovarian transplantation, 196; later, toxemia of, 998; mastitis in, 71; skin in, 19; toxemia of, 362; tubal, and amenorrhea, 586.
Prison, Russian experiences of a German in, 828.
Proctitis, post-typhoid, treatment of, 966.
Proctology, modernized, 373.
Prostate, atrophy of, and mumps, 404.
Prostatectomy, mortality of, 616; perineal, 700; suprapubic, control of hemorrhage in, 303.
Prostitutes and venereal disease, 363.
Protein requirement in war, 827.
Pruritus ani, treatment of, 420.
Pseudosclerosis, 543.
Psoriasis, chrysarobin in, 420; autogenous serum treatment of, 31; of face, an application for, 924.
Psychiatry, progress in, 299; legislation in, 334; the new, 618, 660, 703.
Psychology, clinical, 680; of the wounded, 744.
Psychoses, of senium, Binet-Simon tests in, 493; war, 527.
Publications, unauthorized and premature, 361.
Puerperium, eclampsia of, 449; infection of, with Frankel's gas bacillus, 144; eclampsia, prophylaxis of, 478; sepsis of, 308; sepsis of prophylactic use of sensitized vaccines in, 252; sepsis of, sensitized vaccines in, 503.
Pulmonary tuberculosis, a new prognostic sign in, 990; advanced, mistaken diagnosis in, 112; artificial pneumothorax in treatment of, 1; early, diagnosis of, 951; new remedial agent in, 263; of school children, 32; rational treatment of, 988; sanatorium treatment of, 94; surgical treatment of, 999; treatment of, 616; tuberculin in, 16.
Pulse, anomalies, 663; contour of, 788.
Purpura, experimental, 408; transfusion in, 416.
Pyelitis, 752.
Pyelography, a new preparation for, 740.
Pylorus, congenital tumor of, 322; excision of, for stricture, 332.
Pyocyanase, in treatment of diphtheria, 882.
Pyorrhea alveolaris, causes and treatment, 798; dietetic type of, 943; Specific cause of, 364; streptococci from, 617; treated by deep muscular injections of mercury, 424.

Q

Quarantine, inadequate menace of, 838; national, 651, 959; New York, transference of, 837; passing of State, 105; relation of national government to, 839.
Question, hypothetical, 103; hypothetical, as to actual cause of death, 442; hypothetical, as to effect of morphine, 859.
Quinine, the subcutaneous administration of, 630.
Quinsy, 224.

R

Rabbits, as food, 704.
Rabelais, influence of study of medicine on, 595.
Rabies, human, 363.
Radiodermatitis, treatment of, 1008.
Radio-elements, the internal therapeutics of, 381.
Radioactive waters, for faulty elimination, 390.
Radiochemicotherapy, 381.
Radioactivity, the philosophy of, or selective involution, by E. C. Savidge, 202.
Radium, in cancer, 754; in non-malignant conditions, 1023; supply in America, 862; therapy, 155, 656; treatment of cancer, 200, 454; treatment of uterine fibroids and menorrhagia, 379.
Railway surgery, first aid in, 259.
Read, A. J., a new application of ergotherapy by the Kellogg-Bergonie method in the treatment of obesity and other chronic disorders, 725.
Rectum, or sigmoid, polyp of, in children, 952; prolapse of, Ekehorn's operations for, 1000; strictures of, operations for, 121.
Red Cross surgeon in Serbia, diary of, 784.
Reflex, oculocardiac, 945.
Refraction, errors of, radical cure of, 869.
Register, E. C., the advantages of medical associations, 631.
Remedies, foreign, in Germany, 1040; proprietary, evil of, 118.
Respiratory, mechanical, history of, 793.
Retina, lipemia of, 452; prognostic significance of changes in vessels of, 883, 922.
Rheumatism, and rheumatoid arthritis, 1080; intravenous use of sodium salicylate in, 710; salicylates in, 283; without articular manifestations, 755.
Rhinitis, occupation, treatment, 882.
Rickets, etiology of, 903.
Rib, double cervical, 80.
Rice polishings, chemistry of, 954.
Roberts, F. W., gluteal myositis—a condition not heretofore described, 1064.
Robinson, W. J., gonorrhea in women, 634; prostatic atrophy and mumps, 404.
Rodents, bacterial disease of, 527.
Romeo, P., the Romeo three-bladed uterine curette, 103.
Rosanoff, A. J., a program of psychiatric progress, 299.
Rostenberg, A., what the general practitioner should know about the therapy of syphilis, 344.
Rubella, blood findings in, 783.
Rueck, G. A., a case of a round cell sarcoma of the meninges of the brain, 730; the diagnosis of typhoid fever, 671; transfusion of blood by gravitation method, 354.
Rumination as result of accident, 453.

S

Salmon, T. W., outlines of a State policy for dealing with mental deficiency, 665.
Salt fever in infants, 657.
Salvarsan, 689; anuria, 997; in pernicious anemia, 579; in scarlatina, 66; in syphilis of the nervous system, 251; retention of, 648; serum injected intraspinally, 1062.
Sanatorium, patient, the discharged, 996; State, 846.
Sanity, opinion evidence as to, 902.
Sarcoma autolysates and the development of sarcoma, 966, inoperable, Coley toxins in, 492; of meninges of brain, 730.
Savini, C., contribution to the study of chronic appendicitis, 557.
Scalp and hair diseases treated with quartz lamp, 773.
Scapulæ, flexed, surgical treatment of, 1036.
Scarlet fever, acute pemphigus complicating, 598; and diphtheria as social plagues, 915; and salvarsan, 66; gonococcus septicemia following, 293; hemorrhages in, 400; in the aged, 94; irrigations of throat in, 924; meningeal reactions of, 114; milk borne, 347; therapy of, 484; treatment of, 828.
Schamberg's disease, 378.
Schapiro, M., report of a case of rupture of the prostatic urethra, 776.
Schick reaction, 417, 702, 752.
Schlapp, M. G., the mentally defective as cases in the courts of New York City, 338.
Schlesinger, M. F., reasons for discrepancies in reports on the Wassermann reaction, from a technician's side, 61.
Schloessingk, K. E., scapolamine-narcophine anesthesia (twilight sleep) in labor, 599.
Schools, auxiliary classes in, 572; medical inspection of, 20; open-air versus open-window classes in, 36.
Schoonmaker, H., the clinical significance of auricular fibrillation, 505.
Sciatica, and appendicitis, 364; epidural injection treatment of, 213; perineural infiltration in treatment of, 211.
Scleroderma, with contractions, 248.
Scoliosis, congenital, 240.
Scopolamine-morphine-cocaine anesthesia in surgery, 1078; morphine seminarcosis, 953; morphine treatment in labor, 953; narcophine anesthesia in labor, 599; see also anesthesia and twilight sleep.
Secretions, internal, in dysentery, 495.
Seff, I., novocain-suprarenin infiltration-conduction analgesia in the repair of inguinal herniæ, 896.
Selection, medical, 582, 621; medical, general factors determining, 916, 1082.
Seminal vesicles, drainage of, 407; surgery of, 134.
Senility, paraplegia of, 169, 205.
Serbia, Red Cross surgeon in, diary of, 284.
Serum, autogenous, treatment of psoriasis, 31; dried immune, effect of heat on, 316; for intraspinal use,

preservation of, 190; heterogenic, 262; mercurialized, treatment of syphilis, 30.
Services, medical, action for, 988; as a preferred claim, 355; authority of employer's agents to contract for, 1028; contract for terminated by death, 398; employer's liability for, 902; statement of claim for, 355; to children, when the parents are divorced, 944; to employees, 733; to wife, 148.
Sex, gland, implantation, 616; single standard of, and the medical profession, 735.
Sexual life and warfare, 324, 365, 409, 423.
Sharpe, N., gluteal myositis—a condition not heretofore described, 1064.
Shock, nervous, in war, 954; shell, 408.
Shoulder disability, applying abduction in, 15; stiff and painful, 498.
Sickness insurance, relation of, to public health, 622.
Sinusitis, frontal, 126.
Skin, diseases, autoserum treatment of, 703; diseases, boric acid in, 533; diseases, important group of, 602; diseases, parasitic, complement fixation in, 493; fungous disease of, from woolen underwear, 32; in pregnancy, 19.
Skull, deformity of, 1906; gunshot wounds of, 58, 242; tumors of, 203.
Smith, F. D., permanent enlargement of the contracted pelvic outlet, 569.
Smith, J., catatonic states in manic depressive insanity, 911.
Smallpox, complement fixation in, 74.
Snake bites, treatment of, 743.
Snowblindness in troops, 325.
Society Reports:
American Medical Association: General Session, 1087; House of Delegates, 1084; Section on Diseases of Children, 1090; Section on Practice of Medicine, 1089; Section on Surgery, General and Abdominal, 1092.
Association of American Physicians, 1003.
Clinical Congress for the Study of Local, Spinal and Scopolamine-Morphine Anesthesia, 288.
Medical Association of the Greater City of New York, 373, 501, 961, 1044.
Medical Society of the County of New York, 247, 498, 583, 918.
Medical Society of the State of New York: General Session, 750; House of Delegates, 747; Section on Medicine, 797, 876; Section on Pediatrics, 751, 831, 835; Section on Surgery, 753, 792; Section on Syphilis, 835.
New York Academy of Medicine, 162, 245, 370, 457, 668, 837, 959; Section on Medicine, 17, 266, 539, 624, 710; Section on Neurology and Psychiatry, 248, 370; Section on Obstetrics and Gynecology, 118, 164, 586; Section on Orthopedic Surgery, 668; Section on Otology, 36; Section on Pediatrics, 416; Section on Surgery, 77, 120, 331, 707.
New York Neurological Society, 80, 248, 412.
New York Psychiatrical Society, 334, 670.
Pathological Society of Philadelphia, 83, 419, 672, 1007, 1046.
Philadelphia County Medical Society, 291.
Philadelphia Pediatric Society, 626, 923.
Philadelphia Neurological Society, 290, 543, 963.
Practitioners' Society of New York, 203, 754, 824.
Sodium chloride, excretion of, 624.
Soldiers, hygiene of, 536.
Solomon, M., critical review of the conception of sexuality assumed by the Freudian school, 507.
Speech, elementary sounds, 806.
Sphygmomanometer in life insurance, 75.
Spielberg, W., a tube for use in phlebotomy, 313.
Spinal cord, disease of, pain and tenderness in, and its surgical treatment, 413; ependymomata of, 290; lesions and visual symptoms, 924.
Spinal column, foramina of, 176; lateral curvature of, neglected, 439; lateral curvature of, treated by new brace, 794; tuberculosis of, bone transplantation in, 283; typhoid, 955.
Spleen, removal of, see splenectomy.
Splenectomy, 824; for pernicious anemia, 230, 576.
Springs, American thermal, 722; therapeutic, of France and the German physician, 1039.
Sputum, albumin reaction of, 429; lymphocytic picture and albumin content of, 71.
Squirrels, ground, 106.
Stammering, the pathology of, 963.
Stark, H. S., the physician's interest in the workmen's compensation law, 567.
Starkey, F. R., intestinal stasis, 51.
Starr, M. A., senile paraplegia, 169.
State Board Examination Questions and Answers: Georgia, 1058; New Jersey, 711, 880, 963; New York, 39, 123, 208, 291; Maryland, 376, 459, 543, 627.
Statistics Mortality, betterment of, 496.
Status lymphaticus, 285.
Stein, J. B., Drs. Marequis and Boudewyns of Antwerp, and some of their interests during and after the forty and thirty years' wars, 975.
Steiner, S., the latest investigations regarding syphilis and salvarsan, 689.
Sterility caused by *x*-ray, 776.
Stern, S., deep Roentgen therapy and its application in the treatment of malignant growths, 221.
Stomach and duodenum, benign lesions of, late results of, 1092; and duodenum, ulcer of, in infancy and childhood, 989; and jejunum, ulcers of, 1092; cancer of, 407; cancer of, diagnosis and treatment, 848; cancer of, early recognition of, 796; cancer of, familial, 837; cancer of, in a boy of nine, 828; carcinoma of, 1007; contents, analysis, 826; contents, mucous membrane in, 1078; chronic dilatation of, 718; disorder caused by obstruction of ileum, 795; passage of liquors from, 617; resection of, after fasting, 672; secretion and bitter tonics, 12; symptoms and surgical intervention, 796; syphilis of, 421; ulcer and cancer of, relation between, 1092; ulcer of, 826; ulcer of, and focal infection, 797; ulcer of, chronic, 1092; ulcer of, infective localization of streptococci in, 959; ulcer of, etiology of, 817; ulcer of, pathogenesis of, 275; ulcer of, pylorectomy for, 204; ulcer of, treatment of, 913; vertigo, treatment of, 840.
Stomachic for children, 546.
Stools, in infancy, examination of, 1091.
Strauss, I., treatment of sciatica by epidural injection of saline solution, 213.
Streptococcus, peril, 184.
Strachstein, A., two causes of persistency and incurability of certain affections of the genitourinary tract, 909.
Straw powder as food and fodder, 828.
Street conditions, 952.
Streptococci, elective localization of, 959.
Stransky, M., neglected lateral curvature, 430.
Study, economy in, 934.
Suicide and insomnia, 31.
Suprarenal glands, extract of, and infancy, 42; in delirium tremens, 31; in shock, 404.
Surgeons, trials and principles of, 701.
Surgery, a curiosity of, 534; bone, misapplied, 669; in war, 74; orthopedic treatment of, 668; railway, first aid in, 259.
Swanberg, H., the intervertebral foramina in man, 176.
Symmetromania, 714.
Synnott, M. J., the intraspinal treatment of syphilis of the central nervous system, 472.
Syphilis, 689; a new reaction in, 407; as cause of feeblemindedness, 836; and yaws, 151; cerebrospinal, mercurialized serum treatment of, 30; conjugal, 850; heart in, 879; hereditary, later manifestations, 835; involving nervous system in its primary stage, 579; involving thalamus, 83; Landau's color reaction in, 825, 1079; masked cure of, 780; menace of, 659; of arteries and veins, 877; of cranium and spine, 43; of central nervous system, intraspinal treatment of, 472; of nervous system treated with salvarsan, 251; of stomach, 421; parenchymatous, 365; pathology of, 876; psychical aspect of, 111; recent studies of, 1051; therapy of, 344; visceral, 242; Wassermann reaction, and life insurance, 327; *x*-ray diagnosis of, bone lesions in, 836.

T

Tabes, ataxia of, 701; crises of, 543; gastric and pain crises in, 824; treatment of pains of, 546, 840, 966.
Taboparesis, syphilis contagium in, 242.
Teeth, osteitis about, in relation to arthritis, 426.
Telephone attachment in surgery, 324.
Temperature, subnormal, in tuberculosis, 110.
Tendon reflex threshold, instruments for measuring, 83.
Testimony of physician, scope of, 442.
Tetanus, 69, 242, 113, 158, 620, and antitetanic serum, 870; carbolic acid treatment of, 112; colloidal iodine and serum treatment in, 533; diagnosis and treatment, 457; in European war, 105, in war, 743, 744; in wounded soldiers, 325; indirect mortality from, 401; lateralis, 955; magnesium sulphate treatment of, 114, 741, 1006; modification of Baccilli's method in, 504; neonatorum, 1073; odd aspects of, 294; prophylaxis of, 200, 534; serum intoxication, 285; treated by light, 661; treated with antitoxin given intraspinally, 1005; treated with flooding with antitoxin, 232; treatment of, 32, 33, 326, 535; 580, treatment of, in Germany, 238.
Thalamus, lesion of, 543; syphilis involving, 83.
Thermometer, homograde, 25, 859.
Thomas, G. E., results of Wassermann and luetin tests at the naval prison, Portsmouth, N. H., 523.
Therapy, psychic, 680.
Thorax, and abdomen, acute diseases of, 789; tumors within, diagnosed by exploratory puncture, 711.
Thorium-X, biological action of, 990.
Throat, streptococcic, 809.
Thromboangeitis obliterans, arteriovenous anastomosis for, 332.
Thrombopenia, essential, 1039.
Thrombosis, extravascular, 734.
Thymus, hypertrophy of, and thymus death, 924; roentgenization of, in Graves' disease, 788.
Thyroid, diseases, diagnosis and surgical treatment of, 374; excessive activity of, 877, 878; functions and thyrogenic disease, 999; in insanity, 1035; intoxication from, and high blood pressure, 1007; iodine containing compound of, 1007; pathology and iodine compounds of, 1007.
Tibiæ, deformities of, 995.
Tic, convulsif, treated with calcium chloride, 73; neurosis, 171.
Tissue extract as a hemostatic, 788.
a hemostatic, 787.
Tongue, excision for carcinoma, 120; tuberculosis of, 71.
Tonsil and adenoid operations, appliance for suction and pressure in, 732.
Tonsils, and tuberculous glands, 155; infections of, 954, 998.
Toothache drops, 623.
Towel, sanitary study of, 672.
Trachoma increasing, 190.
Transfusion, 162; by gravitation method, 354; cannula and needle for, 482; clinical studies in, 1004; in treatment of pernicious anemia, 163; in treatment of purpura, chronic sepsis, 410; in treatment of splenomegalic anemia, 331; new method of, 141; of citrated blood, 448; of citrated blood, simple syringe method for, 440; simple method of, 707; simplified method of, 195.
Transplantation of organs and ferments of blood, 79.
Trichomoniasis of intestine, 824.
Trypanosomes, transmission of, 1046.
Tubercle bacillus, effect of daylight and drying on, 241; in urine, 533.
Tuberculin, administration and graduated labor, 954; in pulmonary tuberculosis, 161; skin reactions in children, 321; therapy, 306.
Tuberculosis, and contraception, 1077; and gout, 570; and poverty, 66; and warfare, 285; calcium and parathyroid medication in, 672; chemotherapy of, 694; experimental role of lymphocytes in, 626; fight against, 356; immunization against, 127; in children, treatment of, 924; in lepers, 657; infection with, among children of New York tenements, 417; localized, treatment of, 611; nasal, 147; of hip, 953; of larynx, treatment of, 814; of tongue, 71; of migrants, 1044; prevention and treatment of, 227; preventorium for children, 947; prophylactic inoculation, against, 743; psychology of the victim of, 310; self-drugging in, 117; small heart in, 741; spread of, 232; subnormal temperature in, 110; surgical, Rollier treatment of, 834; traumatism in relation to, 1038.
Tumors, chemotherapy of, 741; role of worms and protozoa in etiology of, 490; tissue of, cultivation of, 491.
Twilight sleep, 55, 363, 756; in home, 146; observations on, 715; see also anesthesia and scapolamine.
Typhoid fever, abortion of, 476; abscess formation in, 1038; and paratyphoid fever differentiated, 450; and paratyphoid fever, inoculation against, 408; alcoholic stimulation in, 840; autogenous living vaccines in, 704; crisis in, 30; diagnosis of, on the

field, 191; following antityphoid inoculation, 199; hemorrhage symptoms, 828; in the German army, 662; inoculation against, 111, 405, 872; inoculation against, and the Widal test, 526; mobilization, 150; new therapeutic measures in, 485; sensitized vaccines in, 323; spondylitis of, 955; treatment of intestinal hemorrhage in, 882; with typhoid pneumonia and pulmonary abscess, 539.
Typhus fever, 444, 789, 983; Mexican, 214; prophylaxis and the louse plague, 1080; simulated by meningitis, 612; vaccine, 655.
Tyrosine and the origin of living organisms, 1034.

U

Ulcers, skin grafts in ambulatory treatment of, 364; tuberculous, new treatment for, 252.
Umbilical cord, non-ligation of, 581.
Unfit, meaning of, 135.
Urea, excretion of, 624.
Uremia, 915; conceptions of, 863; toxic substance from blood in, 1006.
Ureter and kidneys, anomalies of, 164.
Urethra, caruncle of, 1035; clamp for, for postoperative urinary incontinence, 814; prostatic, rupture of, 776.
Urethritis, non-bacterial, 607.
Uricometer, clinical, 542.
Urine, examination in life insurance, 455; in old age, 323; nervous retention of, 1; ureteory mechanism of, 104; tubercle bacilli in, 533.
Urticaria, a lotion for, 630; a powder for, 252.
Uterus, adenocarcinoma of, 586; anteposed, treatment of, 155; bicornis unicollis, pregnant, 168; bleeding from, pituitary extract in, 226; bleeding from, and adenosclerosis, 913; enormous tumor of, 62; fibroids of, menorrhagia, and radium, 379; physiology and pharmacology of, 119; postpartum retrodisplacement of, 825; traumatic displacement of, 587.

V

Vaccination, antagonism against, in disguise, 231; compulsory, of school children, 777.
Vaccine, mixed typhoid, partyphoid A, and paratyphoid B, 871; treated with ether, 326; treatment of pneumonia, 69; treatment of typhoid fever, 860; typhus, 654; virus, pure, propagation of, 717.
Vaccines, and mouth infection, 91; autogenous, in pneumonia, 753; autogenous living, in typhoid fever, 704; in pertussis, 952; in streptococcic sore throat, 809; increasing efficiency of, 436; sensitized, in typhoid fever, 323.
Vagotonia, case of, 412.
Valve, mitral, rupture of, 618.
Varicella, with two eruptive stages, 683.
Varicocele operation, a new incision for, 355.
Veins, distention of, for intravenous injections, 1030; syphilis of, 877.
Venereal disease, and prostitution, 363; in the army, 413; in war, 736; prevalence of, 653.
Venoms, animal, 1073.
Vertebral column, see spinal column.
Vertigo, gastric, treatment of, 840
Verumontanum, radial removal of, 112.
Vesaliana, 247.
Vesalius, and the spirit of his time, 245; anatomical illustrations before and after, 246; portraits of, 246; quadricentennial in Berlin, 275; the spirit of, 110.
Vision, color, and color blindness, 112; defect of, in recruits, 999.
Vitamine theory, extension of, 778.
Voice troubles in singers, 757.
Volkmann's contracture and fractures about elbow, 652.
Vomiting, in infants, treatment, 882.
Von der Osten, a logical classification of medical literature, 940.
Von Mayer and the conservation of energy, 274.
Von Pirquet test, 57; scarifier for, 650.
Von Rueck, S. H., prophylactic and therapeutic immunization against tuberculosis; its possibilities and limitations, 137.
Von Wedekind, L. L., the general use of distilled water, thereby securing the elimination of toxins leading to arterial changes and the elimination of water-borne disease, 59.
Voorhees, I. W., some common voice troubles in singers, 757.

W

War, amputations in, 157; and anthrax, 158; and artificial solar therapeutics, 200; and cardiovascular disease, 200; and disease, 279; and food, 827; and forensic medicine, 158; and sexual life, 324, 365, 409, 453; and typhoid fever, 150; as studied by German surgeon through hostile and neutral medical journals, 790; brides, illegitimacy and legalized abortion, 816; feeding of people during, 159; hospitals, letters from, 158; medicine experience in England and France, 620; injuries from cold in, 113; memorable field day in, 294; neurology, 113; notes, 153; preparation of American profession for, 904; psychology of, 111; psychopathology of, 110; surgical experiences in, 74; to deaden sound of, 462; wounds of, see wounds.
Wassermann reaction, and life insurance, 201, 791; and luetin reaction at naval prison, 523; clinical features of, 493; contradictory findings in, 734; discrepancies in, 61; in ophthalmology, 452; syphilis and life insurance, 327.
Watch, wrist, dangers of, in warfare, 462.
Water, chemical disinfection of, 274; distilled, general use of, 59; meal, clinical use of, 1077; rapid sterilization of, 546; supplies, hypochlorite treatment of, 653.
Waters, B. H., an experimental study of a new remedial agent and of its effects in pulmonary tuberculosis, 263.
Watkins, V. E., history of a case of Jacksonian epilepsy, 1068.
Weight excessive, in life insurance, 75.
Weil, R., medical news in the "New York Times," 403.
Weinstein, J., a clinical report of the successful use of emetine in the control of hemorrhage following nasopharyngeal operations, 102; deafness following mumps, 373.
White, P. G., the treatment of pyorrhea alveolaris and its secondary systemic infections by deep muscular injections of mercury, 424.
Whitman, A., two months' service in a small hospital, 480.
Whooping cough, see pertussis.
Widal test, and antityphoid inoculation, 526.
Wight, J. S., a new method of increasing the efficiency of vaccines and of producing antisera, 436.
Wile, I. S., chronic diseases of the heart, kidneys, and arteries from the standpoint of etiology, prevalence, mortality, and prevention; a detailed plan for public education in a large city looking toward the prevention and control of these diseases, 926.
Williams, B. G. R., some peculiar mould diseases, 312.
Williams, C. M., recent advances in dermatology and syphilography, 1051.
Williams, L. R., a warning, 656.
Williams, T. A., the treatment of epilepsy from metabolic disturbances in adolescence, 772.
Wolbarst, A. L., a urethral clamp for postoperative urinary incontinence, devised and made by a patient for his personal use, 814.
Woman, suffrage and biological differences in the sexes, 861; diseases of, occupational factor in, 97.
Words, use of, 1089.
Wounds, antiseptic pastes in treatment of, 526; antiseptic treatment of, 579, 615; bayonet, of lungs, 1000; caused by indirect projectiles, 73; firearm, 237; from airman's dart, 238, 535; from French projectiles, 21; from indirect projectiles, 284; gangrenous, treated with artificial gastric juice, 445; gunshot, 793; gunshot and shell, 826; gunshot, of abdomen, 158; gunshot, of head, 452; gunshot, of skull, 581; in war, 530, 867, 912; in war, treatment of, 754, 914; infected, open treatment of, 997; infected, treated by iodized carbon, 613; infections of, 742, 783, 788, 826, 871; inflammation of, treatment of, 1039; permanganates in, 72; of chest, 1000; of lung, 409; of nerves, 704; self-contaminated, 579.
Wounded, exposition on care of, 490; psychology of, 744.
Wright, B. L., the treatment of pyorrhea alveolaris and its secondary systemic infections by deep muscular injections of mercury, 424.

X

X-ray, and military surgery, 361; application to thymus in Graves' disease, 788; diagnosis of bone lesions in syphilis, 836; examination of alimentary canal, standard meal for, 867; filtered, in treatment of eczema, 1040; in deep-seated cancer, 825; localization of foreign bodies, 158; pictures, demonstration of, 961; prevention of nasal disorders, 532; sterility caused by, 776; therapy, deep, in treatment of cancer, 221; treatment of cancer, 145; treatment of eczema, 523.

Y

Yaws and syphilis, 151.

Z

Zingher, A., a simple syringe method for the transfusion of citrated blood in children, 440.

BINDING LIST PART 1 1924

R
11
M433
v. 87

Medical record

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY